Valley Water

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Anderson Dam Seismic Retrofit Project

Final Environmental Impact Report

SCH # 2013082052 **VOL #1** **Final EIR - Part 1**

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Appendices

Note: Appendices are not included in underline and ~~strikeout~~ to improve readability.

Appendix A. Best Management Practices, Santa Clara Valley Habitat Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures
Appendix B. Notice of Preparation/Initial Study and Scoping Report
Appendix C. Stakeholder Engagement
Appendix D. ADSRP AMP Detailed Tables
Appendix E. Air Quality and Greenhouse Gas , and Health Risk Assessment Technical Report
Appendix F. Biological Resources - Fisheries Technical Appendix
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Appendix H. Cultural Resources Technical Appendix (Confidential)
Appendix I. Historic Resources Technical Appendix
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Appendix K. Hydrology Technical Appendix
Appendix L. Water Quality Technical Memorandum
Appendix M. Noise and Vibration Technical Memorandum
Appendix N. Recreation Appendix
Appendix O. Transportation Technical Memorandum
Appendix P. Paleontological Resources Impact Assessment

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Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
$\mu g/m^3$	micrograms per cubic meter
µS	microSiemens
µS/cm	microSiemens per centimeter
A	
AAT	access adit tunnel
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACB	articulated concrete block
ADA	Americans with Disabilities Act
ADTP	Anderson Dam Tunnel Project
AERMOD	air dispersion model
AF	acre-feet
AFY	acre-feet per year
AMEC	AMEC Geomatrix, Inc.
AMM	Avoidance and Minimization Measure
AMP	Adaptive Management Program
AMT	Adaptive Management Team
APE	Area of Potential Effects
APHIS	Animal and Plant Health Inspection Service
APN	Assessor's Parcel Number
ARB	Air Resources Board
AR6 Synthesis Report	*Sixth Assessment Report*
ARME	Area of Routine Maintenance Effects
ASF	age-specific factors
ATCM	Airborne Toxic Control Measures
ATS	Active Treatment System
B	
BP	before present
BAAQMD	Bay Area Air Quality Management District
BGEPA	Bald and Golden Eagle Protection Act
bgs	below ground surface
BHBA	Basalt Hill Borrow Area
BMI	benthic macroinvertebrate
BMP	best management practice
BTU	British thermal unit

C

C&D	construction and demolition
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CAC	County Agricultural Commissioners
cal BP	calibrated before present
CAL FIRE	California Department of Forestry and Fire Protection
CalGreen	California Green Building Standards Code
Cal-IPC	California Invasive Plant Council
Cal OES	California Governor’s Office of Emergency Services
Cal/OSHA	California Department of Industrial Relations, Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CAR	Climate Action Reserve
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CASGEM	California Statewide Groundwater Elevation Monitoring
CBC	California Building Standards Code
CBE	California State Board of Equalization
CBFWA	Columbia Basin Fish and Wildlife Authority
CCAP	Climate Change Action Plan
CCC	Central California Coast (steelhead)
CCCC	*California’s Fourth Climate Change Assessment*
CCFMMP	Coyote Creek Flood Management Measures Project
CCFPP	Coyote Creek Flood Protection Project
CCLD	Community Care Licensing Division
CCR	California Code of Regulations
CCTS	Central California Taxonomic System
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDL	Coyote Discharge Line
CDOC	California Department of Conservation
CDPR	California Department of Pesticide Regulation
CEC	California Energy Commission
CEFWG	California Environmental Flows Working Group
CEQA	California Environmental Quality Act

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (also known as the Superfund Act)
CERT	Community Emergency Response Team
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CIMWA	California Integrated Waste Management Act
CLSM	controlled low-strength material
cm	centimeter
CM	Conservation Measure (only used for Ogier Ponds and Coyote Percolation Dam)
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COLD	Cold Freshwater Habitat
COMM	Commercial and Sport Fishing
County	Santa Clara County
CPUC	California Public Utility Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CU	control units
CVP	Central Valley Project
CWA	Clean Water Act
CWMZ	cold water management zone
CWP	Clean Water Program
CWPP	Community Wildfire Protection Plan
cy	cubic yard(s)

D

D2SI	Division of Dam Safety and Inspections
dB	decibel
dBA	A-weighted decibel
DDT	dichloro-diphenyl-trichloroethane
DHAC	Division of Hydropower Administration and Compliance
District Act	Santa Clara Valley Water District Act
DMP	Dam Maintenance Program

DO	dissolved oxygen
DPM	diesel particulate matter
DPR	California Department of Parks and Recreation
DPS	distinct population segment
DSOD	California Department of Water Resources, Division of Safety of Dams
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources

E

EAP	Emergency Action Plan
eDNA	environmental DNA
EFH	essential fish habitat
EIR	Environmental Impact Report
elev.	Elevation (in feet above sea level)
EMFAC	Emission FACtor model
EO	Executive Order
EOP	Emergency Operations Plan
EP	exceedance probability
ESA	Endangered Species Act
ESL	environmental screening level
EST	Estuarine Habitat
ESU	evolutionary significant unit
E-TWG	Executive Fisheries Technical Working Group
EV	electric vehicle
EWG	Executive Working Group

F

FAHCE	Fish and Aquatic Habitat Collaborative Effort
FAHCE *Settlement Agreement*	*Settlement Agreement Regarding Water Rights of the Santa Clara Valley Water District on Coyote, Guadalupe and Stevens Creeks*
FCAA	federal Clean Air Act
FCWMZ	functional cold water management zone
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHRP	Fish Habitat Restoration Plan
FHWA	Federal Highway Administration
FHSZ	Fire Hazard Severity Zone
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
Fish/Frog TWG	Fish and Frog Technical Working Group
FL	fork length
FMP	Fishery Management Plan

FMMP	Farmland Mapping and Monitoring Program
FOCP	Federal Energy Regulatory Commission Order Compliance Project
FPA	Federal Power Act
FTA	Federal Transit Administration
ft/s	feet per second
FY	fiscal year

G

g	gravity at 9.80 meters per second squared
GCRCD	Guadalupe-Coyote Resource Conservation District
GDE	groundwater dependent ecosystem
GIS	geographic information system
GHG	greenhouse gas
gpm	gallons per minute
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan
GWh	gigawatt-hour
GWMP	Groundwater Management Plan

H

H_2S	hydrogen sulfide
HAP	hazardous air pollutant
HCM	Habitat Criteria Mapping
HCP	Habitat Conservation Plan
HFHSZ	High Fire Hazard Severity Zone
HI	hazard index
HLOW	high-level outlet works
HMMP	Habitat Mitigation and Monitoring Plan
HMTA	Hazardous Materials Transportation Act
HOV	high-occupancy vehicle
hp	horsepower
HRA	health risk assessment
HSLA	Hazardous Substance Liability Assessment
HSWA	Hazardous and Solid Waste Amendment
Hz	Hertz

I

I-280	Interstate 280
IBC	International Building Code
IEPR	Integrated Energy Policy Report
IND	industrial service supply
INRMP	Integrated Natural Resources Management Plan

in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
IRRM	Interim Risk Reduction Measure
IS	Initial Study
ISEE	International Society of Explosives Engineers

J

JRP	JRP Historical

K

kVA	kilovolt-amp
kV	kilovolt
kW	Kilowatt
kWh	kilowatt-hour
kW/m^2	kilowatt per square meter

L

LCFS	Low Carbon Fuel Standard
L_{dn} or DNL	energy average of the A-weighted sound levels occurring during a 24-hour period
LEED	Leadership in Energy and Environmental Design
L_{eq}	equivalent steady-state sound level
LEV	low-emissions vehicle
LLOW	low-level outlet works
L_{max}	maximum sound level
L_{min}	minimum sound level
LOS	Level of Service
LRA	Local Responsibility Area
LSAA	Lake and Streambed Alteration Agreement
LUST	leaking underground storage tank

M

m^3	cubic meter
mm	millimeter
M	magnitude
Ma	mega annum
MBTA	Migratory Bird Treaty Act
MCE	maximum credible earthquake
MCL	maximum contaminant level
MDAQMD	Mojave Desert Air Quality Management District
MDT	mean daily temperature
MEI	maximum exposed individual
mg/L	milligrams per liter
MGD	million gallons per day

MGY	million gallons per year
MHHW	mean higher-high water
MIGR	Fish migration
MLD	Most Likely Descendant
MMBTU	million British thermal unit
MMT CO_2e	million metric tons of carbon dioxide equivalents
mpg	miles per gallon
mph	miles per hour
MROSD	Midpeninsula Regional Open Space District
MT	metric tons
MTC	Metropolitan Transportation Commission
MTBE	methyl tertiary butyl ether
MUTCD	California Manual of Uniform Traffic Control Devices
MW	Megawatt
MWAT	maximum weekly average temperature

N

N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NACTO	National Association of City Transportation Officials
NAV	Navigation
NCCP	Natural Community Conservation Plan
NCCPA	Natural Community Conservation Plan Act
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NGO	nongovernmental organization
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NIST	National Institute of Standards and Technology
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO_2	nitrogen dioxide
NOA	naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOP	Notice of Preparation
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act of 1977
NRCS	Natural Resources Conservation Service

NRE	Natural Resources and Environment
NRHP	National Register of Historic Places
NRMP	Natural Resource Management Plan
NSF	National Science Foundation
NTU	nephelometric turbidity unit
NWIC	Northwest Information Center

O

O_2	atmospheric oxygen
OBD	on-board diagnostic
OEHHA	California Office of Environmental Health Hazard Assessment
OES	Office of Emergency Management
OHWM	ordinary high-water mark
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration

P

Pb	lead
PCB	polychlorinated biphenyl
PERP	Statewide Portable Equipment Registration Program
PFMC	Pacific Fisheries Management Council
PFYC	Potential Fossil Yield Classification
PG&E	Pacific Gas and Electric Company
PGA	peak ground acceleration
PGBP	Packwood Gravel Borrow Pit
PHEV	plug-in hybrid electric vehicle
PIT	Passive Integrative Transponder
PL	Public Law
PM	particulate matter
PM_{10}	particulate matter of aerodynamic radius of 10 micrometers or less
$PM_{2.5}$	particulate matter of aerodynamic radius of 10 micrometers or less
PMF	probable maximum flood
PMP	Pipeline Maintenance Program
POI	point of interest
PPE	personal protective equipment
ppm	parts per million
ppt	parts per thousand
PPV	peak particle velocity
PRC	Public Resources Code
Project, or ADSRP	Anderson Dam Seismic Retrofit Project
PWRPA	Power and Water Resources Pooling Authority

PWTP	Penitencia Water Treatment Plant

R

RARE	Rare and endangered species
RAW	Removal Action Workplan
RCRA	Resource Conservation and Recovery Act of 1976
REC	recognized environmental condition
Refuge	Don Edwards San Francisco Bay National Wildlife Refuge
RGP	Regional General Permit
RIS	reservoir-induced seismicity
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
RSL	risk-based screening level
RV	recreational vehicle
RWQCB	Regional Water Quality Control Board

S

SAFE	Safer Affordable Fuel Efficient
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCBWMI	Santa Clara Basin Watershed Management Initiative
SCC	Santa Clara Conduit
SCCIWMP	Santa Clara County Integrated Waste Management Plan
SCCPRD	Santa Clara County Parks and Recreation Department
SCH	State Clearinghouse
SCRWA	South County Regional Wastewater Authority
SCVHA	Santa Clara Valley Habitat Agency
SCVOSA	Santa Clara Valley Open Space Authority
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SCU	Santa Clara Unit
SDWA	Safe Drinking Water Act
SEV	severity of ill effects
SFBAAB	San Francisco Bay Area Air Basin
SFEI	San Francisco Estuary Institute
SFPUC	San Francisco Public Utilities Commission
SGMA	Sustainable Groundwater Management Act
SHELL	shellfish harvesting
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SLM	Sound Level Measurement
SMARA	Surface Mining and Reclamation Act of 1975

SMP	Valley Water Stream Maintenance Program
SO_2	sulfur dioxide
SOI	Sphere of Influence
SORE	Small Off-Road Engine
south bay	south region of the San Francisco Bay
SO_X	Sulfur oxides
SPWN	Fish Spawning
SRA	State Responsibility Area
SSC	Species of Special Concern
SSCFPD	South Santa Clara Fire Protection District
SSID	Stressor/Source Identification
STU	surface transect units
SVCE	Silicon Valley Clean Energy
SVP	Society of Vertebrate Paleontology
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T

TAC	toxic air contaminant
TCP	traditional cultural places
TCR	Tribal Cultural Resources
TDM	travel demand management
TDR	transfer of development rights
TDS	total dissolved solids
TMDL	total maximum daily load
TMP	Transportation Management Plan
TNTe	Trinitrotoluene equivalent
TOG	total organic gas
TSS	total suspended solids
TWG	Technical Work Group

U

UCMP	University of California Museum of Paleontology
U.S.	United States of America
US 101	U.S. Highway 101
USACE	U.S. Army Corps of Engineers
USBM	U.S. Bureau of Mines
USC	U.S. Code
USDOT	U.S. Department of Transportation
USEIA	U.S. Energy Information Administration
USEPA	U.S. Environmental Protection Agency

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UWMP	Urban Water Management Plan

V

Valley Water	Santa Clara Valley Water District
VdB	vibration velocity in decibels
VHFHSZ	Very High Fire Hazard Severity Zone
VHP	Santa Clara Valley Habitat Plan
VMT	vehicle miles traveled
VOC	volatile organic compound
VTA	Santa Clara Valley Transportation Authority
VTP	Valley Transportation Plan

W

WARM	Warm Freshwater Habitat
WEAP	Water Evaluation and Planning
WILD	Wildlife Habitat
WQO	water quality objective
WSCP	Water Shortage Contingency Plan
WSMP	Water Supply Master Plan
WUI	wildland urban interface
WY	water year

Z

ZEV	zero-emission vehicle

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Chapter ES
Executive Summary

The Santa Clara Valley Water District (Valley Water) is proposing the Anderson Dam Seismic Retrofit Project (Project, or ADSRP) at Anderson Reservoir along Coyote Creek in Santa Clara County, California. The Project involves retrofitting and upgrading Anderson Dam and its associated facilities to meet Federal Energy Regulatory Commission (FERC), California Department of Water Resources, Division of Safety of Dams (DSOD), and Santa Clara Valley Water District (Valley Water) public safety requirements. The Project also includes decommissioning the hydroelectric facility at the dam, implementing Conservation Measures, and continuing to operate and maintain the dam once the retrofit has been completed.

ES.1 Purpose and Contents of the EIR

Valley Water is the lead agency responsible for compliance with the California Environmental Quality Act (CEQA) for environmental review of the Project proposed by Valley Water. CEQA requires the preparation of an Environmental Impact Report (EIR) when a project could significantly affect the physical environment. In the 2013 Initial Study prepared by Valley Water, it was determined that the Project could potentially cause significant environmental impacts and, therefore, that preparation of an EIR was required for the Project to comply with CEQA.

Valley Water has prepared this Final EIR to provide the Valley Water Board of Directors, the public, and responsible and trustee agencies reviewing this Project with information about the physical effects on the local and regional environment associated with implementation of the Project. This EIR was prepared in compliance with CEQA (Public Resources Code Section 21000 et seq.) and the CEQA Guidelines (14 California Code of Regulations Sections 15000 et seq.). This EIR describes the Project proposed by Valley Water. The document then characterizes the Project's environmental setting, discloses the range of environmental impacts of the Project, and identifies mitigation measures to avoid and/or reduce significant environmental impacts, where feasible. Also, as required under CEQA, it describes and evaluates potentially feasible alternatives to the Project that could avoid or reduce significant impacts while still meeting most, if not all, of the Project's objectives. The EIR also addresses adverse cumulative impacts and determines whether the Project or alternatives could make a substantial contribution.

The revised Draft EIR—including new comment response chapters (Chapters 7 and 8) with public comments and responses, as well as technical appendices, some of which have been revised — constitutes the Final EIR for the Project, consistent with *CEQA Guidelines* requirements. The Final EIR is an informational document prepared by the lead agency that must be considered by decision makers before approving a proposed project.

The Final EIR integrates the Draft EIR released on September 1, 2023, and the Partially Recirculated Draft EIR released on August 5, 2024. The following types of further revisions have been made to the Draft EIR and Partially Recirculated Draft EIR text. These are shown in underline and ~~strikeout~~ format.

- Minor revisions to the Project description, impact analyses, and alternatives to respond to Draft EIR and Partially Recirculated Draft EIR comments, and input from regulatory agencies
- Valley Water-initiated minor changes to the Project description, impact analyses, and alternatives
- Other minor Valley Water-initiated corrections, updates, clarifications and amplifications

See Section ES.11.5 for more details on the changes incorporated into this Final EIR. The revisions to the Project and alternatives descriptions do not change the fundamental nature or main feature of the Project or alternatives, and none of the revisions to the Draft EIR or Recirculated Draft EIR made in the Final EIR constitute significant new information requiring recirculation of the EIR (CEQA Guidelines Section 15088.5).

ES.2 Background

Anderson Dam is classified under FERC guidelines as a "High Hazard Potential" dam due to the potential incremental loss of life should failure occur. This classification is based on dam safety deficiencies associated with seismic shaking, fault offset, flood capacity, and emergency drawdown capabilities that were identified between 2008 and 2016. Deficiencies include:

- The presence of liquefiable materials in the embankment and foundation of the dam that could result in major slumping and failure of the embankment following a future large earthquake
- The presence of conditionally active faults in the foundation that could rupture the existing low-level outlet
- A spillway that has inadequate capacity to safely pass large floods
- Limitations in the dam outlet's capacity to quickly draw down the reservoir during floods or other emergency events

The Project was initiated in 2009, when Valley Water voluntarily established a restriction of the reservoir's water elevation level that was reviewed and accepted by dam safety regulators. Valley Water identified Project activities in coordination with resource agencies and stakeholders beginning in 2009 at the outset of the Project and engaged the public as part of the CEQA process with the release of a Notice of Preparation (NOP) and initiation of public scoping in 2013.

From that time through early 2020, Valley Water prepared Project design plans under the regulatory guidance of DSOD and FERC and consulted informally with environmental regulators regarding required environmental review and permitting documents for the Project. By early 2020, construction of the Project was scheduled to start in the fall of 2022.

In February 2020, FERC determined that Valley Water needed to take additional, immediate measures to further reduce the risk of failure from an earthquake and a maximum probable flood event as much as possible until the Project could be implemented. By order of FERC, Valley Water developed and implemented interim risk reduction measures (IRRM). The IRRMs required, among other things, drawdown of Anderson Reservoir and expedited construction of the Anderson Dam Tunnel Project (ADTP). FERC also directed Valley Water to secure alternative emergency water supplies and to work with FERC staff and federal, State, and local resource agencies to develop Conservation Measures to avoid and minimize environmental impacts of IRRMs.

In response to the FERC IRRM Order, Valley Water developed the FERC-ordered Compliance Project (FOCP) to implement all FERC-directed IRRMs and to identify and implement avoidance and minimization measures (AMM) necessary to address anticipated adverse environmental effects of complying with the FERC IRRM Order. The FOCP is presently underway and projected to be completed in 2026 ~~summer 2025~~. It consists of the following main Project components: drawdown of Anderson Reservoir to deadpool, construction of the Anderson Dam Tunnel along with associated operations and maintenance and measures to secure alternative water supplies and minimize environmental effects.

The Fish and Aquatic Habitat Collaborative Effort (FAHCE) is an existing, long-term program that Valley Water has agreed to implement in coordination with National Marine Fisheries Service (NMFS), California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), and several nongovernmental environmental organizations. The program was developed as the result of a complaint filed by the Guadalupe-Coyote Resource Conservation District in 1996 with the State Water Resources Control Board (SWRCB) alleging that Valley Water operations affected fish and wildlife in violation of State laws. FAHCE seeks to improve aquatic spawning and rearing habitat and fish passage for migration to and from the watersheds of the Coyote and Stevens Creeks and Guadalupe River. The FAHCE *Settlement Agreement* (FAHCE 2003) contains a fish habitat restoration program that details those provisions defined during the FAHCE process. Valley Water has prepared the FAHCE Final Program EIR that covers the implementation of FAHCE for Guadalupe River and Stevens Creek. Appendix A of the EIR includes a Fish Habitat Restoration Plan (FHRP) and its Adaptive Management Program (AMP), which address all components of the FAHCE *Settlement Agreement,* including the long-term adaptive management of Coyote Creek measures (Valley Water 2023b).

Pursuant to the FAHCE *Settlement Agreement*, Valley Water is proposing, ~~as part of the Project,~~ changes to all of its currently held water rights in the Project area. The proposed water rights changes would incorporate Valley Water's implementation of the Coyote Creek-related measures specified in the FAHCE *Settlement Agreement* and included in the FHRP.

Between February 2020 and the time ~~this~~ the Draft EIR was prepared, Valley Water has prepared updated design plans for the Project. With respect to operations, Valley Water proposes to implement the reservoir release rule curves developed pursuant to the FAHCE *Settlement Agreement*. Construction of the Project is currently proposed to start in 2027 ~~early 2026~~.

ES.3 Project Purpose

The purpose of the Project is to seismically retrofit, maintain, and operate Anderson Dam and Reservoir to meet FERC and DSOD safety requirements, thereby allowing Valley Water to maximize water supply and related incidental benefits, while avoiding and minimizing environmental impacts of the implementation of those safety directives and requirements. Without such regulatory compliance, Valley Water would be required to maintain a very low-water level in Anderson Reservoir, which would, in turn, reduce water supplies that would otherwise be available for water supply deliveries to treatment plants, managed groundwater recharge, and maintenance of a local source of emergency water supply. Valley Water would likely have to replace those lost supplies to achieve its water supply and management goals that may result in significant cost increases, to the extent that any alternative resources are available.

ES.3.1 FERC Requirements

Per FERC requirements, the Project addresses seismic deficiencies of the dam, specifically providing a stable dam embankment capable of withstanding the maximum credible earthquakes (MCE) on the Calaveras and Coyote Creek Range Front Faults. In addition to the seismic deficiencies of the dam, the spillway presently lacks the capacity to safely pass the flood flows related to passage of the probable maximum flood (PMF) event. An updated PMF evaluation completed in 2013 (HDR 2013) predicts a peak spillway discharge of 95,800 cubic feet per second (cfs) at a reservoir stage of elevation (elev.) 652.5 feet (in the North American Vertical Datum of 1988 [NAVD 88][1]) during the PMF. The PMF flow exceeds the current spillway capacity by 50 percent and would cause overtopping of the existing dam embankment by several feet. Overtopping of the dam could lead to dam failure. FERC (as well as DSOD) dam safety criteria require that spillways be sized to safely pass PMF flows without overtopping the dam. Consequently, the spillway would be modified and improved, in conjunction with raising of the dam crest, to address this deficiency.

ES.3.2 DSOD Requirements

DSOD requires the new outlet works at Anderson Reservoir to be capable of lowering the reservoir's maximum storage depth by 10 percent within 7 days and draining its full content within 90 days (DSOD 2018 ~~2017~~), even if a fault offset were to occur. DSOD also requires the entire spillway, including the currently unlined portion of the spillway, to be able to contain the PMF, which will require deepening and hardening of the unlined portion in order to mitigate the risk of spillway failure in the event of a PMF (Valley Water 2021a).

ES.4 Project Location

ES.4.1 Regional Area – Coyote Creek Watershed

The Coyote Creek Watershed encompasses an area of over 320 square miles that includes the entire City of Milpitas, portions of San José and Morgan Hill, and unincorporated lands within Santa Clara County. The headwaters of the Coyote Creek watershed are on the east side of the county in the Diablo Range, and Coyote Creek drains into the San Francisco Bay (**Figure ES-1**).

Valley Water owns two water supply reservoirs along Coyote Creek: Anderson and Coyote (**Figure ES-1**). Anderson Dam impounds surface water runoff from 195 square miles of the Coyote Creek Watershed, which includes inflow from several tributaries and releases from Coyote Reservoir, which is approximately 1.5 miles upstream of Anderson Reservoir. Downstream of Anderson Dam, Coyote Creek flows approximately 37.5 miles north-northwest through increasingly dense urban areas before ultimately reaching San Francisco Bay. The

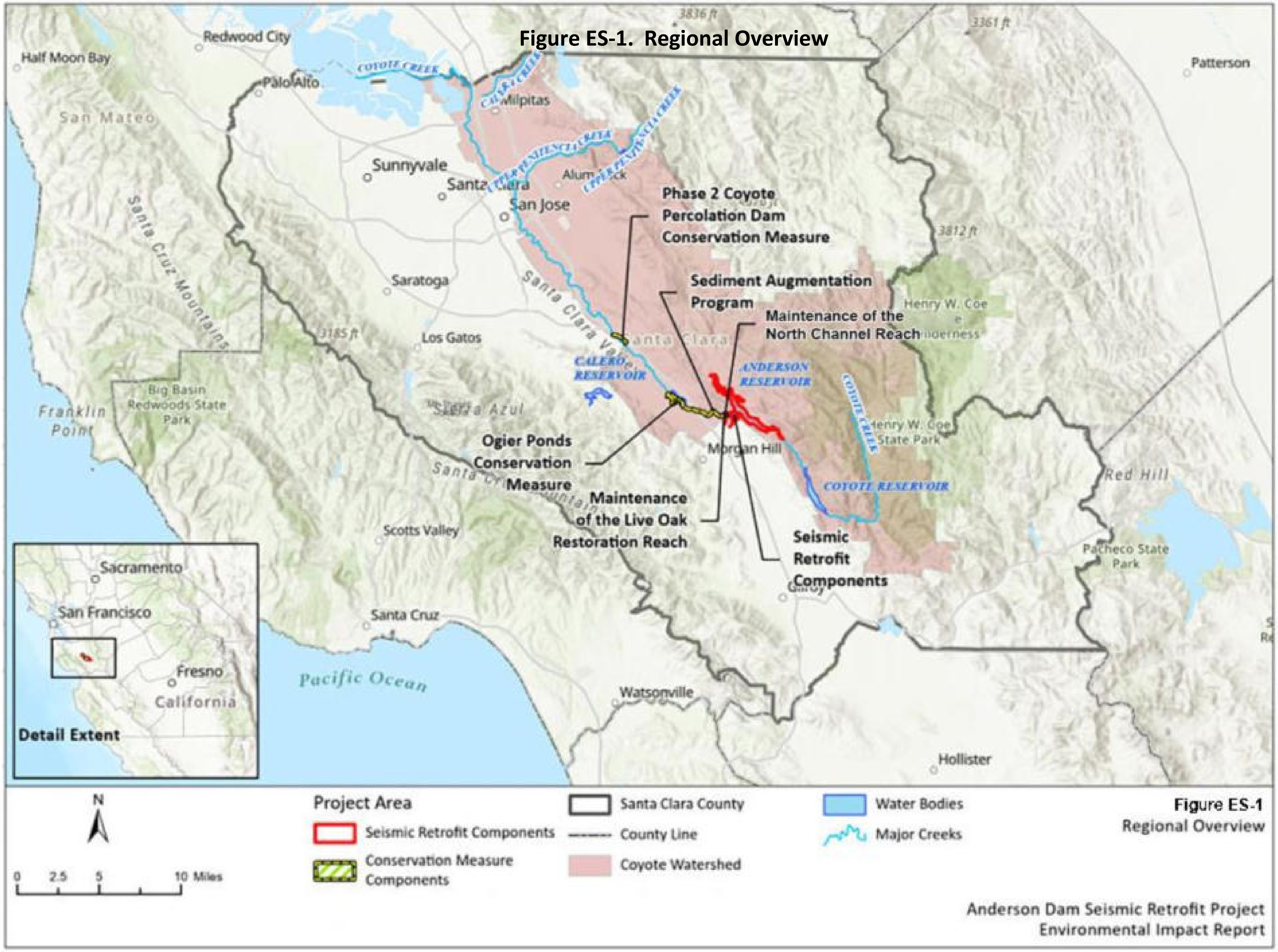
[1] Note: unless otherwise specified, design and reservoir elevations are reported in the NAVD 88 datum.

largest tributary to Coyote Creek downstream of Anderson Dam is Upper Penitencia Creek, which originates in the Diablo Range, several miles above Cherry Flat Reservoir (**Figure ES-1**).

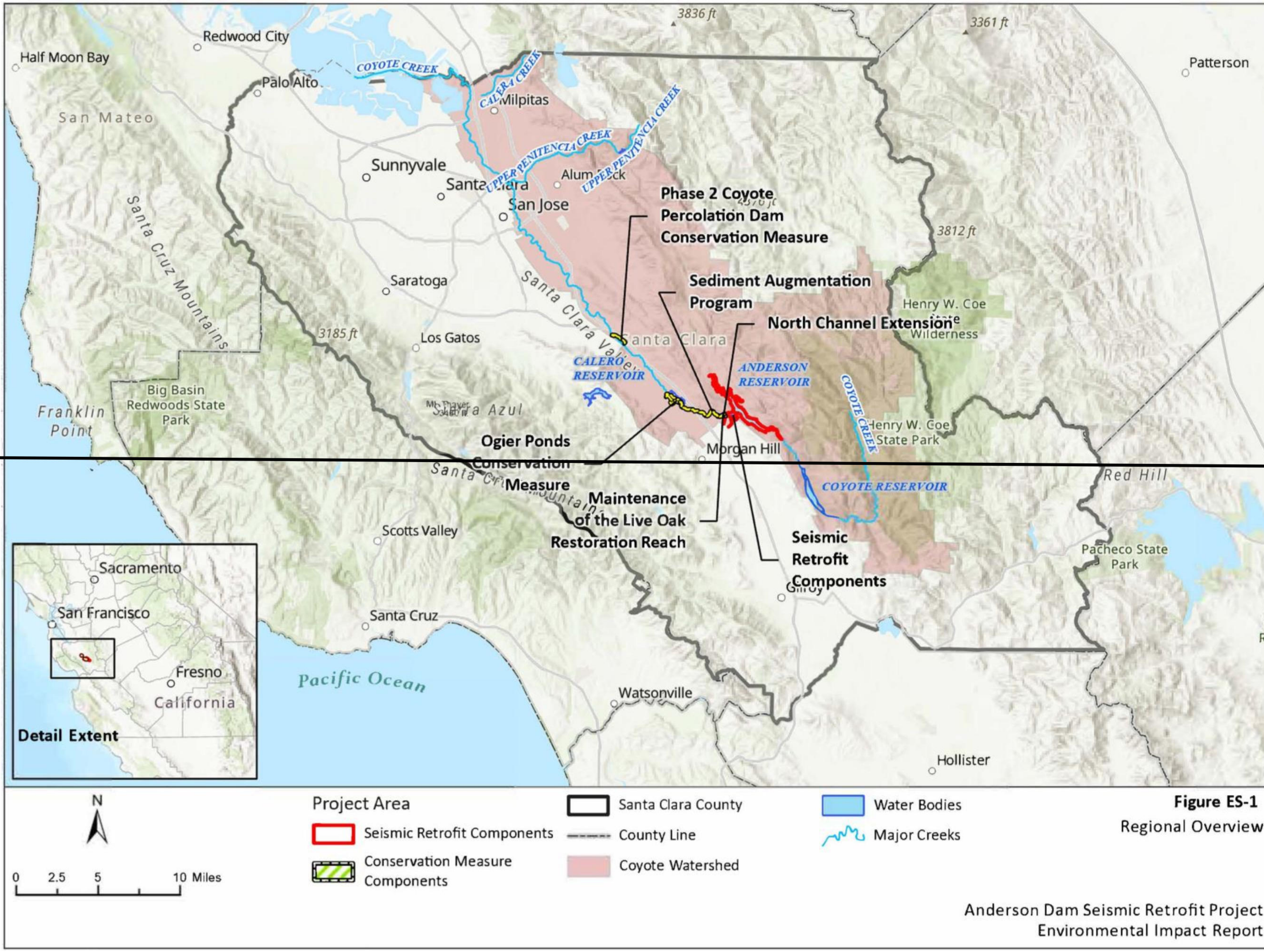
Valley Water manages aquifer recharge using local water supply and imported water releases to Coyote Creek below Anderson Dam via the Coyote Discharge Line (CDL) and Cross Valley Pipeline Extension.

The portion of Coyote Creek from Anderson Dam to San Francisco Bay and Upper Penitencia Creek from Cherry Flat Reservoir to the confluence of Coyote Creek is designated as critical habitat for Central California Coast steelhead (*Oncorhynchus mykiss*), which is threatened under the Endangered Species Act (ESA). Additionally, hatchery stray Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha*; Federal Species of Concern and State Species of Special Concern) may also use reaches of Coyote Creek.

Figure ES-1. Regional Overview



1


Redwood City
Half Moon Bay
Palo Alto
Milpitas
San Mateo
Sunnyvale
Santa Clara
San Jose
Saratoga
Los Gatos
Santa Cruz Mountains
Big Basin Redwoods State Park
Franklin Point
Scotts Valley
Santa Cruz
Pacific Ocean
Watsonville
Hollister
Gilroy
Morgan Hill
Patterson
Henry W. Coe State Wilderness
Henry W. Coe State Park
Pacheco State Park
Red Hill
Santa Clara Valley
COYOTE CREEK
CALERA CREEK
UPPER PENITENCIA CREEK
CALERO RESERVOIR
ANDERSON RESERVOIR
COYOTE RESERVOIR
3836 ft
3361 ft
3812 ft
3185 ft
Phase 2 Coyote Percolation Dam Conservation Measure
Sediment Augmentation Program
North Channel Extension
Ogier Ponds Conservation Measure
Maintenance of the Live Oak Restoration Reach
Seismic Retrofit Components
Sacramento
San Francisco
Fresno
California
Detail Extent
N
0 2.5 5 10 Miles
Project Area
Seismic Retrofit Components
Conservation Measure Components
Santa Clara County
County Line
Coyote Watershed
Water Bodies
Major Creeks
Figure ES-1
Regional Overview
Anderson Dam Seismic Retrofit Project
Environmental Impact Report

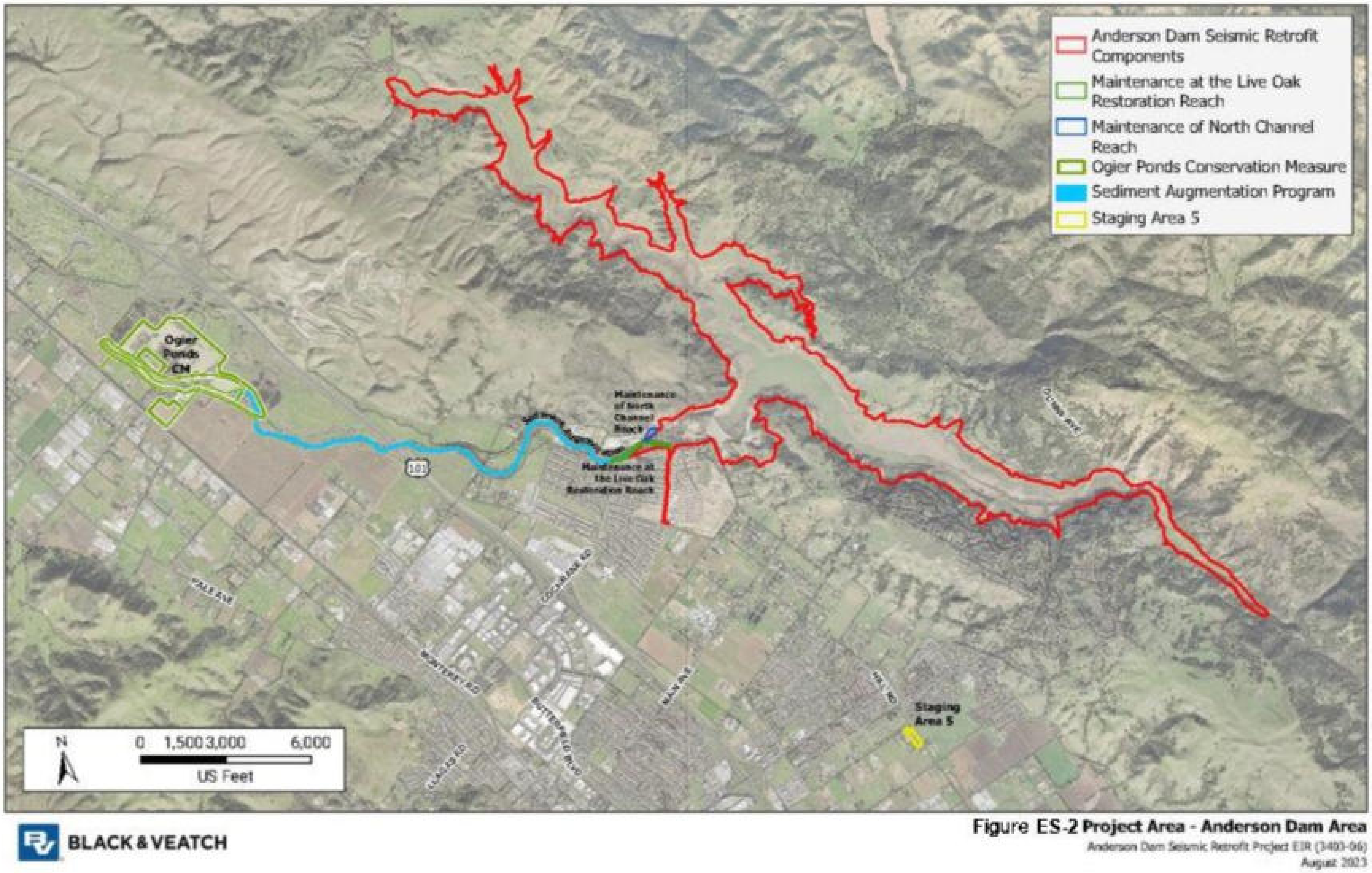
ES.4.2 Project Area – Anderson Dam and Reservoir, Coyote Creek, Ogier Ponds, and Coyote Percolation Pond

Anderson Reservoir, formed by Anderson Dam, is located along Coyote Creek in Santa Clara County, California, approximately 18 miles southeast of downtown San José and 2.5 miles northeast of downtown Morgan Hill (**Figure ES-2**).

The Project Area refers to the area and immediate vicinity within which all construction-related activities or ground disturbance would occur and the areas and facilities that would be operated through the implementation of the Project. The Project Area includes Anderson Reservoir, Anderson Dam, Ogier Ponds, the Coyote Percolation Dam, includes the Coyote Creek channel from Anderson Dam to the Coyote Percolation Dam, lands in the immediate vicinity of Anderson Reservoir and Coyote Creek that are owned by Valley Water and the County of Santa Clara, and portions of the Cochrane Road and Coyote Road rights-of-way (**Figure ES-2**, **Figure ES-3**).

The Project Area includes the cold water management zone (CWMZ), a 6-mile ~~5-mile~~ reach of Coyote Creek between the Anderson Dam outlets and Coyote Creek Golf Drive, as defined in the FAHCE *Settlement Agreement* (FAHCE 2003). Within this reach of Coyote Creek, Anderson Dam operations could potentially adversely affect ESA-listed steelhead *(O. mykiss)*. The current functional cold water management zone (FCWMZ) effectively ends at the upstream end of Ogier Ponds, located 4 miles downstream from Anderson Dam. The FCWMZ refers to the reach between Anderson Dam and Ogier Ponds and is the area that is currently suitable habitat for *O. mykiss* (**Figure ES-1**).

Figure ES-2. Project Area- Anderson Dam



1 **Figure ES-3. Project Area- Coyote Percolation Dam**

2

BLACK & VEATCH

Figure ES-3 Project Area - Coyote Percolation Dam
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

ES.5 Project Objectives and Benefits

ES.5.1 Project Objectives

The objectives of the Project, consistent with FERC and DSOD dam safety requirements, are to:

1. Seismically retrofit and maintain the dam so that Valley Water may continue to operate it at capacity. This objective would be achieved by:
   - Replacing the existing dam to withstand the MCEs on the Calaveras and Coyote Creek Range Front faults
   - Replacing the existing spillway to meet FERC and DSOD safety requirements related to the safe passage of the PMF
   - Replacing the outlet works to meet current DSOD outlet works requirements and accommodate fault offset
2. Improve cost-efficiency of dam operations by decommissioning the hydroelectric facility
3. Avoid and minimize environmental effects of construction and operations

ES.5.2 Project Benefits

Implementation of the Project, including the Conservation Measures, would result in a more seismically safe dam that would allow Valley Water to better carry out water supply and groundwater recharge activities. Operational flexibility would also be improved by the Project that would:

- Minimize the risk of reservoir spills and downstream flooding
- Provide in-stream environmental flows consistent with regulatory requirements
- Restore recreational opportunities at Anderson Reservoir and along the Coyote Creek corridor

ES.6 Description of the Proposed Project

The Project consists of numerous Project components that fall into six over-arching categories:

1) **Seismic Retrofit.** Project components related to the Anderson Dam facility upgrades and improvements to stabilize and mitigate potential seismic risks and comply with current public safety requirements.
2) **Conservation Measures.** Project components designed to avoid and minimize adverse environmental impacts and, in some cases, provide environmental benefits.
3) **Construction Monitoring.** Project components include habitat and species monitoring during construction to document Project effects on the environment.
4) **Post-Construction Anderson Dam Facilities Operations and Maintenance:** Project components that involve how proposed, permanent Anderson Dam facilities would be operated and maintained following construction. These Project components include implementation of the FAHCE Phase 1 flow measures at the Anderson Dam facility, post-construction monitoring, and post-construction maintenance.

5) **Post-Construction Conservation Measure Operations and Maintenance:** Project components that involve how proposed, permanent Conservation Measure facilities would be operated and maintained following construction. These Conservation Measure facilities include implementation of the Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Phase 2 Coyote Percolation Dam Fish Passage Enhancements (Phase 2 Coyote Percolation Dam CM), Maintenance Activities at the Live Oak Restoration Reach, and the Sediment Augmentation Program.

~~6) **Post-Construction Conservation Measure Operations and Maintenance:** Project components that involve how proposed, permanent Conservation Measure facilities would be operated and maintained following construction. These Conservation Measure facilities include implementation of the Ogier Ponds CM, North Channel Extension, Phase 2 Coyote Percolation Dam Fish Passage Enhancements (Phase 2 Coyote Percolation Dam CM), and the Sediment Augmentation Program~~

6) **Post-Construction Project and FAHCE Adaptive Management Program**: Adaptive management of all post-construction operations, and all habitat restoration Conservation Measures components would occur in accordance with the FAHCE AMP. Pursuant to the FAHCE Framework, a Project-specific ADSRP AMP has been developed. The AMP includes four key elements: measurable objectives for steelhead and salmon fisheries and their habitats; compliance monitoring, validation monitoring, effectiveness monitoring, and long-term trend monitoring; adaptive actions that may be identified to assure measurable objectives are met; and reporting.

ES.6.1 Seismic Retrofit

Construction activities for the Seismic Retrofit Project components include the following: site mobilization and preparation, including clearing and preparing staging and stockpile areas, reservoir dewatering and cofferdam construction, construction of the temporary water diversion system, dam excavation and fill (including dredging, excavation of embankment materials from borrow areas and disposal of excess materials at disposal areas), construction of the new outlet works and spillway, construction of other ancillary facilities, decommissioning of the hydroelectric facility, and site restoration. Seismic Retrofit construction is planned to occur over 7 years (**Figure ES-4**).

Dam Embankment. The existing dam would be removed and replaced with a more seismically stable dam in the same location that is designed to withstand MCEs on the Calaveras Fault and Coyote Creek Range Front Fault. The dam replacement process would begin after the reservoir is fully dewatered and Coyote Road has been removed from the top of the dam. The completed replacement dam would have a crest length of approximately 1,700 feet and a crest height of elev. 656 feet.

During the period of dam removal and replacement when the existing spillway would not be operational (see below), reservoir inflows would be conveyed past the dam site through the Stage 2 Diversion System. Inflows that exceed the diversion system’s capacity would form temporary reservoirs behind interim dams that would be in place at the end of each construction stage. To prevent the potential failure of the interim dams should overtopping occur during the wet season, and to minimize the potential for subsequent downstream flooding, an articulated concrete block-lined spillway would be constructed on the downstream slope of the interim dams to convey some volume of overtopping flow safely past the interim dams as a winterization measure (Valley Water 2022).

Dam Crest. The existing dam crest's height would be raised to elev. 656 feet to accommodate the PMF.

Spillway. The existing spillway would be removed and replaced with a fully lined spillway to accommodate safe passage of the PMF. The replacement spillway would be located within the same general footprint occupied by the existing spillway and unlined spillway channel. The new spillway crest would have the same length, elevation, and general shape as the existing spillway.

Temporary Diversion Systems. The Project includes two stages of water diversion throughout construction activities. The Stage 1 Temporary Diversion System (also known as the ADTP, which was previously constructed as part of the FOCP) would be converted to the Stage 2 Diversion System to continue to bypass flows in Coyote Creek behind Anderson Reservoir around the Project Area and return flows to lower Coyote Creek throughout Project construction.

To convert the Stage 1 Diversion System to the Stage 2 Diversion System, the Stage 1 Diversion System would be operated until the reservoir is completely dewatered, at which time construction of the Stage 2 Diversion System would begin. This conversion is expected to be completed ~~occur~~ in Year 2 of Project construction, after the reservoir is completely dewatered.

Outlet Works. A low-level outlet works (LLOW) and high-level outlet works (HLOW) would be constructed along the northern dam abutment on the south side of the spillway. The LLOW would provide discharge capacity for normal operations and most of the discharge capacity for emergency releases. The LLOW would be capable of simultaneously making releases to Coyote Creek and delivering flows to the Valley Water raw water transmission system through the Anderson Force Main. The HLOW would provide additional discharge capacity, in combination with the LLOW, in the event of an emergency.

Pipeline Realignments. Realigned sections of the Anderson Force Main and the Main Avenue Pipeline would be installed underground near the downstream base of the dam.

Installation of Dam Controls and Instrumentation. The dam would have instrumentation and controls for operation of the reservoir as well as instrumentation for monitoring dam safety specifications and reservoir levels.

Communication Lines Beyond Dam Excavation Footprint. To improve and provide communication network connectivity in the Project Area, existing telemetry cables would be replaced, and new fiber optic lines would be installed.

Temporary and Permanent Roadway Modifications. Existing roadways throughout the Project Area would be permanently modified to accommodate the Anderson Dam improvements and new Anderson Dam facilities, including roadways around the dam and on the dam crest itself.

Temporary roadway modifications include adjustment of existing ADTP access roads and construction of new access roads.

Decommissioning of Hydroelectric Facility. The hydroelectric facility located along Cochrane Road to the west of Anderson Dam would be decommissioned. Decommissioning would occur in the first year of the Seismic Retrofit construction. This process would involve coordination with

Pacific Gas and Electric Company (PG&E) for the termination of connection between the existing facility and existing PG&E infrastructure related to power generation.

Site Restoration. As construction is completed in Years 6 and 7, temporary facilities would be removed, and all temporarily disturbed areas would be restored to their preconstruction conditions, where practicable. Initial restoration would focus on those areas that would be inundated by the reservoir during reservoir refilling or that could be impacted during spilling of the reservoir. Restoration would generally include revegetating areas with native species where vegetation had been removed and repaving damaged roadways.

ES.6.1.1 Seismic Retrofit Site Mobilization and Preparation

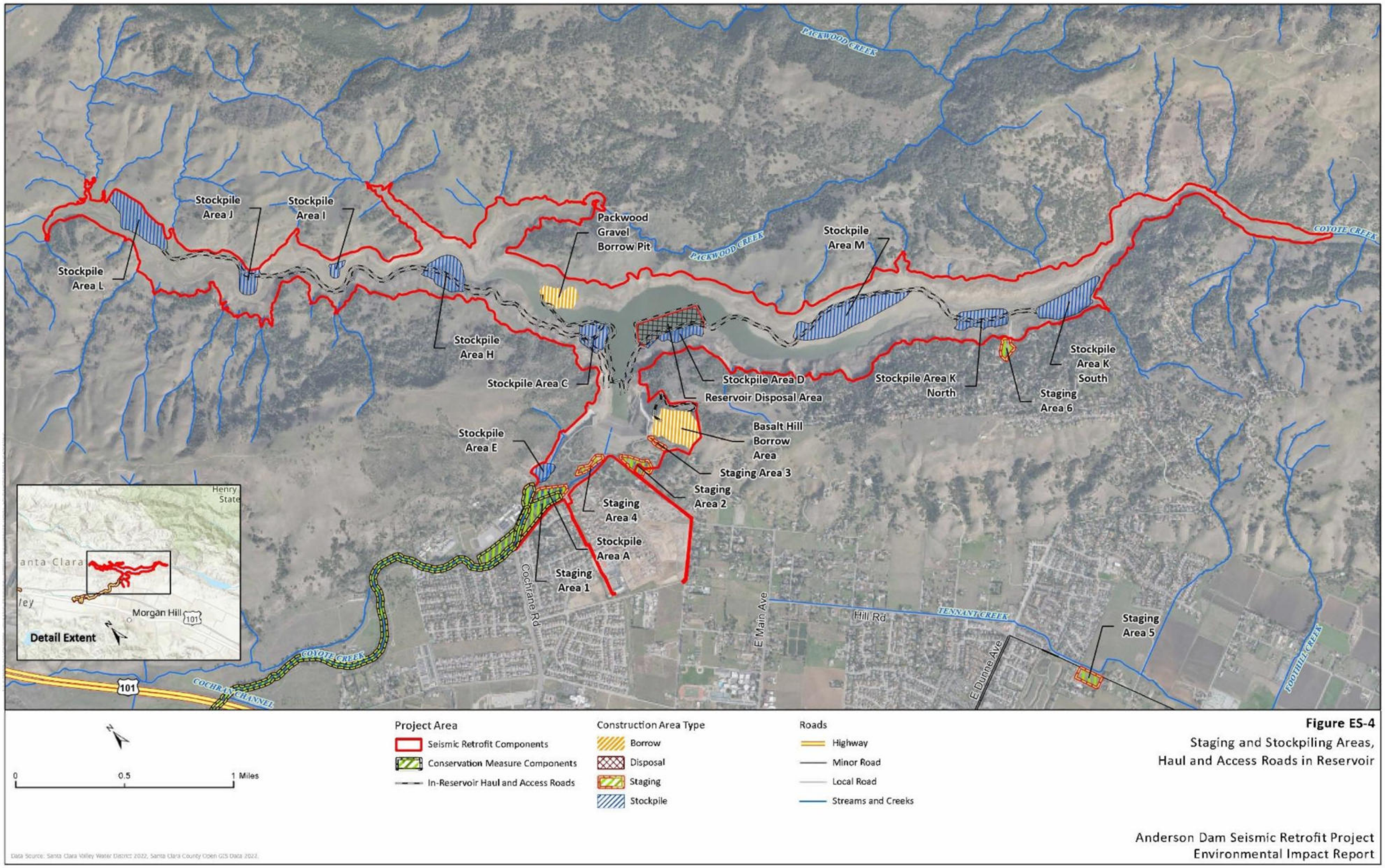
The first year of Seismic Retrofit construction would primarily include mobilization and site preparation of staging areas, stockpile areas, and access roads. Several staging areas, stockpile areas, and access roads occur within Anderson Lake County Park. These areas, along with all other recreational park areas located within the Project Area, would be closed to the public for the duration of construction.

Materials required for the replacement of the dam embankment would originate from excavations from the original dam, commercial sources from within the San Francisco Bay Area, and from two borrow sites within or adjacent to the reservoir.

Materials excavated from the dam foundation, portals, tunnels, and structures, and overburden materials from borrow areas that cannot be reused, would be disposed of within a designated Reservoir Disposal Area (**Figure ES-4**).

1 **Figure ES-4. Staging and Stockpiling Areas, Haul and Access Roads in Reservoir**

2



ES.6.1.2 Reservoir Operations During Seismic Retrofit Construction

Anderson Reservoir Operations

Anderson Reservoir would be operated to maintain the water surface at the FERC-restricted level until full reservoir dewatering occurs during Year 2. As a part of the FOCP after the completion of ADTP, the reservoir would be maintained at deadpool or, if approved by FERC, at a higher elevation that avoids or minimizes the risk of seismic failure of the dam and maintains the reservoir in a safe condition while providing more water for supply and recharge. If a higher elevation is approved by FERC, the reservoir would be brought down to deadpool (elev. 490 feet) by the end of the year before Year 1 to allow the reservoir slopes to drain prior to the in-reservoir work activities.

The Stage 1 Diversion System would operate only until the reservoir was fully dewatered during the spring of Year 2. The Stage 2 Diversion System would provide the additional flow capacity from the reservoir through the diversion system that will be required during dam removal and construction.

The Stage 2 Diversion System is intended to operate only during embankment excavation and replacement (Year 2 through Year 6). The Stage 2 Diversion System would be decommissioned during the last year of dam construction so that the LLOW can be completed. After the Stage 2 Diversion System is decommissioned, low flows would be pumped to the HLOW, for the remainder of the construction season. The LLOW would be used to control flows for the remainder of Project construction.

Water resources would be managed during construction to provide groundwater recharge and incidental environmental in-stream flows throughout construction. This would allow Valley Water to continue to meet water supply demands while continuing to provide fisheries habitat within the FCWMZ of Coyote Creek, while Anderson Reservoir is dewatered.

Coyote Creek North and South Channel Operations

Two human-made channels are located immediately downstream of the Anderson Dam outlets: the South Channel, which currently receives flows from the existing outlet works; and the re-engineered and re-established North Channel, located north of the South Channel. The two channels converge approximately 2,200 feet downstream of where the current outlet works discharges into the South Channel. Following construction of the Project, distribution of flow between the South and North Channels would be achieved by the construction of a weir at the head of each channel (Valley Water 2023a). Flows would be strategically split between the North Channel and South Channels. The weirs and flow splits have been designed to minimize the potential for erosion and maintain spawning habitat within the restored South Channel while also providing capacity for larger releases of water from Anderson Reservoir via the North Channel.

ES.6.1.3 Construction Details and Methods for Selected Project Components

Anderson Reservoir Dewatering

While water levels within Anderson Reservoir have already been substantially reduced as part of the FOCP, the reservoir would require full dewatering for construction of the Project. Dewatering of the reservoir would occur through the Stage 1 and Stage 2 Diversion Systems.

Following reservoir dewatering, inflows to the reservoir would continue to be released through the Stage 1 Diversion System until the cofferdam and temporary bypass pumping system are in place. Once the cofferdam and temporary bypass pumping system are in place, inflows would be pumped to the lowest intake of the existing outlet works while conversion of the Stage 1 Diversion System to the Stage 2 Diversion System is being completed. Once completed, low flows would pass directly into the extension pipe and the Stage 2 Diversion System. During high flows, the cofferdam would be overtopped and flows would be released directly into the diversion intake structure. At this time, the existing outlet works would be demolished.

Vegetation Clearing and Disposal

The entire Project Area, including the proposed construction staging areas, borrow areas, stockpile areas, disposal areas, parking areas, and “off-street” access roads would be cleared and grubbed. Beneficial reuse of trees, shrubs, and chip materials may occur throughout the site for restoration and soil stabilization. Vegetation that is not suitable for reuse would be disposed of on- or offsite. Topsoil from the staging areas, overburden from borrow areas, and sediments from stockpile areas would be stripped. For staging and borrow areas, stripped material would be reused where appropriate or disposed of in the Reservoir Disposal Area. For stockpile areas, stripped material would be placed nearby.

Temporary and Permanent Modifications to Recreational Facilities

As part of the Project, several of the recreation areas and facilities within Anderson Lake County Park would be temporarily or permanently closed. Some of these closures would be an extension of areas already closed for the current DSOD restrictions and for implementation of the FOCP. The remaining proposed temporary and permanent closures would occur specifically for Project construction. The Anderson Lake County Park Visitor Center would remain open throughout Project construction. This entrance would continue to provide access to the Coyote Creek Parkway, which will remain open to the public throughout construction of the Project.

ES.6.1.4 Seismic Retrofit Construction Utilities and Services

Construction Water Supply and Stormwater Drainage

Water from Coyote Creek upstream of the dam would be used for construction activities, including dust control and wetting of stockpiled materials, either by pumping from the Anderson Reservoir deadpool or by pumping from upstream of the cofferdam. Additional water would be obtained from the CDL and Main Avenue Pipeline.

Stormwater accumulating in areas upstream of the dam, in the downstream excavation area of the dam, at spillway and outlet works construction, and at the Basalt Hill Borrow Area would be released, or treated and released, into Coyote Creek or used for dust control. In staging areas and stockpile areas without access to existing infrastructure, stormwater would be managed using Valley Water's best management practices (BMP), *Best Management Practices and Santa Clara Valley Habitat Plan Conditions Incorporated in the Proposed Project*, and the SWPPP prepared to comply with the Construction General Permit.

Construction Power Supply

During construction, electrical power would be supplied to all Project facilities by PG&E. By the end of or following Project construction, PG&E would construct new underground power cables to a new distribution transformer at a permanent location near the LLOW outlet structure. PG&E would also install a new pole, service lines, and transformers at the left end of the dam.

ES.6.2 Conservation Measures

Conservation Measures have been incorporated into the Project and would be implemented throughout Project construction and/or operation phases. These measures would reduce construction-related impacts and allow for managed aquifer recharge to support water supply requirements while maintaining wetted habitat for fish, wildlife, and other groundwater-dependent habitats. Many of these Project components align with the FAHCE Phase 1 non-flow measures, as described in the FHRP, and would provide improved fish passage, steelhead spawning and rearing habitat, and restored hydrologic functions.

ES.6.2.1 Normal Operation of Coyote Reservoir

Valley Water would maintain existing normal operations of Coyote Reservoir throughout the drawdown of Anderson Reservoir and construction of the Seismic Retrofit components. This would allow Valley Water to partially retain the ability to store winter runoff in Coyote Reservoir and release it through Coyote Reservoir's outlet pipe to Coyote Creek to pass through Anderson Dam during the dry season, benefitting the native aquatic plants and animals that reside in this reach. Flows between Coyote and Anderson reservoirs within Coyote Creek would continue within current, normal ranges during the entirety of the Project.

No operational changes are proposed for Coyote Reservoir during post-construction operations. ~~Flows between Coyote and Anderson Reservoirs within Coyote Creek would continue within current, normal ranges during the entirety of the Project.~~

ES.6.2.2 Construction Period Imported Water Releases for FCWMZ (releases from Coyote Discharge Line and Cross-Valley Pipeline Extension, and Use of Chillers)

Valley Water would augment releases of local water during Project construction using other sources of supply, including imported water from the CDL and the Cross Valley Pipeline Extension. Imported water would be released into Coyote Creek within the FCWMZ and downstream of Ogier Ponds. The release of imported water would have multiple benefits, including groundwater recharge and groundwater-dependent ecosystem management, improved water quality, decreased energy costs, water supply management, support of native aquatic fish and wildlife habitat, and improved health of riparian plant communities.

During construction, if imported water releases are determined to be too warm for *O. mykiss*, chillers installed under the FOCP would be used to cool imported water prior to release via the CDL into Coyote Creek within the FCWMZ, and additional imported water would be released via the Cross Valley Pipeline Extension downstream of Ogier Ponds to continue to provide groundwater recharge below the FCWMZ.

ES.6.2.3 Ogier Ponds

Ogier Ponds currently comprises six large, artificial ponds in south San Jose that are hydrologically connected to Coyote Creek. The Ogier Ponds CM would physically separate and hydrologically disconnect Coyote Creek from Ogier Ponds. This CM would 1) provide ecological enhancements to the channel and floodplain; 2) ameliorate the adverse water temperature, fish migration, and fish entrainment effects of the current hydrologic connection between the creek and the ponds; and 3) integrate public access and interpretation of natural resources and historical features within and along a portion of Coyote Creek on County Parks property.

This CM would construct a 6,500-foot reach of Coyote Creek channel and an associated, approximately 45-acre floodplain at Ogier Ponds. Buildout of this CM would result in the complete fill and discontinuation of Ponds 1 and 5 ~~one pond (i.e., Pond 1)~~ and the ~~partially~~ partial fill of Ponds 2 and 5 ~~two other ponds (i.e., Ponds 2 and 5)~~ that would otherwise remain operational. An earthen berm would be constructed to hydrologically disconnect the remaining ponds from the restored reach of Coyote Creek.

ES.6.2.4 Lower Cold Water Management Zone Restoration Evaluation[1]

Implementation of the Ogier Ponds CM is anticipated to improve habitat conditions for steelhead in the FCWMZ and potentially improve the function of the CWMZ downstream of Ogier Ponds. A geomorphic and habitat evaluation of Coyote Creek from Ogier Ponds to Metcalf Road would be conducted to describe existing channel conditions and habitat suitability for steelhead. This evaluation would include a detailed evaluation of flows and water temperatures post-construction within the reach from Ogier Ponds to Metcalf Road. Information gathered during this effort would be used to identify, describe, and design future restoration opportunities in Coyote Creek.

ES.6.2.5 Maintenance of the North Channel Reach ~~Extension~~

As part of the FOCP, Valley Water ~~is able to~~ split outlet flows from Anderson Reservoir into the North and South Channels of Coyote Creek. The North Channel is being ~~would be~~ restored to its historical creek alignment as part of the Project by extending the limits that were originally constructed as a part of FOCP, creating additional channel length through County Parks and private property, and reconnecting the channel to the Coyote Creek confluence with the South Channel downstream.

As part of the Project, the North Channel Reach would be maintained. Maintenance activities would include maintaining the constructed wetland bench, maintaining design flow capacity through the North Channel, and replacing restoration plantings, as needed.

ES.6.2.6 Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach

As part of the FOCP's Habitat Mitigation and Monitoring Plan, Valley Water will implement spawning gravel and rearing habitat improvements in the Live Oak Restoration Reach directly downstream of Anderson Dam to address the potential effects of reservoir dewatering and sediment deposition on spawning and rearing habitat from the FOCP and Project. During Seismic Retrofit construction, this effort includes the placement of gravel and maintenance of placed large woody debris to improve spawning habitat conditions. Spawning gravel placement would be integrated with the long-term Sediment Augmentation Program (Section ES 6.2.7 ~~4.2.7.)~~

ES.6.2.7 Sediment Augmentation Program

Valley Water would implement a Sediment Augmentation Program to address the effects of course sediment loss for steelhead habitat from creek banks and bed incision below Anderson Dam. Sediment augmentation activities would improve geomorphic processes that create and maintain steelhead habitat and reduce channel incision that is typical in Lower Coyote Creek downstream of the dam. This program would consist of placing up to 500 cubic yards of sediment in Coyote Creek ~~that was sourced from the dry Anderson Reservoir lakebed. The sediment would be placed in Coyote Creek~~ initially at the Live Oak Restoration Reach, and later at multiple locations downstream of Anderson Dam within the Live Oak Restoration Reach and Ogier Ponds restoration area as determined by adaptive management.

ES.6.2.8 Geomorphic Flows Plan

The Geomorphic Flows Plan would identify flow releases from Anderson Dam that would be integrated into Post-Construction Operations to provide additional support for biological features of steelhead critical habitat that are maintained by periodic high flows capable of inundating the floodplain, scouring substrate, mobilizing gravel, and supporting channel migration, as described in the high flows principles of the California Environmental Flows Framework (California Environmental Flows Framework 2021). The Geomorphic Flows Plan would interact with the other conservations measures to achieve the following physical channel maintenance objectives downstream of Anderson Dam: mobilize substrate, scour and transport fine sediments, maintain unembedded gravel, support gravel bar formation, reduce riparian vegetation encroachment, support formation of inset benches and floodplains, increase channel migration and bank erosion, and create and maintain a wider active channel and topographic diversity.

ES.6.2.9 Phase 2 Coyote Percolation Dam Fish Passage Enhancements

As part of the FOCP, ~~Valley Water~~ the Phase 1 Coyote Percolation Dam Fish Passage Enhancements are currently underway. The Phase 2 Coyote Percolation Dam Fish Passage Enhancement CM (Phase 2 Coyote Percolation Dam CM) would consist of constructing downstream channel modifications to facilitate upstream and downstream fish passage in a reach of Coyote Creek approximately 10.5 miles downstream of Anderson Dam. The objective of this effort is to improve fish passage conditions at Coyote Creek downstream of the Coyote Percolation Dam.

ES.6.2.10 Coyote Creek Facilities Plan

Valley Water would draft a Coyote Creek Facilities Plan that outlines strategies for the implementation of the following two primary components:

- **Laguna Seca Groundwater Remediation.** The plan as originally described in the FAHCE Settlement Agreement would evaluate alternatives to manage groundwater inflow from Coyote Creek. The goal is to allow flow releases from Anderson Dam to continue uninterrupted to the vicinity of Metcalf Ponds in a manner that protects other parties' properties and water rights.

- **Metcalf Ponds Stream Corridor Restoration.** The plan as originally described in the FAHCE Settlement Agreement would evaluate alternatives to isolate percolation ponds, quarry pits, and other structures from the active Coyote Creek channel in the vicinity of Metcalf Road to reestablish a free-flowing creek channel through this area.

Depending on the results of the feasibility assessments conducted for the Coyote Creek Facilities Plan as part of the Project, specific design and implementation methodologies for resultant proposed measures would be selected through the ongoing FAHCE AMP and implemented pursuant to the FHRP.

ES.6.2.11 Cherry Flat Reservoir Cooperative Operating Agreement

As part of the Project and in accordance with *Settlement Agreement* Section 6.4.2.1.4 (FAHCE 2003), Valley Water would undertake reasonable best efforts to develop and execute a cooperative agreement with the City of San José regarding the operation of Cherry Flat Reservoir on Upper Penitencia Creek to ensure that habitat upstream of Valley Water facilities are kept in good condition subject to the availability of water for releases from the reservoir.

ES.6.2.12 Payment of Santa Clara Valley Habitat Conservation Plan Impact Fees

The Project is a covered activity under the Santa Clara Valley Habitat Plan (VHP) (Santa Clara Valley Habitat Agency [SCVHA] 2012). Valley Water would apply for VHP coverage for Project ~~project~~ activities and would pay impact fees for Project ~~project~~ activities, including fees for effects on stream, wetland, riparian, and serpentine habitats. The SCVHA would then use those fees to acquire, preserve, manage, and restore populations of the covered species and the sensitive habitats that are impacted by the proposed Project.

ES.6.3 Construction Monitoring

Construction monitoring would be completed to conform with industry BMPs, comply with regulatory permit requirements, and document Project ~~project~~ effects on habitats and species in order to adaptively manage them.

The monitoring elements described herein specifically pertain to monitoring efforts that would be conducted during the Project's construction phase.

ES.6.3.1 Water Quality Monitoring

Valley Water would monitor specific water quality metrics: 1) water temperature, turbidity, pH, and dissolved oxygen (DO), 2) sediment deposition, and 3) suspended sediment.

Water Temperature, Turbidity, pH, and DO Monitoring. Water temperature, DO, turbidity, and pH have been monitored during FOCP as part of the Condition 2 Plan and will continue to be monitored throughout construction of the Project. The water quality monitoring procedures would be documented in a Water Quality Sampling ~~Valley Water will continue to monitor water temperature and DO in Coyote Creek and Anderson Reservoir.~~ In Coyote Creek, water temperature and DO would be evaluated within the FCWMZ to determine if conditions are suitable for rearing of *O. mykiss*. Water temperatures in Anderson Reservoir during the Seismic Retrofit construction (including the remaining pool, when at deadpool) would be monitored to assess trends in surface temperature of the water that would be the source of outflow to Coyote Creek until the Project is completed (Valley Water 2020c).

Sediment Deposition Monitoring. Valley Water prepared a Sediment Deposition Monitoring Plan in for FOCP, which would continue through construction of the Project. Sediment deposition monitoring would assess the impacts from sediment released during FOCP and Project construction on spawning habitat quantity and quality within the Coyote Creek FCWMZ (Valley Water 2020g).

Suspended Sediment Monitoring. Similarly, Valley Water would continue to implement the Sediment Monitoring Plan developed for the FOCP to continuously monitor turbidity and suspended sediment in Coyote Creek through completion of Project construction activities (Valley Water 2021d ~~2021e~~).

ES.6.3.2 Groundwater Monitoring

Valley Water's 2021 Groundwater Management Plan ~~(2023)~~ would continue to be implemented; this includes groundwater monitoring and monitoring groundwater-dependent habitat (e.g., riparian and wetland habitat). Groundwater assessments would also be carried to compare groundwater levels to existing water basin sustainability goals (Valley Water 2021b ~~2023a~~).

ES.6.3.3 Vegetation Monitoring

***Phytophthora* Management and Monitoring.** Valley Water would implement plans to prevent, avoid, and/or minimize the spread of *Phytophthora* infestations as a result of construction and ~~project~~ Project-related activities and carry out pathogen sampling in the Project Area (Valley Water 2020e, 2021c ~~2021d~~).

Wetland and Riparian Habitat Dryback Monitoring. Valley Water's Wetland and Riparian Habitat Dryback Monitoring Plan prepared for the FOCP would continue to be implemented throughout Project construction. The plan's focus is to monitor dryback conditions and visually assessing wetlands and riparian habitats due to modified flows in Coyote Creek (Valley Water 2020d).

Milkweed Monitoring. Valley Water would continue to implement the Milkweed Monitoring Plan that was developed for the FOCP through the completion of Project construction (Valley Water 2020b).

ES.6.3.4 Fisheries Monitoring

Fisheries monitoring ~~identified for the FOCP~~ will be implemented under several approaches until completion of the Project construction.

Valley Water's Fish Rescue and Relocation Plan includes monitoring suitability of conditions to support *O. mykiss* in the FCWMZ of Coyote Creek following reservoir dewatering, as well as fish rescue and relocation (Valley Water 2020a). The Water Temperature and Fisheries Monitoring Plan provides an approach to monitoring conditions in Coyote Creek to support *O. mykiss*, an approach to determine if stream temperatures warrant conducting additional fish rescue and relocation efforts outlined in the Fish Rescue and Relocation Plan, and data collection to support the Coyote Creek Stream Flow and Water Temperature Forecast Model (Valley Water 2020c).

~~The Fyke Trapping and Passive Integrative Transponder (PIT) Tag Monitoring Plan outlines methods to assess presence and densities of *O. mykiss* in the FCWMZ and to track outmigration through the system (Valley Water 2021b).~~

The Coyote Creek monitoring efforts described in these plans would include a migration study, ~~fyke trap monitoring,~~ environmental DNA monitoring, adult escapement monitoring, and spawning surveys. Other monitoring plans at Anderson Reservoir would include migration flow monitoring, juvenile rearing studies, and environmental DNA monitoring.

ES.6.3.5 Reptile Monitoring

Valley Water would continue to implement the Western Pond Turtle Monitoring Plan that was prepared for the FOCP (Valley Water 2020f). Monitoring efforts would continue in suitable habitat in the FCWMZ for the duration of Project construction to determine if a significant reduction in western pond turtle populations has occurred from Project construction.

ES.6.3.6 Terrestrial Animal Monitoring

Valley Water would continue to conduct surveys for several terrestrial animal species that occur during the FOCP. Such surveys include annual surveys for nesting bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*), and annual monitoring surveys at a pallid bat (*Antrozous pallidus*) roost near Anderson Dam. In addition, implementation of the FOCP *Crotch's Bumble Bee Avoidance Plan* (Valley Water 2024) would continue during Project construction, unless and until the Crotch's bumble bee is added to the VHP as a covered species.

ES.6.3.7 Invasive Species Monitoring and Control

The Invasive Species Monitoring and Control Plan prepared for the FOCP would continue to be implemented throughout Project construction. Target species include non-native fish, crayfish (*Cambaridae*), American bullfrog (*Lithobates catesbeianus*), and red-eared sliders (*Trachemys scripta*), as well as opportunistic removal of other non-native species (Valley Water 2020h).

ES.6.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

Following the completion of Seismic Retrofit components, post-construction operations of Anderson Reservoir would begin. Anderson Reservoir would be restored to its existing (unrestricted) capacity of 89,278 acre-feet and allowed to withstand a normal operational range of water levels in the reservoir. Storage of water would resume, with water originating from rainfall in the watershed, inflows from the Coyote Reservoir upstream, and imported water releases from the U.S. Bureau of Reclamation's San Felipe Division of the Central Valley Project. Reservoir releases would be made consistent with the FAHCE rule curves.

Reservoir Refilling and Inflow. During Year 6 of Project construction, following regulatory approvals, Valley Water would begin refilling the reservoir to prepare for post-construction operations. Inflow into Anderson Reservoir would come from three sources: 1) uncontrolled natural inflow from surrounding tributaries, 2) flows from Coyote Reservoir, and 3) if available, imported water could be transferred into Anderson Reservoir via the Cross Valley Pipeline and Anderson Force Main through the conveyance pipeline within the LLOW. Once the reservoir is refilled to operable levels, FAHCE operational rule curves would be implemented.

Reservoir Outflow and FAHCE Rule Curves. Following completion of the Seismic Retrofit construction, outflows from Anderson Reservoir would occur in four ways: (1) normal releases up to 170 ~~190~~ cfs to Coyote Creek via the LLOW's bypass pipeline, (2) releases up to 1,315 cfs to Coyote Creek through the 78-inch conveyance pipeline (and is the pipeline that facilitates bi-directional transfers of water between Anderson Reservoir and the raw water distribution system), (3) releases up to 5,300 cfs from the HLOW (in the event of an emergency), and (4) uncontrolled releases from the spillway.

Reservoir releases would be made consistent with the FAHCE rule curves. The FAHCE rule curves are intended to provide suitable spawning and rearing habitat within the Coyote Creek Watershed, providing adequate passage for adult steelhead and salmon to reach suitable spawning and rearing habitat, and for the out-migration of juveniles. The FAHCE rule curves would add operational criteria that benefit steelhead and salmon populations by providing winter base flows, pulse flows, and summer releases to support each steelhead life stage, as well as by providing a framework for ramping pulse flows and reservoir operations under low-flow conditions. The implementation of FAHCE rule curves would differ under dry-year, median-year, and wet-year conditions.

Imported Water Storage and Releases. Anderson Reservoir operations would allow for the storage of imported water from San Luis Reservoir in Anderson Reservoir, if available, in late winter and spring, while temperatures of imported water are still relatively cold, via the Cross Valley Pipeline and Anderson Force Main. Imported water may also be moved into Anderson Reservoir at other times of the year, if necessary, to avoid losing Valley Water supplies stored in San Luis Reservoir or in anticipation of a planned shutdown in the conveyance system from San Luis Reservoir to Santa Clara County. Imported water is also released directly to Coyote Creek at the CDL and Cross Valley Pipeline Extension.

ES.6.5 Anderson Dam Facilities Maintenance

Valley Water would maintain the newly retrofitted Anderson Dam, associated facilities, and other appurtenances as part of Valley Water's Dam Maintenance Program (DMP) and Pipeline Maintenance Program (PMP).

The DMP includes over 65 covered maintenance activities grouped into four categories and includes both routine and corrective maintenance actions. Routine, or preventive, maintenance consists of normal work performed on existing infrastructure to maintain its expected life cycle.

Corrective maintenance consists of the replacement of components or appurtenances that have failed to maintain the service of the infrastructure (Valley Water 2012).

The PMP addresses maintenance for several pipelines and pipeline facilities that Valley Water owns and/or maintains. The program establishes a process for conducting routine water conveyance system maintenance activities, including maintenance on pipelines, pump stations, blow offs, turnouts and vaults (Valley Water 2007).

ES.6.6 Post-Construction Conservation Measures Operations and Maintenance

Following construction, ongoing compliance monitoring would confirm the functionality and success of Conservation Measures, and adaptive management measures would be determined by the Adaptive Management Team. Any subsequent maintenance activities would be performed in accordance with the Valley Water SMP, or as part of the FAHCE AMP.

Imported Water Releases and Pipeline Maintenance. Pipeline maintenance for the Project would be conducted under Valley Water's PMP (see above).

Ogier Ponds Operations and Maintenance. The newly restored reach of Coyote Creek would be regularly monitored and adaptively managed for habitat quality and geomorphic stability. Water quality in Ogier Ponds would also by monitored; monitoring sensors would be inspected and maintained regularly.

Maintenance of the North Channel Reach ~~Extension~~. Long term maintenance and operation of the North Channel would be conducted under the SMP and in accordance with the DMP for the weirs. Following large flow events, Valley Water would monitor the North Channel to ensure that the channel was maintaining positive drainage and that debris was not accumulating within the channel.

Spawning Gravel and Sediment Augmentation Program Maintenance. Following large flow events, Valley Water would inspect sediment and gravel augmentation sites to determine if maintenance is required. Maintenance would include replacing spawning gravels or sediments within Coyote Creek between Anderson Dam and Ogier Ponds. Culverts and low flow crossings between the dam and Coyote Percolation Ponds would also be inspected and maintained after dam releases that exceed 500 cfs.

Phase 2 Coyote Percolation Dam Operations and Maintenance. The restored, roughened Coyote Creek channel would be inspected bi-annually, particularly after large flow events, for signs of reduced channel function, including compromised conveyance capacity, geomorphic instability, obstructions to fish passage, and overall reduced aquatic habitat quality. Maintenance activities may include periodic sediment removal, invasive plant removal, trimming and/or removal of vegetation that obstructs channel flows, replacement of roughness elements, repair of in-channel bio-engineered habitat enhancements (e.g., rootwads, stream barbs, overhanging banks), rock slope protection enhancements.

The current operational rules for the Coyote Percolation Dam would remain in place.

Phase 2 Coyote Percolation Dam and Fish Ladder Operations Plan (part of the Coyote Creek Facilities Plan). Valley Water would develop and implement an updated operations plan for the modified Coyote Percolation Dam Facility that maximizes the benefits provided the Phase 2

Coyote Percolation Dam Fish Passage Enhancement and provides for fish passage in all typical flow conditions.

Post-Construction Cross Valley Pipeline Extension Operation. To manage groundwater recharge and meet minimum flow targets downstream of Coyote Percolation Ponds, Valley Water would release imported water to the downstream end of the CWMZ via the Cross Valley Pipeline Extension. During post-construction operations, the Cross Valley Pipeline Extension would only be operated during severely dry years when releases from Anderson Reservoir are insufficient to maintain a wetted channel to the Cross Valley Pipeline Extension outfall.

ES.6.7 Post-Construction Project and FAHCE Adaptive Management Program

The FAHCE AMP, outlined in Chapter 6 of the FHRP in accordance with the FAHCE *Settlement Agreement* (FAHCE 2003), would guide post-construction adaptive management of Project flow operations, and all non-flow fish barrier remediation and habitat restoration Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. A Project-specific AMP (Appendix D) has been developed in accordance with the framework described in the FAHCE *Settlement Agreement* and FAHCE Program. Implementation of the Project and FAHCE AMP is designed to satisfy ~~the measurable objectives defined in~~ the FAHCE *Settlement Agreement* and the FAHCE Program ~~FHRP,~~ management objectives, and overall conservation objective for steelhead trout and Chinook salmon. The measurable objectives are designed to assure the long-term management and effectiveness of Project Conservation Measures to benefit steelhead and Chinook salmon as defined by the FAHCE Program management objectives.

The Project and FAHCE AMP includes four key elements: measurable objectives for steelhead and salmon fisheries and their habitats; compliance monitoring, validation monitoring, effectiveness monitoring, and long-term trend monitoring; adaptive actions that may be identified to remedy any continuing impairment of a beneficial use; and reporting.

ES.6.8 Avoidance and Minimization Measures

Valley Water would implement a range of standardized measures to avoid or minimize adverse effects on the environment.

ES.6.8.1 Best Management Practices

Valley Water would incorporate BMPs from its *Best Management Practices Handbook* (Valley Water 2014a) into the Project design and throughout Project implementation. For work in and near streams, Valley Water would also follow applicable BMPs included in the *2014–2023 Stream Maintenance Program Manual* (Valley Water 2014b ~~2019~~). The Project would also include other applicable Valley Water BMPs as well as ~~VHP conditions~~ applicable Stream Maintenance Program BMPs.

ES.6.8.2 Valley Habitat Plan Conditions

Valley Water would adhere to applicable VHP conditions, including 1, 3, 4, 5, 7, 8, 11, 12, 13, 17, 19, and 20 ~~and 5~~, and all applicable VHP AMMs, including the aquatic habitat AMMs from VHP

Table 6-2, throughout Project implementation. Valley Water would also pay applicable VHP impact fees for construction related impacts in the Project Area. All VHP conditions and AMMs would be incorporated into the construction documents (plans and specifications).

ES.7 Permits, Approvals, and Consultations

The Project EIR would be used by the federal, State, regional, and local regulatory agencies issuing permits, as well as for other agency approvals and consultations for the Project. Agencies that are expected to use the EIR for consultations, permitting decisions, and approvals that are expected to be required for the Project include:

- Federal agencies: FERC, NMFS, U.S. Army Corps of Engineers (USACE), USFWS, and U.S. Environmental Protection Agency (USEPA)
- State agencies: CDFW, DSOD, SWRCB, State Office of Historic Preservation (SHPO), and the San Francisco Bay Conservation and Development Commission (BCDC)
- Regional and local agencies: Bay Area Air Quality Management District, County of Santa Clara, City of San Jose, City of Morgan Hill, Regional Water Quality Control Board (RWQCB), SCVHA

ES.7.1 Water Rights Amendments

In May 2015, Valley Water submitted proposed water rights amendments, or Petitions for Change, to the SWRCB to address technical aspects of the water rights subject to the FAHCE *Settlement Agreement*. These Petitions are being updated. The amendments are intended to update the water rights held in the Coyote Creek Watershed consistent with FAHCE. Technical changes include correcting the locations of points of diversion and updating maps. The petitions also request that Valley Water's water rights licenses be amended to add Fish and Wildlife Preservation and Enhancement as a beneficial use of the diverted water. Chapter 5 of the FHRP supports the petitions as they propose modifying current operations to ensure that this beneficial use of water is achieved.

ES.8 Summary of Project Impacts and Mitigation Measures

Table ES-1 summarizes the impacts of the Project. For each impact considered to be significant, the table summarizes the recommended mitigation measures. **Table ES-1** is intended to summarize the Project impacts and mitigation measures that are described in detail in Chapter 3, *Environmental and Regulatory Setting and Impact Analysis*; please refer to that chapter for a complete discussion of impacts.

Table ES-1. Summary of Impacts and Mitigation Measures

Impact	Significance Determination	Mitigation Measure
Aesthetics		
Impact AES-1: Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway	LTS	No mitigation required.
Impact AES-2: Substantial degradation of the existing visual character or quality of public views of the site and its surroundings	SU	Mitigation Measure AES-1: Replacement Trees on Santa Clara County Parkland Mitigation Measure AES-2: Visual Screening of Construction Staging Areas
Impact AES-3: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	LTSM	Mitigation Measure AES-3: Construction Lighting
Agriculture		
Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use	LTS	No mitigation required.
Impact AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract	LTS	No mitigation required.
Air Quality		
Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan	SU	Mitigation Measure AQ-1: Implement Construction Criteria Air Pollutants Reduction Measures
Impact AQ-2: 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	SU	Mitigation Measure AQ-1: Implement Construction Criteria Air Pollutants Reduction Measures Mitigation Measure AQ-2: Implement Construction Blasting Fugitive Dust Emissions Reduction Measure Mitigation Measure AQ-3: Implement BAAQMD Enhanced Construction BMPs

Impact	Significance Determination	Mitigation Measure
Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations	SU	Mitigation Measure AQ-1: Implement Construction Criteria Air Pollutants Reduction Measures Mitigation Measure AQ-2: Implement Construction Blasting Fugitive Dust Emissions Reduction Measure
Impact AQ-4: Other emissions adversely affecting a substantial number of people	LTS	No mitigation required.
Biological Resources—Fisheries Resources		
Impact FR-1: Have a substantial adverse effect, either directly, through habitat modifications, or through substantial interference with movement on any species identified as a candidate, sensitive, or special-status fish species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS in the fisheries resources study area		
FR-1a: Central California Coast Steelhead	LTS	No mitigation required.
FR-1b: Chinook Salmon	LTS	No mitigation required.
FR-1c: Pacific Lamprey	LTS	No mitigation required.
FR-1d: Sacramento Hitch	LTS	No mitigation required.
FR-1e: Southern Coastal Roach	LTS	No mitigation required.
FR-1f: Longfin Smelt	LTS	No mitigation required.
FR-1g: White Sturgeon	LTS	No mitigation required.
FR-1h: Green Sturgeon (Southern Distinct Population Segment)	NI	No mitigation required.
FR-1i: Riffle Sculpin	LTS	No mitigation required.
Biological Resources – Wildlife and Terrestrial Resources		
Impact TERR-1: A substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS Service		
TERR-1a: Special-Status Plants	LTSM	Mitigation Measure TERR-1a(1): Invasive Plant Management at Coyote Ridge ~~Valley Water's~~ Tiburon Paintbrush Populations

Impact	Significance Determination	Mitigation Measure
		Mitigation Measure TERR-1a(2): Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of *Phytophthora* Mitigation Measure TERR-1a(3): Special-Status Plant Survey in the Previously Unsurveyed Portions of the Seismic Retrofit Area Mitigation Measure TERR-1a(4): ~~Seed Collection and Creation of a New Population of~~ San Francisco Collinsia <u>Conservation Measures</u>
TERR-1b: Bay Checkerspot Butterfly, Monarch Butterfly, and Crotch's Bumble Bee	LTS	No mitigation required.
TERR-1c: California Tiger Salamander, California Red-Legged Frog, and Foothill Yellow-Legged Frog	LTSM	Mitigation Measure TERR-1c(1): Special-Status Species Avoidance and Minimization Measures During Year 6 Reservoir Dewatering Mitigation Measure TERR-1c(2): Nonnative Species Management in Upper Penitencia Creek Watershed
TERR-1d: ~~Western~~ <u>Northwestern</u> Pond Turtle	LTS	No mitigation required.
TERR-1e: Bald Eagle and Golden Eagle	LTSM	Mitigation Measure TERR-1e: Nesting Eagle Avoidance and Minimization Measures
TERR-1f: Tricolored Blackbird, Yellow Warbler, White-Tailed Kite, Northern Harrier, and Other Breeding Birds	LTS	No mitigation required.
TERR-1g: Nonbreeding special-status birds	LTSM	Mitigation Measure TERR-1g: Burrowing Owl Impact Avoidance

Impact	Significance Determination	Mitigation Measure
TERR-1h: Pallid Bat	SU	Mitigation Measure TERR-1h(1): Avoid Disturbance of the Cochrane Road Barn Roost Mitigation Measure TERR-1h(2): Evict Pallid Bats prior to Initiating Maternity-Season Disturbance near the Cochrane Road Barn Roost Mitigation Measure TERR-1h(3): Minimize Impacts on Pallid Bats Roosting Outside the Cochrane Road Barn Mitigation Measure TERR-1h(4): Provide Alternative Pallid Bat Maternity Roost Structures
TERR-1i: Other special-status mammals	LTS	No mitigation required.
TERR-1j: San Francisco Bay special-status species	LTSM	Mitigation Measure TERR-1j: Contribution to Baylands Predator Management <u>and High Tide Refugia Enhancement</u>
Impact TERR-2: A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS	LTSM	Mitigation Measure TERR-1a(2): Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of *Phytophthora*
Impact TERR-3: A substantial adverse effect on State or federally protected wetlands through direct removal, filling, hydrological interruption, or other means	LTSM	Mitigation Measure TERR-1a(2): Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of *Phytophthora*
Impact TERR-4: Interfere substantially with the movement of any native resident or migratory species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	SU	Mitigation Measure TERR-1h(1): Avoid Disturbance of the Cochrane Road Barn Roost Mitigation Measure TERR-1h(2): Evict Pallid Bats prior to Initiating Maternity-Season Disturbance near the Cochrane Road Barn Roost

Impact	Significance Determination	Mitigation Measure
		Mitigation Measure TERR-1h(3): Minimize Impacts on Pallid Bats Roosting Outside the Cochrane Road Barn Mitigation Measure TERR-1h(4): Provide Alternative Pallid Bat Maternity Roost Structures
Impact TERR-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	NI	No mitigation required.
Impact TERR-6: Conflict with the provisions of an adopted Habitat Conservation Plan/Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan	LTS	No mitigation required.
Cultural Resources		
Impact CR-1: Cause a substantial adverse change in the significance of a built environment historical resource	LTS	No mitigation required.
Impact CR-2: Cause a substantial adverse change in the significance of an archaeological resource	LTSM	Mitigation Measure CR-1: Preconstruction Cultural Resources Awareness Training Mitigation Measure CR-2: Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided Mitigation Measure CR-3: Prepare a Monitoring and Unanticipated Discoveries Plan
Impact CR-3: Disturb human remains	LTSM	Mitigation Measure CR-1: Preconstruction Cultural Resources Awareness Training Mitigation Measure CR-2: Prepare a Data Recovery and Treatment Plan for Historical Resources that Cannot be Avoided Mitigation Measure CR-3: Prepare a Monitoring and Unanticipated Discoveries Plan

Impact	Significance Determination	Mitigation Measure
Energy		
Impact ENR-1: Result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources	LTSM	Mitigation Measure AQ-1: Implement Construction Criteria Air Pollutants Reduction Measures Mitigation Measure GHG-1: Utilize Electrification and Renewable Fuels During Construction
Impact ENR-2: Conflict with or obstruct a State or local plan for renewable energy or energy efficiency	LTSM	Mitigation Measure AQ-1: Implement Construction Criteria Air Pollutants Reduction Measures Mitigation Measure GHG-1: Utilize Electrification and Renewable Fuels During Construction
Geology and Soils		
Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault	LTS	No mitigation required.
Impact GEO-2: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking	LTS	No mitigation required.
Impact GEO-3: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction	LTS	No mitigation required.
Impact GEO-4: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides	LTSM	Mitigation Measure GEO-1: Repair Landslides Caused by Construction Activities
Impact GEO-5: Result in substantial soil erosion or the loss of topsoil	LTS	No mitigation required.
Impact GEO-6: 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	LTS	No mitigation required.
Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	LTSM	Mitigation Measure GEO-2: Paleontological Initial Survey Mitigation Measure GEO-3: Paleontological Detailed Survey and Construction Monitoring Mitigation Measure GEO-4: Paleontological Discoveries Treatment Plan

Impact	Significance Determination	Mitigation Measure
Greenhouse Gas Emissions		
Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	LTSM	Mitigation Measure GHG-1: Utilize Electrification and Renewable Fuels During Construction Mitigation Measure GHG-2: Purchase Carbon Offsets Prior to Construction
Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases	LTSM	Mitigation Measure GHG-1: Implement Construction GHG Emissions Reduction Measures Mitigation Measure GHG-2: ~~Purchase Carbon Offsets~~ Offset GHG Emissions Prior to and During Construction
Hazards and Hazardous Materials		
Impact HAZ-1: Create a significant hazard to the public or the environment from the routine transport, use, or disposal of hazardous materials	LTS	No mitigation required.
Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials	LTSM	Mitigation Measure HAZ-1: Construction and Grading Operations Dust Control Measures. Mitigation Measure HAZ-2: Track Out Control Measures for Roads from NOA-Containing Areas. Mitigation Measure HAZ-3: Traffic Control Measures within NOA-Containing Construction Areas. Mitigation Measure HAZ-4: Dust Control Measures During Earthmoving Activities. Mitigation Measure HAZ-5: Dust Control Measures During Tunneling Activities. Mitigation Measure HAZ-6: Separation of Rock Containing NOA.
Impact HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school	LTSM	Mitigation Measure HAZ-1: Construction and Grading Operations Dust Control Measures. Mitigation Measure HAZ-2: Track Out Control Measures for Roads from NOA-Containing Areas.

Impact	Significance Determination	Mitigation Measure
		Mitigation Measure HAZ-3: Traffic Control Measures within NOA-Containing Construction Areas. Mitigation Measure HAZ-4: Dust Control Measures During Earthmoving Activities. Mitigation Measure HAZ-5: Dust Control Measures During Tunneling Activities. Mitigation Measure HAZ-6: Separation of Rock Containing NOA. Mitigation Measure HAZ-7: Soil Testing and Proper Disposal of Potentially Contaminated Soils
Impact HAZ-4: 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 create a significant hazard to the public or the environment	LTSM	Mitigation Measure HAZ-7: Soil Testing and Proper Disposal of Potentially Contaminated Soils.
Impact HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	LTSM	Mitigation Measure PS-1: Prepare and Implement Traffic Management Plan Mitigation Measure WF-1: Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy ~~Emergency Action Plan~~
Impact HAZ-6: Create a significant hazard to construction workers or the public through exposure to Valley Fever during Construction Activities	LTSM (during construction) NI (during operations)	Mitigation Measure HAZ-1: Construction and Grading Operations Dust Control Measures. Mitigation Measure HAZ-2: Track Out Control Measures for Roads from NOA-Containing Areas. Mitigation Measure HAZ-3: Traffic Control Measures within NOA-Containing Construction Areas. Mitigation Measure HAZ-4: Dust Control Measures During Earthmoving Activities. Mitigation Measure HAZ-5: Dust Control Measures During Tunneling Activities.

Impact	Significance Determination	Mitigation Measure
Hydrology		
Impact HYD-1: 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 ~~matter~~ which would:		
i. Result in substantial erosion or siltation on- or offsite	SU	Mitigation Measure WQ-1: Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan. ~~None available.~~
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite	LTS	No mitigation required.
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	LTS	No mitigation required.
iv. Impede or redirect flood flows	LTS	No mitigation required.
Impact HYD-2: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of dam failure	LTS	No mitigation required.
Impact HYD-3: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project ~~project~~ inundation	LTS	No mitigation required.
Groundwater Resources		
Impact GW-1: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin	LTSM	Mitigation Measure GW-1: Provide Alternative Water Supplies
Impact GW-2: Violate groundwater water quality standards or substantially degrade groundwater quality	LTSM	Mitigation Measure GW-1: Provide Alternative Water Supplies Mitigation Measure GW-2: Perchlorate Best Management Practices
Impact GW-3: Conflict with or obstruct implementation of the San Francisco Bay Basin Plan groundwater provisions or the District's Groundwater Management Plan (GWMP)	LTSM	Mitigation Measure GW-1: Provide Alternative Water Supplies

Impact	Significance Determination	Mitigation Measure
Water Supply		
Impact WS-1: Substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years	LTS	No mitigation required.
Impact WS-2: Require or result in the relocation or construction of new or expanded water facilities, the construction of which could cause significant environmental effects	LTSM	Mitigation Measure GW-1: Provide Alternative Water Supplies Mitigation Measure GW-2: Perchlorate Best Management Practices
Water Quality		
Impact WQ-1: Impair beneficial uses of surface waters OR violate any applicable surface water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality OR conflict or obstruct implementation of a water quality control plan	SU	~~None Available.~~ Mitigation Measure GW-2: Perchlorate Best Management Practices Mitigation Measure WQ-1: Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan
Land Use		
Impact LU-1: 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	LTS	No mitigation required.
Noise and Vibration		
Impact NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, or generation of substantial incremental increase in noise levels	SU	Mitigation Measure NOI-1: Implement Construction Noise Reduction Measures Mitigation Measure NOI-2: Implement Seismic Retrofit Construction Noise Reduction Measures Mitigation Measure NOI-3: Implement Ogier Ponds CM Construction Noise Reduction Measures
Impact NOI-2: Generate excessive groundborne vibration or groundborne noise levels	LTSM	Mitigation Measure NOI-4: Seismic Retrofit and Sediment Augmentation Program Construction Vibration Reduction ~~Measures~~ Mitigation Measure NOI-5: Implement Blasting Plan

Impact	Significance Determination	Mitigation Measure
Public Services		
Impact PS-1: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection	LTSM	Mitigation Measure PS-1: Prepare and Implement Traffic Management Plan Mitigation Measure WF-1: Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy ~~Emergency Action Plan~~
Impact PS-2: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection	LTSM	Mitigation Measure PS-1: Prepare and Implement Traffic Management Plan Mitigation Measure WF-1: Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy ~~Emergency Action Plan~~
Recreation		
Impact REC-1a: Temporary increased use of neighboring land-based recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated	LTSM	Mitigation Measure REC-1: ~~Maintenance Reimbursement for~~ Funding and Implementation of Park Facility Improvements within the Coyote Creek Corridor ~~Closures During High Flow Events~~
Impact REC-1b: Permanent loss of recreational facilities resulting in substantial physical deterioration, or the acceleration of physical deterioration, of neighboring facilities.	LTS	No mitigation required.
Impact REC-2: Construction or expansion of recreational facilities which might have an adverse physical effect on the environment	LTS	No mitigation required.
Transportation		
Impact TR-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities	LTSM	Mitigation Measure REC-1: ~~Maintenance Reimbursement for~~ Funding and Implementation of Park Facility Improvements within the Coyote Creek Corridor ~~Closures During High Flow Events~~ Mitigation Measure PS-1: Prepare and Implement ~~Construction~~ Traffic Management Plan

Impact	Significance Determination	Mitigation Measure
Impact TR-2: Conflict with or be inconsistent with *CEQA Guidelines* Section 15064.3, subdivision (b)	LTS	No mitigation required.
Impact TR-3: Substantially increase hazards due to a geometric design feature or incompatible use	LTS	No mitigation required.
Impact TR-4: Inadequate emergency access	LTSM	Mitigation Measure PS-1: Prepare and Implement Traffic Management Plan Mitigation Measure WF-1: Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy ~~Emergency Action Plan~~
Tribal Cultural Resources		
Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource listed or eligible for listing in the California Register of Historical Resources or determined by Valley Water to be significant	LTSM	Mitigation Measure CR-1: Pre-construction Cultural Resources Awareness Training Mitigation Measure CR-2: Prepare a Data Recovery and Treatment Plan for Historical Resources that Cannot be Avoided Mitigation Measure CR-3: Prepare a Monitoring and Unanticipated Discoveries Plan
Utilities and Service Systems		
Impact UTL-1: Require or result in the replacement, relocation, or construction of new or expanded stormwater drainage, telecommunication, or electric power facilities, the construction or relocation of which could cause significant environmental effects	LTS	No mitigation required.
Impact UTL-2: Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, otherwise impair the attainment of solid waste reduction goals, or fail to comply with federal, State, and local management and reduction statutes and regulations related to solid waste	LTS	No mitigation required.
Wildfire		
Impact WF-1: Exacerbate wildfire risks and expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors	LTS	No mitigation required.

Impact	Significance Determination	Mitigation Measure
Impact WF-2: Require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment	LTS	No mitigation required.
Impact WF-3: 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	LTS	No mitigation required.
Impact WF-4: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires	LTSM	Mitigation Measure WF-1: Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy ~~Emergency Action Plan~~ Mitigation Measure PS-1: Prepare and Implement Traffic Management Plan

Key: LTS = less than significant; LTSM = less than significant with mitigation; SU = significant and unavoidable; NI = no impact

ES.8.1 Alternatives Evaluated in the Draft EIR

The purpose of the alternatives analysis in an EIR is to describe a range of reasonable alternatives to the Project that can feasibly attain most of the identified Project objectives but would reduce or avoid one or more of the Project's significant impacts.

ES.8.2 No Project Alternative

CEQA Guidelines Section 15126.5(e) requires an EIR to evaluate the No Project Alternative. The purpose of evaluating the No Project Alternative is "to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project."

The No Project Alternative does not necessarily correspond strictly to existing conditions. Instead, the No Project Alternative must describe reasonably foreseeable conditions if the Project were not approved.

Under the No Project Alternative, the Project would not proceed, and existing (post-FOCP) environmental conditions and Valley Water operations would be maintained. Following completion of the FOCP (which includes construction of ADTP), the existing Anderson Dam would be left in place, eliminating Project construction and other Conservation Measures as described in the Project Description. FOCP construction AMMs, including imported water releases using chillers, if necessary, would not occur following FOCP construction. The liquefiable materials in the dam embankment and other materials vulnerable to seismic movement would not be removed and replaced. No increased outlet capacity would be accommodated; the maximum outfall would remain at 2,500 cfs (2,000 cfs from the newly constructed tunnel under the ADTP plus the existing outfall with 500 cfs of capacity). Because the No Project Alternative would not address seismic vulnerability, including potential deformation due to seismically induced liquefaction, the maximum water elevation would remain at the restricted level (i.e., deadpool) as ordered by FERC.

The No Project Alternative would not meet the Project purpose to seismically retrofit, maintain, and operate Anderson Dam and Reservoir to meet FERC and DSOD safety requirements, thereby allowing Valley Water to maximize water supply and related incidental benefits, while avoiding and minimizing environmental impacts of the implementation of those safety directives and requirements. It also would not meet the fundamental Project objective to seismically retrofit and maintain the dam so that Valley Water may continue to operate it at capacity consistent with providing groundwater recharge and protecting public safety. Furthermore, the No Project Alternative would not be feasible because it would conflict with the February 20, 2020, FERC Order, which directed Valley Water to "continue to work with all haste to design and secure the necessary permits and complete the design for the larger Anderson Dam Seismic Retrofit Project" and DSOD requirements to have the ability to lower the maximum storage by 10 percent in 7 days and the full content within 90 days, and that the spillway be able to contain the PMF. Although the No Project Alternative would not achieve Project objectives and is infeasible, because it would not comply with the FERC directive of February 20, 2020, and DSOD requirements; the No Project Alternative was retained because it is required by CEQA.

ES.8.3 Increased Dredge Alternative

The Increased Dredge Alternative would remove a larger volume of sediment from the Anderson Reservoir bed compared to the Project, but all other components of the Project would remain the same. The purpose of this alternative is to reduce temporary downstream turbidity impacts during the construction of the Project, which would result in significant unavoidable impacts to hydrology and water quality. By excavating a large amount of sediment from the reservoir bed and providing area for upstream sediment to settle and deposit, this alternative reduces downstream sediment transport and thereby meaningfully reduces the potential for increased temporary erosion and sediment transport during certain-sized storm events that may occur during the 7-year Project construction period.

The Increased Dredge Alternative is feasible and includes all the other elements as the Project, with a change only in removal of sediment from the reservoir bed starting 2 years prior to planned construction. It would meet the first Project objective, to seismically retrofit and maintain the dam so that Valley Water can continue to operate it at capacity. The Increased Dredge Alternative would reduce the magnitude of impacts of the Project related to turbidity and downstream sedimentation during the construction period because the sediment removal would reduce the volume of unconsolidated sediments in the area of the drawn down reservoir. However, the alternative would increase the severity of significant and unavoidable impacts associated with earth movement and truck trips including air quality, GHG emissions, and noise. It would also increase traffic impacts to local and regional roadways, as two additional years of excavation (1.4 million cy of material) and trucking (750 truck trips per day) would be needed. The alternative would significantly increase costs through additional hauling of materials. Thus, it would not fully achieve the Project objective to avoid and minimize the environmental effects of construction and operation.

ES.8.4 Anderson Dam Operated with FAHCE-Plus Modified Rule Curves (FAHCE-Plus Modified) Alternative

The FAHCE-Plus Modified Alternative was developed through consultation with the Project TWG, which includes State and federal resource agencies, to create an alternate regime of flow releases designed to increase and better diversify salmonid migration on Coyote Creek. The FAHCE-Plus Modified Alternative evolved from the FAHCE rule curves (evaluated as part of the Project in this EIR) and the FAHCE-Plus rule curves proposed for implementation in consultation with the AMT in Stevens Creek and Guadalupe Watersheds; they were included in the FAHCE FHRP, Appendix A to the FAHCE Final EIR (Valley Water 2023b ~~2023c~~).

As part of this alternative, as suggested by the NMFS during ESA technical assistance recommendations developed in consultation with the TWG, Valley Water would develop an Anderson Dam Operations Work Group (OWG) to discuss and provide updates on FAHCE-Plus Modified operations. The FAHCE-Plus Modified Alternative would retain all other components of the Project, except that the FAHCE-Plus Modified rule curve, rather than the FAHCE rule curve, would govern dam releases after completion of Project construction, including construction of all Conservation Measures, as described below.

The FAHCE-Plus Modified rule curves are intended to increase the benefit of reservoir releases for fisheries during key salmonid life stages. Based on hydrologic modeling outputs, the FAHCE-Plus rule curves for Coyote Creek combine concepts of the FAHCE flow measures (comprised generally of winter base flows, winter and spring migration period pulse flows, and summer cold water management releases) with an enhanced set of rules for spring attraction, safeguard, and outmigration pulse flows designed to maximize fish migration. The FAHCE-Plus Modified operational rules are similar to those for FAHCE, with the following modifications:

- ~~Summer base flow is adjusted to include a slight increase in temperature limits of summer cold water releases, still within the normal temperature range for steelhead rearing, to enhance summer rearing habitat. This allows a greater portion of the reservoir volume to be used to provide summer flows.~~
- FAHCE-Plus Modified rule curves contain differences in the timing and release of pulse flows compared to the FAHCE scenario. Generally, in Coyote Creek FAHCE-Plus Modified:
  - Expands the time window available for pulse releases to December 1 through/including May 31
  - Initiates higher magnitude and more frequent pulse flows compared to FAHCE intended to increase passage opportunities for adult steelhead by increasing water depths through critical riffles
  - Includes prioritization of attraction and outmigration pulse flows to aid in both up- and outmigration of steelhead, as well as late season outmigration specific pulse flows. In addition to attraction and outmigration pulse flows, a safeguard pulse flow (described in more detail below) is also initiated if triggers for the other pulse flows are not met by January 15, combined storage in Anderson and Coyote Reservoirs is above a certain threshold, and downstream flows are above a certain threshold of any given water year.
  - Adds a security pulse. If no pulse has been released by March 1 and other conditions are met, a security pulse flow may be released at the discretion of the OWG.

~~To accommodate increased magnitude, duration, and number of pulse flow releases under FAHCE-Plus Modified, the definition of the cold pool within Anderson Reservoir was also modified. The increases in pulse flow releases made prior to May 31 deplete cold water storage in Anderson reservoir to a greater degree than pulse flow releases under FAHCE. To expand the volume of the cold-water pool available for the summer cold water release program, FAHCE-Plus Modified revises the summer steelhead rearing period (May 31 to October 1) local cold water release temperature limitation for flows from the reservoir from 14 °C or less under FAHCE to 16 °C or less under FAHCE-Plus Modified. This increased reservoir release temperature restriction is based on modeling and observed water temperatures showing that releases with a temperature of 16 °C or less are typically sufficient to maintain temperatures of 18 °C or less throughout the FCWMZ and, after completion of the Ogier Ponds CM, throughout the CWMZ.~~

Flows under the FAHCE-Plus Modified Alternative compared to the original FAHCE-Plus flows differ by minor changes in pulse timing, frequency, a downstream flow trigger, and flow for the safeguard flow, which would occur in winter if conditions had not been met to release an attraction flow. FAHCE Plus Modified also uses the original FAHCE *Settlement Agreement* threshold of 14°C for calculating the cold pool volume. In addition, the FAHCE-Plus Modified rule curves ~~provide~~ retain the longer pulse flow duration and increased volume of pulse flow from FAHCE Plus, with an increase in number of years with a pulse flow, and an increase in the number of pulses to comprise attraction, outmigration pulse and safeguard pulses ~~pulsed~~

through the period December 1 to May 31, and variations to the length of each type of pulse under some conditions in order to provide a diversity in migratory opportunity.

Because the FAHCE-Plus Modified Alternative includes the same non-rule curve elements as the Project and is a feasible alternative, it would meet the first Project objective, to seismically retrofit and maintain the dam so that Valley Water can continue to operate it at capacity. In addition, this alternative would meet the objectives to improve cost efficiency of dam operations and avoid and minimize impacts. This alternative would not reduce any significant impacts of the Project; it was selected for detailed consideration because it would improve outcomes for anadromous fish.

ES.8.5 Modification of Ogier Ponds Lands West of Pond 1 and Pond 2 to Protect Ponds and to Avoid Trucking (Ogier Ponds Alternative)

The Ogier Ponds Alternative would retain all components of the Project; however, the Ogier Ponds CM would be modified (Valley Water 2023). The Ogier Ponds Alternative includes excavating a new channel for Coyote Creek with associated floodplain, habitat area, and separation berm, in the agricultural field west of Pond 1 and reestablishing the Coyote Creek alignment that was originally constructed by Santa Clara County Parks and Recreation Department at the close of gravel mining activities. This alternative would avoid the ~~partial~~ filling of Ponds 1 and 5 and partial filling of Pond 2, as would be done under the Ogier Ponds CM. Under both the Ogier Ponds CM and this alternative, Pond 4 ~~Ponds 2 and 5~~ would be partially filled.

Implementation of this alternative would require Valley Water to acquire property rights from up to nine ~~six~~ private property owners. The timeline for acquisition of these property rights is uncertain and could result in schedule delays. However, this effort would not affect the schedule for implementation of the Seismic Retrofit components. Accordingly, it would not result in increased risks to public health and safety related to seismic vulnerabilities of the dam, and the schedule uncertainties would not affect the feasibility of this alternative.

ES.8.6 Comparison of Proposed Project and Alternative Impacts

Table ES-2 summarizes impacts of the alternatives and compares proposed Project impacts with the impacts of each of the alternatives evaluated in the EIR. Direct Project impacts fall into the following categories (Chapter 3 also evaluates whether each of these impacts is cumulatively considerable):

- No impact (NI)
- Less-than-significant impact (LTS)
- Less-than-significant impact with mitigation (LTSM)
- Significant and unavoidable impact (SU); no feasible mitigation measures are available to reduce impacts to a less-than-significant level

Table ES-2 also compares the magnitude of impacts of the alternatives to those of the proposed Project, with a “+” indicating that the alternative would have a greater adverse impact than the proposed Project, a “-” indicating that the alternative would have a less adverse impact than the proposed Project, and an “=” indicating that the alternative would have the same level of impact as the proposed Project.

1 **Table ES-2. Summary of Impacts for the Project and for Alternatives Evaluated in the Draft EIR**

Impact	Level of Impacts with Mitigation				
	Project	**No Project**	**Increased Dredge**	**FAHCE-Plus Modified ~~Enhanced~~**	**Ogier Ponds**
Aesthetics					
Impact AES-1: Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact AES-2: Substantial degradation of the existing visual character or quality of public views of the site and its surroundings	SU	SU (+)	SU (+)	SU (=)	SU (=)
Impact AES-3: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (=)
Agricultural and Forestry Resources					
Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use	LTS	NI (-)	LTS (=)	LTS (=)	SU (+)
Impact AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract	LTS	NI (-)	LTS (=)	LTS (=)	LTS (+)
Air Quality					
Impact AQ-1 ~~AIR-1~~: Conflict with or obstruct implementation of the applicable air quality plan	SU	NI (-)	SU (+)	SU (=)	SU (-)
Impact AQ-2 ~~AIR-2~~ 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	SU	NI (-)	SU (+)	SU (=)	SU (-)
Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations	SU	NI (-)	SU (+)	SU (=)	SU (-)
Impact AQ-4: Other emissions adversely affecting a substantial number of people	LTS	NI (-)	LTS (+)	LTS (=)	LTS (-)
Biological Resources – Fisheries Resources					
Impact FR-1: Have a substantial adverse effect, either directly, through habitat modifications, or through substantial interference with movement on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS in the fisheries resources study area					

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus Modified ~~Enhanced~~	Ogier Ponds
FR-1a: Central California Coast Steelhead	LTS	SU (+)	LTS (+)	LTS (=)	LTS (=)
FR-1b: Chinook Salmon	LTS	SU (+)	LTS (+)	LTS (=)	LTS (=)
FR-1c: Pacific Lamprey	LTS	SU (+)	LTS (+)	LTS (=)	LTS (=)
FR-1d: Sacramento Hitch	LTS	SU (+)	LTS (+)	LTS (=)	LTS (=)
FR-1e: Southern Coastal Roach	LTS	SU (+)	LTS (+)	LTS (=)	LTS (=)
FR-1f: Longfin Smelt	LTS	NI (-)	LTS (+)	LTS (=)	LTS (=)
FR-1g: White Sturgeon	LTS	NI (-)	LTS (+)	LTS (=)	LTS (=)
FR-1h: Green Sturgeon	NI	NI (=)	NI (=)	NI (=)	NI (=)
FR-1i: Riffle Sculpin	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Biological Resources – Wildlife and Terrestrial Resources					
Impact TERR-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS					
TERR-1a: Special-Status Plants	LTSM	LTS (-)	LTSM (+)	LTSM (=)	LTSM (-)
TERR-1b: Bay Checkerspot Butterfly, Monarch Butterfly, and Crotch's Bumble Bee	LTS	NI (-)	LTS (=)	LTS (=)	LTS (-)
TERR-1c: California Tiger Salamander, California Red-Legged Frog, and Foothill Yellow-Legged Frog	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (-)
TERR-1d: ~~Western~~ Northwestern Pond Turtle	LTS	SU (+)	LTS (=)	LTS (=)	LTS (-)
TERR-1e: Bald Eagle and Golden Eagle	LTSM	LTS (-)	LTSM (+)	LTSM (=)	LTSM (=)
TERR-1f: Tricolored Blackbird, Yellow Warbler, White-tailed Kite, Northern Harrier, and Other Breeding Birds	LTS	NI (-)	LTS (=)	LTS (=)	LTS (-)
TERR-1g: Nonbreeding Special-Status Birds	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (-)
TERR-1h: Pallid Bat	SU	NI (-)	SU (=)	SU (=)	SU (=)
TERR-1i: Other Special-Status Mammals	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
TERR-1j: San Francisco Bay Special-Status Species	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus Modified ~~Enhanced~~	Ogier Ponds
Impact TERR-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (-)
Impact TERR-3: Have a substantial adverse effect on State or federally protected wetlands through direct removal, filling, hydrological interruption, or other means	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (-)
Impact TERR-4: Interfere substantially with the movement of any native resident or migratory species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	SU	SU (+)	SU (=)	SU (=)	SU (=)
Impact TERR-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	NI	NI (-)	NI (=)	NI (=)	NI (=)
Impact TERR-6: Conflict with the provisions of an adopted Habitat Conservation Plan/Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Cultural Resources					
Impact CR-1: Cause a substantial adverse change in the significance of a built environment historical resource	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact CR-2: Cause a substantial adverse change in the significance of an archaeological resource	LTSM	LTS (-)	LTSM (+)	LTSM (=)	LTSM (+)
Impact CR-3: Disturb Human Remains	LTSM	LTS (-)	LTSM (+)	LTSM (=)	LTSM (+)
Energy					
Impact ENR-1: Result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (-)
Impact ENR-2: Conflict with or obstruct a State or local plan for renewable energy or energy efficiency	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (-)
Geology and Soils					
Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus Modified ~~Enhanced~~	Ogier Ponds
Impact GEO-2: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact GEO-3: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact GEO-4: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)
Impact GEO-5: Result in substantial soil erosion or the loss of topsoil	LTS	NI (-)	LTS (+)	LTS (=)	LTS (=)
Impact GEO-6: 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	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (+)
Greenhouse Gas Emissions					
Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (-)
Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (-)
Hazards and Hazardous Materials					
Impact HAZ-1: Create a significant hazard to the public or the environment from the routine transport, use, or disposal of hazardous materials	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment	LTSM	NI (-)	LTS (=)	LTSM (=)	LTSM (=)
Impact HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school	LTSM	NI (-)	LTS (=)	LTSM (=)	LTSM (=)

Impact	Level of Impacts with Mitigation				
	Project	**No Project**	**Increased Dredge**	**FAHCE-Plus Modified ~~Enhanced~~**	**Ogier Ponds**
Impact HAZ-4: 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 create a significant hazard to the public or the environment	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (+)
Impact HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (=)
Impact HAZ-6: Create a significant hazard to construction workers or the public through exposure to Valley Fever during Construction Activities	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)
Hydrology					
Impact HYD-1i: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site	SU	SU (+)	SU (-)	SU (=)	SU (=)
Impact HYD-1ii: 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 ~~matter~~ which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact HYD-1iii: 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 ~~matter~~ which would 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	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact HYD-1iv: 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 ~~matter~~ which would impede or redirect flood flows	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact HYD-2: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of dam failure	LTS	SU (+)	LTS (=)	LTS (=)	LTS (=)

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus Modified ~~Enhanced~~	Ogier Ponds
Impact HYD 3: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Groundwater Resources					
Impact GW-1: Substantially decrease groundwater supplies or interfere substantially with ground-water recharge such that the Project may impede sustainable groundwater management of the basin	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (=)
Impact GW-2: Violate groundwater water quality standards or substantially degrade groundwater quality	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)
Impact GW-3: Conflict with or obstruct implementation of the San Francisco Bay Basin Plan groundwater provisions or the District's GWMP	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (=)
Water Supply					
Impact WS-1: Substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years	LTS	SU (+)	LTS (=)	LTS (=)	LTS (=)
Impact WS-2 ~~GW-2~~: Require or result in the relocation or construction of new or expanded water facilities, the construction of which could cause significant environmental effects	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (=)
Water Quality					
Impact WQ-1: Impair beneficial uses of surface waters OR violate any applicable surface water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality OR conflict or obstruct implementation of a water quality control plan	SU	SU (+)	SU (-)	SU (=)	SU (=)
Land Use and Planning					
Impact LU-1: 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	LTS	NI (-)	LTS (=)	LTS (=)	LTS (+)

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus <u>Modified</u> ~~Enhanced~~	Ogier Ponds
Noise and Vibration					
Impact NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, or generation of substantial incremental increase in noise levels	SU	NI (-)	SU (+)	SU (=)	SU (=)
Impact NOI-2: Generate excessive groundborne vibration or groundborne noise levels	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)
Public Services					
Impact PS-1: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (=)
Impact PS-2: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (=)
Recreation					
Impact REC-1a: Temporary increased use of neighboring recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (=)
Impact REC-1b: Permanent loss of recreational facilities resulting in substantial physical deterioration, or the acceleration of physical deterioration, of neighboring facilities	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact REC-2: Construction or expansion of recreational facilities which might have an adverse physical effect on the environment	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Transportation					
Impact TR-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities	LTSM	SU(+)	LTSM (=)	LTSM (=)	LTSM (=)

Impact	Level of Impacts with Mitigation				
	Project	**No Project**	**Increased Dredge**	**FAHCE-Plus Modified ~~Enhanced~~**	**Ogier Ponds**
Impact TR-2: Conflict with or be inconsistent with *CEQA Guidelines* Section 15064.3, subdivision (b)	LTS	NI (-)	LTS (=)	LTS (=)	LTS (-)
Impact TR-3: Substantially increase hazards due to a geometric design feature or incompatible use	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact TR-4: Inadequate emergency access	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (=)
Tribal Cultural Resources					
Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource listed or eligible for listing in the California Register of Historical Resources or determined by Valley Water to be significant	LTSM	LTS (-)	LTSM (+)	LTSM (=)	LTSM (=)
Utilities and Service Systems					
Impact UTL-1: Require or result in the replacement, relocation, or construction of new or expanded stormwater drainage, telecommunication, or electric power facilities, the construction or relocation of which could cause significant environmental effects	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact UTL-2: Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, otherwise impair the attainment of solid waste reduction goals, or fail to comply with federal, State, and local management and reduction statutes and regulations related to solid waste	LTS	NI (-)	LTS (=)	LTS (=)	LTS (+)
Wildfire					
Impact WF-1: Exacerbate wildfire risks and expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact WF-2: Require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact WF-3: 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	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)

Impact	**Level of Impacts with Mitigation**				
	Project	**No Project**	**Increased Dredge**	**FAHCE-Plus Modified ~~Enhanced~~**	**Ogier Ponds**
Impact WF-4: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)

Key: LTS = less than significant; LTSM = less than significant with mitigation; SU = significant and unavoidable; NI = no impact

ES.8.7 Environmentally Superior Alternative

CEQA Guidelines Section 15126.6(e)(2) requires the identification of an environmentally superior alternative to the proposed Project. If the environmentally superior alternative is the no project alternative, the EIR shall also identify an environmentally superior alternative among the action alternatives. For this EIR, the No Project Alternative is not considered environmentally superior. Although it avoids some of the Project's significant impacts, as shown in **Table ES-2** ~~**Table 5-8**~~, it creates new significant and unavoidable impacts for many important resources, including fisheries resources, wildlife and terrestrial resources, hydrology, water quality, groundwater, water supply and recreation. It also would not meet the Project purpose and fundamental Project objectives.

Of the alternatives considered in the EIR, the FAHCE-Plus Modified Alternative is considered the environmentally superior alternative. This alternative achieves all the Project objectives and provides more benefits than the Project for special-status fish species, specifically for steelhead, Chinook, and Pacific lamprey, southern coastal roach, and Sacramento hitch, thus better achieving the Project objective to avoid and minimize environmental impacts. It also does not cause new or worse significant impacts as compared to the Project.

ES.9 Areas of Known Controversy

CEQA Guidelines Section 15123 states that an EIR must identify areas of known controversy that might have been raised by other agencies, the public, or other stakeholders. Areas of communicated controversy related to the EIR identified in the EIR scoping process include, but are not limited to, the following:

- Project Duration: Many public commenters over the years have expressed concerns about length of the Project ~~project~~ and length of the impacts associated with construction.
- Coordination with FAHCE: The FAHCE program covers aspects of adaptive management for Coyote Creek. While the FAHCE Final Program EIR was certified by Valley Water’s Board of Directors on August 8, 2023, comments were made by stakeholders regarding the adequacy of the program.

Areas of communicated controversy identified during public review of the Draft EIR and Partially Recirculated Draft EIR include:

- Air quality impacts, including dust and health risk, at nearby residential uses during construction.
- Increased noise from construction and construction traffic, as well as nighttime construction noise.
- Length of park closures.
- Increased wildfire risk during construction
- Emergency access and impairment of evacuation routes.

ES.10 Issues to be Resolved

CEQA Guidelines Section 15123 calls for the lead agency to disclose issues to be resolved, including the choice among alternatives and whether or how to mitigate significant effects. Issues to be resolved related to the proposed Project or EIR include, but are not limited to, the following:

- Securing access rights to Santa Clara County-owned parkland for the construction and maintenance of the Seismic Retrofit and Conservation Measures
- Securing access rights to privately owned land for the construction and maintenance of Seismic Retrofit Project and Conservation Measures
- Timely completion of the Coyote Creek Flood Protection Project prior to the start of Project dam embankment construction
- Choice of EIR alternatives and how to mitigate significant environmental impacts.

ES.11 Stakeholder Coordination and Public Involvement Process

ES.11.1 Stakeholder Coordination and Engagement Process

Valley Water has coordinated and engaged with a number of stakeholders, including regulatory agencies, Tribal representatives, and the public, outside of the formal CEQA scoping process since 2013. Valley Water has hosted interagency meetings on at least a quarterly basis since 2018 to discuss the Project, and these meetings will continue throughout the Project. Agencies represented at these meetings include FERC Division of Hydropower Administration and Compliance (FERC DHAC), FERC Division of Dam Safety and Inspections, USFWS, NMFS, CDFW, USACE, SWRCB, RWQCB, USEPA, SCVHA, SHPO, and Santa Clara County Department of Parks and Recreation. Technical and executive working groups were formed with that included most of these agencies.

Outreach with tribal representatives began in 2018 and has been advancing under the FOCP Programmatic Agreement between FERC DHAC and the SHPO.

Additionally, Valley Water has held public information meetings at least once per year since 2017 and began holding public meetings twice per year in 2020, in response to the FERC Order, and to keep the public informed about the advancement of the Project.

ES.11.2 EIR Scoping

Valley Water circulated a Notice of Preparation and Initial Study for the Project on August 13, 2013. Although not specifically required by CEQA, Valley Water held an informational public scoping meeting on August 26, 2013. A scoping report, which includes the NOP and comments received in response to the NOP and at the scoping meeting, is included in this ~~Draft~~ Final EIR as Appendix B, *Notice of Preparation/Initial Study and Scoping Report*.

ES.11.3 Draft EIR Public Comment Period

On September 1, 2023, Valley Water ~~has~~ issued a Notice of Availability of the Draft EIR to provide agencies and the public with formal notification that the Draft EIR ~~is~~ was available for review and comment. The Notice of Availability, Draft EIR, and selected appendices ~~are~~ were made available at the following website: www.valleywater.org/ADSRP. Copies of the Draft EIR and appendices ~~are~~ were also made available for review at the following locations:

- Valley Water, 5750 Almaden Expressway, San José, California 95118-3686
- City of Morgan Hill, 17575 Peak Avenue, Morgan Hill, California 95037
- City of Morgan Hill Library, 60 West Main Avenue, Morgan Hill, California 95037

Valley Water ~~is circulating this~~ circulated the Draft EIR for a 68-day ~~60-day~~ public review and comment period between September 1 and November 8, 2023~~. and will host a public meeting to receive public comments during this period.~~ The public meeting for the Draft EIR ~~is scheduled for~~ was held on October 4, 2023, from 6:30 p.m. to 8:00 p.m. at the Morgan Hill Community and Cultural Center.

~~Written comments concerning this Draft EIR should be mailed or emailed during this review period and should be directed to the name and address listed below. Please submit your response at the earliest possible date, but no later than 60 days from release of the Draft EIR on September 1, 2023, on November 1, 2023.~~

~~Tiffany Chao, Senior Environmental Planner~~
~~Santa Clara Valley Water District~~
~~5750 Almaden Expressway~~
~~San José, California 95118-3686~~
~~(408) 630-3107~~
~~ADSRPcomments@valleywater.org~~

~~Written comments received on the Draft EIR will be addressed in the Final EIR.~~

Valley Water received a total of 90 comment letters or other written documents, such as emails on the Draft EIR, before the close of the public review and comment period. Written comments received on the Draft EIR are included and responded to in Chapter 7 of this Final EIR. Additionally, 34 letters related to EIR contents were received related to the separate FERC petition process associated with the Project during the Draft EIR public review and comment period. These 34 FERC-related letters are addressed in Chapter 7, although they were not submitted as Draft EIR comment letters and therefore no responses were required under CEQA.

ES.11.4 Partially Recirculated Draft EIR Public Comment Period

After circulation of the Draft EIR, Valley Water met with the Project Board of Consultants (BOC), which reviews the Project and makes recommendations to FERC, to discuss updated design plans and construction sequencing. In response to that meeting and BOC recommendations, Valley Water made certain construction changes such as extending work hours, adding some weekend days, and beginning work on certain Project components sooner. These proposed changes would allow Valley Water to construct planned Project components within the planned construction timeline before the wet season each year to improve its ability to complete the Project on schedule.

These Project changes necessitated revisions to certain impact analyses in the aesthetics, air quality, greenhouse gas emissions, and noise and vibration sections of the Draft EIR, as well as associated technical appendices, which were included in a Partially Recirculated Draft EIR.

On August 5, 2024, Valley Water issued a Notice of Availability of the Partially Recirculated Draft EIR to provide agencies and the public with formal notification that the Partially Recirculated Draft EIR was available for review and comment. The Notice of Availability, Partially Recirculated Draft EIR, and selected appendices were made available at the following website: https://www.valleywater.org/public-review-documents. Copies of the Partially Recirculated Draft EIR and appendices were also available for review at the following locations:

- Valley Water, 5750 Almaden Expressway, San José, California 95118-3686
- City of Morgan Hill, 17575 Peak Avenue, Morgan Hill, California 95037
- City of Morgan Hill Library, 60 West Main Avenue, Morgan Hill, California 95037

Valley Water circulated the Partially Recirculated Draft EIR for a 45-day public review and comment period between August 5 and September 20, 2024.

Valley Water received a total of 11 comment letters or other written documents such as emails on the Partially Recirculated Draft EIR before the close of the public review and comment period. Written comments received on the Partially Recirculated Draft EIR are included and responded to in Chapter 8 of this Final EIR.

ES.11.5 Preparation of Final Environmental Impact Report and Project Approval Process

The Final EIR consists of a comprehensive revision to the EIR that occurred after public circulation of the Draft EIR and Partially Recirculated Draft EIR (including technical appendices), public comments on the Draft EIR and Partially Recirculated Draft EIR received during public review periods, and responses to the public comments. Revisions include the following:

- Updates to the Project description to replace construction of the North Channel Extension with the Maintenance of the North Channel Reach
- Changes to the Ogier Ponds Conservation Measure
- Refinements to the Sediment Augmentation Program,
- Refinements to the number of construction and haul trips
- Changes to the temporary trail closures
- Changes to the construction sequencing of the Phase 2 Coyote Percolation Dam CM,
- Clarifications of the construction phase monitoring
- Other minor changes and corrections.

Changes to the Project description are reflected in revised modeling for air quality, greenhouse gasses, energy, and noise and vibration. In addition, minor changes and clarifications were made to the FAHCE-Plus Modified Alternative description and impact analysis.

Some of the Chapter 3 impact analyses and mitigation measures were revised to reflect changes in the Project description to address public and regulatory agency Draft EIR comments, and to increase accuracy, but impact significance conclusions remained the same. Preparation of a Water Quality Monitoring and Protection Plan was added as new Mitigation Measure WQ-1 to reduce significant unavoidable water quality and erosion impacts related to in-reservoir construction that were identified in the Draft EIR. Mitigation Measure REC-1 was refined based on Draft EIR comments and coordination with Santa Clara County. The wildfire impact analysis and Mitigation Measure WF-1 were refined in response to Draft EIR comments and additional public input. Additionally, Mitigation Measure GHG-1 was refined to provide flexibility in offsetting greenhouse gas emissions. Mitigation Measure NOI-3 was refined based on the revised noise analysis which was updated based on Project Description changes.

All written comments received on the adequacy of the Draft EIR and Partially Recirculated Draft EIR during the public review periods are addressed in “response to comments” chapters in this Final EIR (Chapters 7 and 8). The response to comments and Final EIR also presents changes to the EIR resulting from public and agency comments, and Valley Water staff-initiated changes. Text changes to the Draft EIR or Recirculated Draft EIR are shown in this Final EIR in underline (new text added) and ~~strikeout~~ (deleted text) format. Occasional changes to figures are shown by inserting new figures and striking out the prior figures. Appendices are not included in underline and strikeout to improve readability.

As previously mentioned, the revisions to the Project and alternatives descriptions in the Final EIR do not change the fundamental nature or main features of the Project or alternatives. None of the comments, responses, or Final EIR revisions constitute “significant new information” that would require further Draft EIR recirculation under CEQA Guidelines Section 15088.5. Commenting agencies will receive a notice of the Final EIR’s availability, including proposed responses to their comments and proposed revisions to the EIR, at least 10 days before Project approval.

Prior to any decision on the Project, the Board will review the Final EIR and consider certifying the document and approving the Project or an alternative at a regularly scheduled Board meeting. Prior to making a decision on the Project, the Valley Water Board must certify that: (1) the Final EIR has been completed in compliance with CEQA, (2) the Final EIR was presented to the decision-making body of the lead agency (Valley Water Board), and (3) the decision-making body (Valley Water Board) reviewed and considered the information in the Final EIR prior to approving a project (CEQA Guidelines Section 15090). Following EIR certification, the Valley Water Board would then consider adopting written findings for each significant adverse environmental effect identified in the EIR (*CEQA Guidelines* Section 15091) and a statement of overriding considerations (*CEQA Guidelines* Section 15093). At the time that CEQA findings are adopted, Valley Water would also adopt a mitigation monitoring and reporting program for adopted mitigation measures. Descriptions of these documents are as follows:

- **Findings/Statement of Overriding Considerations.** For each significant impact of the Project identified in the EIR, Valley Water must find, based on substantial evidence, that either: (1) the Project has been changed to avoid or substantially reduce the magnitude of the impact, (2) changes to the Project are within another agency’s jurisdiction and such changes have or should be adopted, or (3) specific economic, social, or other considerations make the mitigation measures or Project alternatives infeasible (CEQA Guidelines Section 15091). A Statement of Overriding Considerations must be adopted for significant unavoidable impacts that sets forth the specific social, economic, or other reasons supporting the agency’s decision (CEQA Guidelines Section 15093).

- **Mitigation Monitoring Reporting Program.** CEQA requires the lead agency to adopt a Mitigation Monitoring and Reporting Program for mitigation measures that are adopted to avoid or substantially lessen significant effects on the environment. (CEQA Guidelines Section 15097[a]).

After these actions, Valley Water would consider whether to approve the Project or an alternative. If the Board decides to certify the EIR and approve the Project or an alternative, Valley Water would then file a Notice of Determination.

ES.12 References

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______. 2020f. FERC Order Compliance Project for Anderson Reservoir and Dam: Western Pond Turtle Monitoring Plan. Prepared by H.T. Harvey & Associates December 2020.

______. 2020g. Sediment Deposition Monitoring Plan in Coyote Creek Downstream of Anderson Dam. Prepared by Stillwater Sciences on behalf of the Santa Clara Valley Water District. Federal Energy Regulatory Commission Order Compliance (P-5737-007). November 2020.

______. 2020h. FERC Order Compliance Project for Anderson Reservoir and Dam: Invasive Species Monitoring and Control Plan. December 2020.

______. 2021a. Anderson Dam Seismic Retrofit Project Unlined Spillway Channel Improvement Alternatives Technical Memorandum. Prepared by URS. Prepared on April 13, 2021. ~~May 23, 2021~~

______. 2021b ~~2023a~~. Groundwater Management Plan.

~~______. 2021b. Anderson Reservoir Outlet Fyke Trapping and PIT Tag Monitoring Plan. Prepared by Valley Water, San José, California. September 2021.~~

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______. 2023a ~~2023b~~. Coyote Creek Modifications Basis of Design Technical Memorandum, Version 4. Prepared by URS on February 28, 2023.

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Chapter 1
INTRODUCTION

The Santa Clara Valley Water District (Valley Water) has prepared this ~~Draft~~ Final Environmental Impact Report (EIR) to provide the public, responsible agencies, and trustee agencies with information regarding the potential environmental effects of the Anderson Dam Seismic Retrofit Project (Project). The Project involves retrofitting and upgrading Anderson Dam and associated facilities to meet Federal Energy Regulatory Commission (FERC), California Department of Water Resources (DWR) ~~California Department of Water Resources,~~ Division of Safety of Dams (DSOD), and Valley Water public safety requirements, decommissioning the hydroelectric facility at the dam to reduce operating costs, implementing Conservation Measures that include Phase 1 measures described in the Fish and Aquatic Habitat Collaborative Effort (FAHCE) *Settlement Agreement Regarding Water Rights of the Santa Clara Valley Water District on Coyote, Guadalupe and Stevens Creeks*, initialed by the Initialing Parties on May 27, 2003 (hereafter referred to as the FAHCE *Settlement Agreement*; FAHCE 2003) and Fish Habitat Restoration Plan (FHRP) within Coyote Creek, and continuing to operate the dam after retrofit, consistent with the FAHCE rule curves. Valley Water has prepared this EIR pursuant to requirements under the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] section 21000 et seq.) and the *CEQA Guidelines* (14 California Code of Regulations [CCR] section 15000 et seq.).

The revised Draft EIR—including new comment response chapters (Chapters 7 and 8) with public comments and responses, as well as technical appendices, some of which have been revised — constitutes the Final EIR for the Project, consistent with *CEQA Guidelines* requirements. The Final EIR is an informational document prepared by the lead agency that must be considered by decision makers before approving a proposed project. The CEQA Guidelines (section 15132) specify that a Final EIR shall consist of the following elements:

- Draft EIR or a revision of the draft
- Comments and recommendations received on the Draft EIR, verbatim or summarized
- List of persons, organizations, and public agencies that commented on the Draft EIR
- Responses of the lead agency to significant environmental points raised in the review and consultation process
- Any other information added by the lead agency

The Final EIR integrates the Draft EIR released on September 1, 2023, and the Partially Recirculated Draft EIR released on August 5, 2024. The following types of further revisions have been made to the Draft EIR and Partially Recirculated Draft EIR text. These are shown in underline and ~~strikeout~~ format.

- Minor revisions to the Project description, impact analyses, and alternatives to respond to Draft EIR and Partially Recirculated Draft EIR comments, and input from regulatory agencies.
- Valley Water-initiated minor changes to the Project description, impact analyses, and alternatives.
- Other minor Valley Water-initiated corrections, updates, clarifications and amplifications.

Refer to Section 1.7.7 for more details on the changes incorporated into this Final EIR. The revisions to the Project and alternatives descriptions do not change the fundamental nature or main features of the Project or alternatives, and none of the revisions to the Draft EIR or Recirculated Draft EIR made in the Final EIR constitute significant new information requiring recirculation of the EIR (CEQA Guidelines Section 15088.5).

Chapter 1 provides an overview of the Project's geographic area and gives a brief history of the Project, including evolving FERC and DSOD requirements, FERC-ordered ~~seismic~~ restrictions, and the FERC Order Compliance Project (FOCP) and FAHCE background. This chapter also defines the requirements and scope of the EIR analysis and offers clarity about how this EIR will be used in agency decision-making. Finally, Chapter 1 provides an overview of the agency coordination and public involvement processes, including opportunities for public input, ~~identifies areas of controversy and issues to be resolved,~~ and summarizes the organization of the EIR.

1.1 Geographic Area Overview

1.1.1 Coyote Creek Watershed

European settlement and the initiation of irrigated farming resulted in significant changes to natural stream conditions and hydrology of the Coyote Creek watershed. To contain flood flows, stream channels were enlarged, and levees were constructed. To quickly convey flood flows through vulnerable portions of the lower watersheds, previously natural stream channels were hardened with concrete and/or straightened. In addition, urbanization greatly reduced the amount of permeable land, resulting in faster runoff occurring in the streams.

Since the formation of Valley Water, additional changes to streams and the watershed have occurred through the construction and operation of stormwater, flood management, and water supply facilities. Modifications to the streams included the building of dams, percolation ponds, levees, canals, pipelines, ditches, culverts, concrete channels, flow modification structures, diversion structures, fish ladders, and other facilities.

1.1.2 Anderson Reservoir and Dam

Anderson Reservoir is a major water supply facility for the approximately 1.9 million people of Santa Clara County, located adjacent to Morgan Hill, California, about 18 miles southeast of San José (**Figure 2-1** in Chapter 2, *Project Description*). Anderson Reservoir is the largest of the ten reservoirs owned and operated by Valley Water and provides a greater water storage capacity than the other nine reservoirs combined. It is a critical facility to Valley Water and the communities it serves.

The Anderson Reservoir Dam was completed for water supply and groundwater recharge purposes in 1950 as a zoned, rockfill embankment dam. It has a maximum height of approximately 240 feet and impounds up to 90,373 acre-feet (AF) of water at its maximum reservoir operating elevation,[1] more than all the other reservoirs in the county combined.

Anderson Reservoir and Dam are operated and maintained under licenses granted by the DSOD and a conditional exemption from FERC, as well as water rights licenses administered by the State Water Resources Control Board (SWRCB). Valley Water holds SWRCB water rights licenses for the Coyote Creek watershed that allow water diversion and storage for irrigation and domestic uses. Corresponding facilities manage and release instream flows to creeks and rivers in the Project Area and recharge the Santa Clara Plain portion of the Santa Clara Subbasin, where released water is used to provide instream recharge for water supply, prevent groundwater pumping-related subsidence, and provide municipal and industrial supplies when diverted from the creeks to off-stream percolation facilities.

Anderson Reservoir also provides incidental flood protection to properties and property owners near Coyote Creek by capturing and storing stormwater and then releasing it at a time when the creek would normally be dry. The water released percolates into the creek bed or is rediverted from the creek into percolation ponds to support groundwater recharge. Releasing stored water into the creek also provides incidental ecological benefits, since water is present in the creek to provide cooler flows when the creek might otherwise be dry or exhibiting higher temperatures and is useful to aid migration of steelhead and other migratory fish. Additionally, Valley Water's Anderson Dam Hydroelectric Facility, located along Cochrane Road to the west of Anderson Dam, generates energy from water released from the Anderson Dam through its outlet pipe. Throughout the lifetime of the facility, it has generated approximately 39,700,000 kilowatt-hours (kWh) of renewable energy. Anderson Reservoir operations also incidentally provide reservoir and creekside recreation opportunities and a source of water for fighting fires.

Anderson Dam and Reservoir are subject to dam safety regulations and requirements established by the DSOD and FERC. These regulations include requirements to assemble a team of independent experts to inspect Anderson Dam every 5 years to evaluate all conceivable potential risks to the dam and develop strategies to minimize these risks. The Project involves retrofitting and upgrading Anderson Dam and associated facilities to meet FERC and DSOD requirements. These include DSOD requirements to modify the outlet works at Anderson Reservoir so that it is capable of drawing down the reservoir's maximum storage depth by 10 percent in 7 days and full contents in 90 days (DSOD 2018 ~~2017~~), FERC requirements that the dam embankment be capable of withstanding the maximum credible earthquakes (MCEs) on the Calaveras and Coyote Creek Faults, and FERC requirements that the spillway safely pass the flood flows related to passage of the probable maximum flood (PMF) event and emergency reservoir drawdown (~~FERC 2021a~~).

1.2 Valley Water Mission

Valley Water was created by an act of the California Legislature and operates as a California Special District with jurisdiction throughout Santa Clara County. Valley Water's mission is to

[1] Anderson Reservoir was constructed in 1950 with a maximum storage capacity of 90,373 AF. Due to sedimentation, the maximum storage available in 2020, assuming the reservoir had been operated at the maximum dam elevation, was approximately 89,278 AF (URS 2020).

provide Silicon Valley safe, clean water for a healthy life, environment, and economy. Valley Water is entrusted to serve the public by executing its mission for the benefit of the community and is accountable for executing its responsibilities safely, with honesty and integrity, and fulfilling the vision that Valley Water is nationally recognized as a leading water resources management agency.

Valley Water began managing water resources in the county in 1929, largely in response to the over pumping of Santa Clara Valley groundwater. Valley Water constructed conservation reservoirs to capture rainfall and replenish the underground aquifer through managed groundwater recharge.

Valley Water manages streams, canals, reservoirs, dams, pipelines, groundwater percolation facilities, and water treatment plants throughout the county to fulfill its responsibilities. Valley Water accomplishes its responsibilities in an environmentally responsible and cost-effective manner.

To meet countywide needs, Valley Water's water supply and distribution system relies on the following major facilities (Valley Water 2019a):

- ten surface raw water reservoirs, totaling 169,000 AF of reservoir storage capacity
- five instream water supply diversion dams
- 279 miles of natural channels and 44 miles of concrete-lined channels
- 17 miles of raw surface water canals and ditches
- 25 groundwater recharge pond facilities
- 98 miles of controlled instream recharge
- 142 miles of pipelines
- three raw water pumping stations
- three drinking water treatment plants
- one advanced water purification plant

As Santa Clara County's water wholesaler, Valley Water ensures a dependable supply of clean, safe water for homes and businesses. Valley Water currently provides approximately 284,000 acre-feet per year (AFY) of water for municipal, industrial, agricultural, and environmental uses (Valley Water 2017a). As the agency responsible for local flood protection, Valley Water also works diligently to protect Santa Clara Valley residents and businesses from the devastating effects of flooding. Valley Water's stream stewardship includes creek restoration and wildlife habitat projects, mitigation monitoring, pollution prevention efforts, and a commitment to natural flood protection.

Anderson Reservoir is part of Valley Water's raw water distribution system, and various infrastructure allows for operational flexibility of the reservoir and system. Anderson Reservoir can deliver water to the Anderson Dam Hydroelectric Facility below Anderson Dam, which then releases the water to Coyote Creek. In addition, Anderson Reservoir stores local runoff and imported water allocations from the Central Valley Project (CVP) that are conveyed to Anderson Reservoir through the Santa Clara Conduit. CVP water from San Luis Reservoir can also be released directly to Coyote Creek at the Coyote Discharge Line (CDL) turnout near the Anderson Dam Hydroelectric Facility about 1,300 feet downstream of Anderson Dam.

Due to its operational flexibility, size, and location, Anderson Reservoir has also been the Santa Clara Valley's most important source of emergency water supply. The reservoir was operated with DSOD restrictions, but prior to the FERC Order, to reserve 20,000 AF in the event of a water emergency, such as a pipeline disruption, prolonged power failure at the Pacheco Pump Plant, or severe drought (Valley Water 2019).

1.3 Project Background

1.3.1 Project Need and Purpose

As mentioned above, Anderson Dam and Reservoir are subject to dam safety regulation by the DSOD and FERC (FERC Project 5737). Anderson Dam is classified under FERC guidelines as a "High Hazard Potential" dam due to the potential incremental loss of life should failure occur.

Between 2008 and 2016, several dam safety deficiencies associated with seismic shaking, fault offset, flood capacity, and emergency drawdown capabilities were identified Anderson Dam Seismic Retrofit Project Planning Study Report (Valley Water 2017b):

- the presence of liquefiable materials in the embankment and foundation of the dam that could result in major slumping and failure of the embankment following a future large earthquake
- the presence of conditionally active[2] faults in the foundation that could rupture the existing low-level outlet
- a spillway that has inadequate capacity to safely pass large floods
- limitations in the dam outlet's capacity to quickly draw down the reservoir during floods or other emergency events

Additionally, in 2011, a Seismic Stability Evaluation (Valley Water 2011) identified potential embankment instability as a result of seismic shaking and liquefaction. The Project was initiated to remedy these seismic deficiencies and subsequently evolved as described in the next section in *Project History*.

The purpose of the Project is to seismically retrofit, maintain, and operate Anderson Dam and Reservoir to meet FERC and DSOD requirements, thereby allowing Valley Water to maximize water supply, groundwater recharge, and related incidental benefits, while avoiding and minimizing environmental impacts of the implementation of those safety directives and requirements. Specific project objectives are described in Chapter 2, *Project Description*.

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[2] Based on DSOD fault activity criteria (Fraser 2001), ***active*** faults have experienced surface or subsurface displacement in the last 35,000 years or have geomorphic evidence of latest Pleistocene displacement; ***conditionally active*** faults have experienced surface or subsurface displacement in the last 1.6 million years and have a displacement history during the last 35,000 years that is not known with sufficient certainty to consider the fault an active or inactive seismic source, or a pre-Quaternary fault that can be reasonably shown to have attributes consistent with the current tectonic regime; and ***inactive*** faults have had no surface or subsurface displacement in the last 35,000 years, as demonstrated by a confidently located fault trace that is consistently overlain by unbroken geologic materials 35,000 years or older or by other observation indicating lack of displacement. Faults that have no suggestion of Quaternary activity are presumed to be inactive.

1.3.2 Project History

The Project was initiated in 2009. At that time, Valley Water voluntarily established a reservoir restriction of 45 feet below the crest of the existing dam (equivalent to approximately 61,000 AF of reservoir storage, or 68 percent capacity). This voluntary restriction of the reservoir was reviewed and accepted by dam safety regulators, whereby the restricted elevation level was deemed acceptable for interim earthquake protection, water supply, and environmental protection pending CEQA compliance, regulatory permitting, and detailed design processes to address retrofitting the dam. Valley Water identified project activities in coordination with resource agencies and stakeholders beginning in 2009 at the outset of the Project and engaged the public as part of the CEQA process with the release of a Notice of Preparation (NOP) and initiation of public scoping in 2013 (Section 1.7 ~~1.8~~, *Agency Coordination, ~~and~~ Public Involvement Process, and CEQA Process*).

From that time through early 2020, Valley Water prepared Project design plans under the regulatory guidance of DSOD and FERC and consulted informally with environmental regulators regarding required environmental review and permitting documents for the Project. By early 2020, construction of the Project was scheduled to start in the fall of 2022.

On February 20, 2020, FERC staff determined that, due to limited existing outlet capacity at Anderson Dam and the presence of densely populated areas downstream of the dam, Valley Water needed to take additional, immediate measures to further reduce the risk of failure from an earthquake and a maximum probable flood event as much as possible until the Project could be implemented. FERC ordered Valley Water to implement interim risk reduction measures (IRRM) in advance of the Project (FERC 2020a; FERC IRRM Order). The IRRMs required, among other things, drawdown of Anderson Reservoir and expedited construction of the Anderson Dam Tunnel Project (ADTP). FERC also directed Valley Water to secure alternative emergency water supplies and to work with FERC staff and federal, state, and local resource agencies to develop Conservation Measures to avoid and minimize environmental impacts of IRRMs.

Pursuant to the FERC IRRM Order, Valley Water implemented IRRMs, including: (1) maintaining the reservoir no higher than elevation (elev.) 565 feet effective immediately in 2020; (2) lowering Anderson Reservoir to approximately elev. 490 feet (deadpool[3]) beginning no later than October 1, 2020; (3) taking all appropriate measures to maintain and quickly lower the reservoir to deadpool in the event of significant inflow once the approximately elev. 490 feet was reached; (4) assessing and addressing the issue of potential reservoir rim instability during drawdown; (5) expediting design, construction, and operations of the ADTP; (6) working with applicable regulatory agencies and others to avoid and minimize adverse effects of the IRRMs on groundwater recharge, water supply, and the environment; and (7) advancing the Project engineering and environmental review with haste. Conservation Measures developed by Valley Water in coordination with regulatory agencies included fish rescue and fish and habitat monitoring; dam outlet channel modifications to stabilize and improve fisheries habitat conditions; reservoir bank and rim stabilization work; construction and construction period operation of the reservoir, ADTP, Cross Valley Pipeline Extension, CDL, and Coyote Creek Chillers to provide water supply, recharge, and incidentally, creek environmental flows; Phase 1 Coyote

[3] Deadpool is the point at which flows through the Anderson outlet structure cease and is represented by the existing invert elevation (approximately elev. 490 feet) of the deepest intake port to the outlet of Anderson Reservoir.

Percolation Dam modifications to make operations more flexible and improve fish passage; Coyote Creek flood management projects to reduce potential for flooding impact of construction period operations of the Anderson Dam Tunnel and existing outlet; and habitat restoration.

In response to the FERC IRRM Order, Valley Water developed the FOCP, described in Section 1.3.3, to implement all FERC-directed IRRMs, and to identify and implement avoidance and minimization measures (AMM) necessary to address anticipated adverse environmental effects of complying with the FERC IRRM Order. Valley Water also requested FERC to initiate emergency consultation processes with regulatory agencies regarding the FERC IRRM Order, as appropriate. Technical Recommendations and recommended conditions of other regulatory agencies were incorporated into two additional FERC orders (FERC 2020b, 2021~~a~~) for the FOCP (described below in Section 1.3.3). FERC-ordered actions and regulatory agency Technical Recommendations resulted in subsequent changes to the Project's design plans, environmental and permitting documents, and construction schedule.

Between February of 2020 and the time this EIR was prepared, Valley Water has prepared new, updated design plans for the Project. With respect to operations, Valley Water proposes to implement the reservoir release rule curves (developed pursuant to the FAHCE *Settlement Agreement* by the FAHCE Technical Advisory Committee, which included representatives from all regulatory agencies. Proposed operations pursuant to the FAHCE rule curves are described below in Section 1.3.4.) ~~As discussed later in Chapter 2, *Project Description*, c~~ Construction of the Project is currently proposed to start in 2027 ~~early 2026~~.

1.3.3 FERC Order Compliance Project

In response to the FERC IRRM Order, Valley Water filed a Final Reservoir Operations and Drawdown Plan (Valley Water 2019) on July 27, 2020, to describe how Valley Water planned to implement the IRRMs related to drawdown and limiting storage in the reservoir until completion of construction of the Project Seismic Retrofit improvements, as well as describing the Conservation Measures proposed to address those actions.[4] The IRRMs specified in the FERC directive, together with the Conservation Measures that FERC directed Valley Water to develop to avoid and minimize adverse environmental impacts of those IRRMs, are described in the Final Reservoir Operations and Drawdown Plan and are collectively referred to as the FOCP.

On October 1, 2020, as Valley Water was initiating the reservoir drawdown, FERC issued its Order Approving, In Part, Reservoir Drawdown and Operations Plan, and an Environmental Assessment for Dam Safety Interim Risk Reduction Measures and Reservoir Drawdown and Operations regarding portions of the Reservoir Operations and Drawdown Plan (FERC 2020b). Later, on February 2, 2021, FERC issued its second Order Approving, In Part, Reservoir Drawdown and Operations Plan, and a Supplemental Environmental Assessment for Dam Safety Interim Risk Reduction Measures and Reservoir Drawdown and Operations regarding portions of the Reservoir Operations and Drawdown Plan, including construction of the ADTP and implementation of related Conservation Measures not addressed in the October 1, 2020, order (FERC 2021~~a~~). Both FERC orders require Valley Water to implement certain U.S. Fish and Wildlife

[4] The Final Reservoir Operations and Drawdown Plan (Valley Water 2019) was developed through the Fisheries Technical Working Group (TWG) that includes Valley Water, NMFS, and CDFW.

Service (USFWS), National Marine Fisheries Service (NMFS), and California Department of Fish and Wildlife (CDFW) Technical Recommendations to address environmental impacts of the FOCP, as well as measures recommended by other state and federal regulatory agencies, as modified by FERC staff. All the recommended aquatic Technical Recommendations were incorporated into the FOCP pursuant to FERC 2020b and FERC 2021~~a~~.

The FOCP, a related but independent project from the Project, is presently underway and projected to be completed in 2026 ~~summer 2025~~; it consists of the following main Project components (Valley Water 2020b):

- *Reservoir Drawdown to Deadpool.* Safe drawdown of Anderson Reservoir to deadpool and reservoir operation and water level maintenance until Anderson Dam tunnel is operational.
- *Anderson Dam Tunnel Construction.* Construction of a new outlet system that includes a new low-level outlet tunnel, lake tap, outlet structure, discharge channel (South Channel) improvements, and reopening of the original Coyote Creek channel (North Channel) downstream of the existing dam, and outlet weirs to govern releases to the channels. The new outlet system will be constructed at the base of Anderson Dam, through the right (looking downstream) abutment, along the southern side.
- *Anderson Dam Tunnel Operation and Maintenance.* Operation of Anderson Dam tunnel and water management procedures are anticipated to occur until seismic deficiencies can be fully mitigated at Anderson Dam (i.e., completion of Project).
- *Avoidance and Minimization Measures.* Implementation of measures to secure alternative water supplies and minimize environmental effects, including:
    - *Bank and Rim Stability Improvements*. Geotechnical investigations and installation of monitoring devices for areas of known landslides along Anderson Reservoir rim to address potential impacts of reservoir drawdown. Installation of additional structural improvements to protect against potential landslides will be installed, as required.
    - *Existing Intake Structure Modifications*. Geotechnical investigations and installation of monitoring devices near the intake structure to address potential geotechnical impacts of dewatering on the existing outlet structure. Installation of additional structural improvements to reinforce the existing Anderson Dam intake structure will be installed, as required.
    - *Creek Channel and Bank Erosion Control Modifications.* Modifications required to minimize erosion to accommodate drawdown and water management operations downstream of Anderson Dam, including reestablishment of the North Channel and stabilization with habitat measures in both the North and South Channels, to create two outlet channels and reduce the potential for erosion from outflows through the existing outlet and Anderson Dam Tunnel when completed.
    - *Imported Water Releases and Cross Valley Pipeline Extension.* Provide for imported water releases to Coyote Creek through the existing CDL immediately downstream of Anderson Dam and construction of a new Cross Valley Pipeline spur to discharge downstream of the County of Santa Clara-owned Ogier Ponds. Water releases from these pipelines will support water supply maintenance, groundwater recharge, subsidence prevention, and incidental in-stream environmental flows when

Anderson Reservoir is unavailable to provide water supply, storage, and releases needed.

- *Phase 1 Coyote Percolation Dam Project*. Replacement of the existing flashboard dam with an inflatable bladder dam that can quickly be deployed when inflows are low and deflated to allow higher flows to pass safely, improving flexibility in flow operations and fish passage during the FOCP. The inflatable bladder dam will protect aquatic resources, water supply, groundwater recharge, and reduce subsidence from the effects of dewatering and maintaining a lower elevation in the reservoir.
- *Coyote Creek Flood Management Measures*. Acquisition or elevation of ten residential properties and construction of six spans of off-stream floodwalls or levee. These measures will reduce flood risks from higher Coyote Creek flows during major storm events (i.e., a 10-year storm event) caused by maximum Anderson Dam tunnel flows combined with outflows from the existing outlet and local tributary inflows.
- *Coyote Creek Habitat Restoration Measures.* To provide compensatory mitigation for unavoidable temporary and permanent FOCP impacts to waters, wetlands, and riparian habitats, habitat restoration measures include aquatic and riparian habitat re-establishment and enhancement at construction areas; aquatic, wetland, and riparian habitat creation at the Coyote Creek North Channel; creek and riparian habitat enhancement along Coyote Creek South Channel; and creek creation and enhancement in Coyote Creek below the William F. James Boys Ranch.
- *Implementation of Additional FOCP-Specific Avoidance and Minimization Measures.* Implementation of Project-specific best management practices (BMP), Coyote Creek AMMs, and other environmental protection measures identified for the FOCP. Such measures include habitat, sediment, water quality, and fish monitoring and fish rescue efforts, when needed.

1.3.4 Fish and Aquatic Habitat Collaborative Effort

FAHCE is an existing, long-term program that Valley Water has agreed to implement in coordination with NMFS, CDFW, USFWS, and several nongovernmental environmental organizations. FAHCE seeks to improve aquatic spawning and rearing habitat and fish passage for migration to and from the watersheds of the Coyote and Stevens Creeks and Guadalupe River.

The program arose from the proposed settlement of a water rights complaint. In 1996, the Guadalupe-Coyote Resource Conservation District (GCRCD) filed a complaint with the SWRCB. The complaint alleged that Valley Water operations affected fish and wildlife, in conflict with requirements of the Water Code, Fish and Game Code, and other California laws.

In response to the 1996 complaint, Valley Water convened local environmental organizations and state and federal resource agencies in settlement negotiations and developed what is known as the FAHCE. FAHCE participants currently include Valley Water, Trout Unlimited, California Trout Inc., the Pacific Coast Federation of Fishermen’s Associations, NMFS, USFWS, and CDFW, collectively referred to as the “Initialing Parties.” Measures developed through

FAHCE are intended to modify instream flows and improve habitat conditions, as appropriate, to meet the management objectives specified in the FAHCE *Settlement Agreement*.

The FAHCE *Settlement Agreement* contains a restoration program that details those provisions defined during the FAHCE process for flow measures, fish habitat restoration, and barrier remediation measures in three watersheds: Coyote Creek, Stevens Creek, and Guadalupe River. The FAHCE Technical Advisory Committee (which included Valley Water staff, technical consultants, and representatives of the Initialing Parties) determined that implementation of these measures would help restore and maintain healthy populations of Central California Coastal steelhead trout (*Oncorhynchus mykiss*; steelhead trout or steelhead) and Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha*; Chinook salmon or Chinook) by providing: (1) suitable spawning and rearing habitat within each watershed, and (2) adequate passage for adult steelhead trout and salmon to reach suitable spawning and rearing habitat and for outmigration of juveniles.

Valley Water has prepared a FHRP to comprehensively implement the FAHCE *Settlement Agreement* (see Appendix A of the FAHCE Final EIR (Valley Water 2023) ~~B for portions of the FHRP applicable to Coyote Creek~~), including the creek management objectives and all measures approved by the Technical Advisory Committee for Coyote Creek. It includes Phase 1 measures to be implemented during the first 10 years and an Adaptive Management Program (AMP) that would monitor Phase 1 measures and determine whether additional Phase 2 or Phase 3 measures (currently undefined) are needed to achieve management objectives. Phase 4 is a perpetual management phase that could directly follow Phase 1, 2, or 3, depending on when the management objectives are found to be met. The FHRP was intended to serve as the basis for settlement between the complainants and Valley Water, if accepted by all parties and approved by the SWRCB.[5] The FHRP addresses all components of the FAHCE *Settlement Agreement,* including the long-term adaptive management of Coyote Creek measures and provides additional detail about how each Phase 1 measure has been or would be implemented. Monitoring and maintenance of measures completed, or of certain existing Valley Water facilities, are also included.

In 2015, Valley Water published an NOP for a single EIR that would analyze impacts of FAHCE *Settlement Agreement* implementation in all three watersheds (i.e., Coyote Creek, Stevens Creek, and Guadalupe River), and Valley Water began preparation of a draft FHRP and Draft EIR that covered all three watersheds.

In 2019, however, Valley Water decided it would be more appropriate and efficient to move CEQA review of the Coyote Creek watershed Phase 1 FAHCE measures to the Project EIR. This was decided primarily because the Project post-construction reservoir operations would be based on the Anderson Reservoir FAHCE rule curves (i.e., measures governing operational flow), and because the Project Conservation Measures would include Coyote Creek Phase 1 nonflow measures (e.g., geomorphic and habitat restoration, barrier remediation, development of environmental resource enhancement or monitoring plans, and/or implementation of practices intended to modify instream flows and improve habitat conditions).

[5] Valley Water subsequently found out the SWRCB considers the complaint "closed." However, Valley Water still intends to amend its water rights consistent with the FAHCE *Settlement Agreement*.

Therefore, Valley Water's CEQA review of the FAHCE *Settlement Agreement* measures occurs in two EIRs: the FAHCE Program EIR for Stevens Creek and Guadalupe River (Valley Water 2023) and the Project EIR for Coyote Creek. This approach is consistent with CEQA requirements to avoid "piecemealing" because (1) the Coyote Creek watershed is physically separated and isolated from the Stevens Creek and Guadalupe River watersheds and (2) the Coyote Creek, Stevens Creek, and Guadalupe River FAHCE measures have independent utility in that Conservation Measures within Coyote Creek could be implemented even if the Stevens Creek and Guadalupe River measures were not and vice versa. All things considered, for ease of future FAHCE implementation, Valley Water has decided to retain a single FHRP and AMP that includes a common AMP for all three watersheds.

The EIR, therefore, evaluates the impacts of the FAHCE Coyote Creek Phase 1 flow and nonflow measures (included in this EIR as Project components) and evaluates related monitoring, maintenance, and potential adaptive actions related to those measures. FAHCE Phase 2 and 3 measures, if determined to be necessary to meet FAHCE *Settlement Agreement* management objectives, may require additional CEQA review prior to implementation. The Project EIR does not evaluate the impacts of potential FAHCE Phase 2 and Phase 3 additional measures, because these measures are not currently known, nor are they reasonably foreseeable. Phase 4 is a perpetual management phase that could directly follow Phase 1, 2, or 3, depending on when the management objectives are found to be met. Phase 4 would include monitoring Valley Water facilities and the continuation of the AMP. Phase 4 measures following Phases 1, 2 or 3 may also require additional CEQA environmental review prior to implementation.

Table 1-1 provides a summary of the FAHCE *Settlement Agreement* terminology used throughout this EIR.

Table 1-1. Fish and Aquatic Habitat Collaborative Effort Program Terminology

Term (Acronym)	Definition
Fish and Aquatic Habitat Collaborative Effort (FAHCE)	The collaboration that began in 1996 between Valley Water, federal and state resource agencies, and Initialing Parties to identify actions to balance Valley Water's water supply operations with aquatic habitat needs in the Stevens Creek, Guadalupe River and Coyote Creek watersheds—these are reflected in the FAHCE *Settlement Agreement*.
Fish Habitat Restoration Plan (FHRP)	A Valley Water plan prepared to implement the FAHCE *Settlement Agreement*. It includes "Phase 1" measures to be implemented during the first 10 years and an AMP that would monitor Phase 1 measures and determine whether additional "Phase 2" or "Phase 3" measures (currently undefined) are needed to achieve management objectives. Phase 4 is a perpetual management phase that could directly follow Phases 1, 2, or 3, depending on when the management objectives are found to be met.
FAHCE Program Environmental Impact Report (EIR)	An EIR prepared for the disclosure of impacts related to implementation of the FAHCE FHRP Phase 1 measures in the Stevens Creek and Guadalupe River watersheds, amendments to associated Valley Water water rights (within those two watersheds), and implementation of the FHRP AMP (within those two watersheds).

Key: AMP = Adaptive Management Program; EIR = Environmental Impact Report; FAHCE = Fish and Aquatic Habitat Collaborative Effort; FHRP = Fish Habitat Restoration Plan

1.3.5 Coyote Creek Water Rights

Valley Water holds ~~five~~ four water right licenses and one permit for water diversions in the Coyote Creek watershed; each license allows diversions for irrigation and domestic uses, currently identified as the "beneficial uses" for these Valley Water facilities.

Pursuant to the FAHCE *Settlement Agreement*, Valley Water is proposing changes to all its currently held water rights in the Project area as part of the Project. The proposed water rights changes are ~~were~~ intended to resolve an SWRCB water rights complaint[6] and would incorporate Valley Water's implementation of the Coyote Creek-related measures specified in the FAHCE *Settlement Agreement* and included in the FHRP. Valley Water's draft water rights petitions are concurrently being reviewed by the SWRCB. **Table 1-2** summarizes the existing and proposed purpose of use for each of Valley Water's Coyote Creek water rights.

Table 1-2. Summary of Proposed Coyote Creek Water Rights Amendments

Valley Water Facility and License Number	Water Body	Existing Purpose of Use	Proposed Purpose of Use
Coyote Reservoir 7211	Coyote Creek	Domestic, irrigation, minor industrial, incidental recreation	Municipal, minor industrial, fish and wildlife preservation and enhancement
Coyote Percolation Pond 2210	Coyote Creek	Domestic and irrigation	Municipal, fish and wildlife preservation and enhancement
Anderson Reservoir 7212	Coyote Creek	Domestic, irrigation, industrial, recreational, incidental power	Municipal, industrial, incidental power, fish and wildlife preservation and enhancement
Anderson Reservoir 10607	Coyote Creek	Domestic, industrial, recreational, incidental power	Municipal, industrial, incidental power, fish and wildlife preservation and enhancement

Because approving the amendments is a discretionary action, the SWRCB, as a responsible agency, would rely on this EIR for CEQA compliance before approving the water rights amendments. The Project EIR would provide CEQA compliance for SWCRB's approval of Valley Water's water rights Petitions for Change in the Coyote Creek watershed.

[6] Valley Water subsequently discovered that the SWRCB considers the complaint "closed." However, Valley Water still intends to amend its water rights consistent with the FAHCE *Settlement Agreement*.

1.4 Overview of California Environmental Quality Act Requirements

CEQA is the cornerstone of environmental law and policy in California. CEQA's primary objectives (*CEQA Guidelines* section 15002) are to:

- ensure that the significant environmental effects of proposed activities are disclosed to decision-makers and the public
- identify ways to avoid or reduce environmental damage; prevent environmental damage by requiring implementation of feasible alternatives; and avoid, minimize, reduce, and/or compensate for environmental impacts through implementation of mitigation measures
- disclose the reasons for agency approval of projects with significant environmental effects
- foster multidisciplinary interagency coordination in the review of projects
- allow for public participation in the planning process

With certain limited exceptions, CEQA requires all state and local government agencies to consider the environmental impacts of projects over which they have discretionary authority before taking action on those projects. It establishes both procedural and substantive requirements that agencies must satisfy to meet CEQA's objectives. For example, if the CEQA lead agency determines that a proposed project could result in significant environmental impacts, CEQA requires that the agency prepare an EIR analyzing both the proposed project and a reasonable range of feasible alternatives.

As described in section 15121(a) of the *CEQA Guidelines*, an EIR is a public information document that assesses potential environmental effects of a proposed project and identifies mitigation measures and alternatives to the project that could reduce or avoid adverse environmental impacts. Other key procedural requirements include developing a plan for mitigation measure reporting and monitoring and accomplishing specific noticing and distribution steps to facilitate public involvement in the environmental review process.

The EIR is an informational document used in the planning and decision-making process. It is not the purpose of an EIR to recommend either approval or denial of a project.

Valley Water is the lead agency under CEQA because it is the public agency proposing to approve and execute the Project. The DSOD, SWRCB, CDFW, Santa Clara County, and Bay Area Air Quality Management District are considered responsible agencies under CEQA because they have discretionary approval over some aspect of the Project and would use this EIR for their CEQA compliance (Section 2.12, *Permits, Approvals, and Consultations* ~~2.10, *Permits and Approvals*~~).

1.5 Scope and Intent of this Environmental Impact Report

This EIR has been prepared in accordance with CEQA. The Valley Water Board of Directors will use the analyses presented in this EIR, and comments provided during the public review periods for the EIR, to evaluate the Project's environmental impacts and to consider approval of the Project.

The intent of this EIR is to evaluate in detail all the actions proposed to take place under the Project. The analysis in the EIR has been prepared at a "project level" pursuant to *CEQA Guidelines* Section 15161. Accordingly, this EIR focuses on changes in the environment that could result during all phases of the Project, including planning, construction, operation, and maintenance.

1.6 Selected Other Related Valley Water Projects and Programs (Not within Scope of this Document)

Valley Water is undertaking several other projects or programs, located within or nearby the Coyote Creek watershed that are not part of the Project but may affect related resources or have similar objectives but independent utility. These are noted in Chapter 3 of this EIR when relevant to the impact analysis and will be addressed, as appropriate, in the analysis of cumulative effects ~~in~~ throughout Chapter 3 ~~4~~. These related projects and programs are listed in **Table 1-3**. Selected Other Valley Water Projects and Programs with a more detailed description and analysis of selected projects and programs are included in the *Cumulative Impacts* sections throughout Chapter 3 of this EIR ~~in Section 4.5, *Cumulative Impacts*~~.

Table 1-3. Selected Other Valley Water Projects and Programs

Valley Water Project or Program	Brief Description	Relationship to the Project
FERC Order Compliance Project (Section 1.3.3)	This project implements the FERC IRRM Order in advance of the Project. IRRMs included lowering and maintaining Anderson Reservoir to approximately elev. 490 feet (deadpool); assessing and addressing potential rim instability during drawdown; implementing other Conservation Measures that are included in the FERC Order Compliance Project Habitat Mitigation and Monitoring Plan, such as the wetland bench, North Channel Improvements, and Live Oak Picnic Area Enhancement; and expediting design, construction, and operations of a new, low-level outlet.	As ordered by FERC, this project ~~Project~~ is being implemented on an emergency basis to provide immediate reduction of risk related to seismic deficiencies at Anderson Dam. This project will be implemented in advance of the Project.
FAHCE Program for Stevens Creek and Guadalupe River Watersheds (Section 1.3.4)	This project proposes implementation of the FAHCE FHRP Phase 1 measures and FHRP Adaptive Management Program in the Stevens Creek and Guadalupe River watersheds, and amendments to associated Valley Water water rights (within those two watersheds only).	The FHRP includes a common monitoring and adaptive management framework for all three watersheds (i.e., Stevens Creek, Guadalupe River, and Coyote Creek).

Valley Water Project or Program	Brief Description	Relationship to the Project
Dam Maintenance Program	The program identifies dam maintenance and repair activities to be executed in a series of 5-year work plans. The work includes regulatory compliance, for example, complying with permits issued by CDFW and the San Francisco and Central Coast RWQCBs, and a take authorization for protected terrestrial species under the <u>Santa Clara</u> Valley Habitat Plan.	Under this program, Valley Water maintains dam structures and facilities to ensure functions and operation that would be necessary to implement the Project.
Singleton Road Interim Bridge Project	The Singleton Road Interim Bridge Project removed a low-water crossing at Coyote Creek that was formerly a fish passage barrier and constructed a pedestrian bridge. Construction of the Singleton Road Interim Bridge Project was completed in December 2021.	Singleton Road Interim Bridge Project is an early implementation of the Phase 1 nonflows measures. This project removed a fish passage barrier along Coyote Creek, downstream of study area.
Stream Maintenance Program	The Stream Maintenance Program performs sediment removal, bank protection, vegetation management, and other routine maintenance activities throughout the county, including Coyote Creek. Although the primary work season is from June 15 through October 15, some stream maintenance activities can occur year-round in reaches where Valley Water holds fee title or easement.	Stream Maintenance Program work is conducted routinely in streams where the Project would be implemented.
Safe, Clean Water and Natural Flood Protection Program	The Safe, Clean Water and Natural Flood Protection Program provides grant and partnership funds for many water quality and habitat improvements projects. For example, as part of this program, Valley Water, Priority D projects are focused on restoring and protecting wildlife habitat. Work under this priority includes controlling nonnative, invasive plants, replanting natives species, and maintaining previously replated areas. Other projects include removing barriers to fish movement, improving steelhead habitat and stabilizing eroded creek banks. These priority projects also include Valley Water partially funding a creek/lake separation project in partnership with local agencies.	The <u>Project</u> ~~project~~ includes habitat restoration and removal of specific fish passage barriers to be remediated and efforts to continue removing barriers not specifically identified. As part of the <u>Project</u> ~~project~~, the Ogier Ponds Project construction is funded by more sources than just the Safe, Clean Water Program, which helps reduce the financial impact on the Safe, Clean Water Fund.

Valley Water Project or Program	Brief Description	Relationship to the Project
Mid-Coyote Creek Flood Protection Project	The Mid-Coyote Creek Flood Protection Project would construct improvements along approximately 9 miles of Coyote Creek, between Montague Expressway and Tully Road in San José.	The Mid-Coyote Creek Flood Protection Project is located downstream of the Project. The purpose of this project is to provide a 5% (20-year event) flood capacity in Coyote Creek throughout the study area.

Key: AMP = Adaptive Management Program; CDFW = California Department of Fish and Wildlife; FAHCE = Fish and Aquatic Habitat Collaborative Effort; FERC = Federal Energy Regulatory Commission; FHRP = Fish Habitat Restoration Plan; IRRM = Interim Risk Reduction Measure; Project = Anderson Dam Seismic Retrofit Project; RWQCB = Regional Water Quality Control Board

1.7 Agency Coordination, ~~and~~ Public Involvement, and CEQA Process

1.7.1 Agency Coordination

Valley Water has coordinated with a number of agencies throughout the planning process for the Project. A summary of key communications held between Valley Water and various agencies include:

- Valley Water staff have hosted regular interagency meetings since 2018, both in-person and by conference call, to discuss the Project. Interagency meetings typically have been attended by one or more individuals from the following agencies with regulatory jurisdiction over the Project: FERC Division of Hydropower Administration and Compliance (FERC DHAC), FERC Division of Dam Safety and Inspections (FERC D2SI), USFWS, NMFS, CDFW, U.S. Army Corps of Engineers (USACE), SWRCB, Regional Water Quality Control Board (RWQCB), U.S. Environmental Protection Agency (USEPA), Santa Clara Valley Habitat Agency (SCVHA), State Historic Preservation Office (SHPO), and Santa Clara County Parks and Recreation. These meetings have been held at least quarterly from 2018 to present and will continue throughout the Project.
- Valley Water organized site visits for the Project that were attended by multiple individuals representing various agencies.
- Valley Water staff and NMFS staff have participated in Fish and Frog Technical Working Group (Fish/Frog TWG) meetings with USFWS and CDFW biologists to discuss issues related to fish Conservation Measures and potential effects of those measures on other species, such as listed species like the California red-legged frog and the foothill yellow-legged frog regulated by USFWS and CDFW.
- Valley Water, NMFS, CDFW, and FERC staff formed a monthly TWG in late 2019 to discuss technical issues related to permitting biological impacts of the Project. These meetings have been held on a monthly basis since December 2019 to the present and will continue throughout the Project. Participation at the TWG meetings expanded in late 2020 to include additional resource agency staff from USFWS, SWRCB, and RWQCB. In 2021, TWG participation expanded further to also include USACE and USEPA.
- Additionally, TWG subcommittees have formed for discussion of the design of the North and South Channels, and for discussion of design and operation of the Coyote

Percolation Facility. These sub-TWG meetings are attended by Valley Water, CDFW and NMFS staff and have been held periodically as work products are available from May 2020 to present. These meetings will continue throughout the planning and design of the Project.

- Valley Water and regulatory agency executive management formed an Executive Fisheries TWG (E-TWG) with both CDFW and NMFS management. The focus of these meetings is to keep executive staff from the three agencies apprised of developments in the permitting of biological impacts for the Project. E-TWG meetings ensure timely resolution of pending issues. E-TWG meetings have occurred quarterly from March 2020 to the present and will continue throughout the Project.
- Executive management for Valley Water and state regulatory agencies (CDFW, SWRCB, RWQCB, and the Natural Resources Agency) formed an Executive Working Group (EWG). The focus of these meetings is to keep executive staff from all state regulatory agencies apprised of developments in permitting of the Project. These meetings have occurred quarterly from Spring 2021 to the present.

Quarterly updates regarding Project schedule, status, and progress were convened by Congresswoman Lofgren with Congresswoman Eshoo, Congressman Panetta, Congressman Khanna, and other state and local officials to coordinate with executive federal agency staff, including NMFS, USFWS, FERC, USACE, and Valley Water. These meetings have occurred quarterly from December 2019 to the present.

1.7.2 Public and Interest Group Engagement Process

Valley Water has conducted a total of 16 public information meetings since 2017 outside of the formal CEQA scoping process. In additional to those meetings, Valley Water has conducted the following meetings:

- 29 ~~26~~ public meetings
- 116 ~~24~~ meetings with Santa Clara County Parks
- 443 ~~370~~ meetings with regulatory agencies
- 6 ~~2~~ meetings with Tribal representatives

The Stakeholder Engagement record is provided in Appendix C.

1.7.3 California Environmental Quality Act Scoping Process

"Scoping" refers to the public outreach process used under CEQA to determine the scope and content of an EIR. The scoping comment period offers an important opportunity for public review and comment in the early phases of a project.

1.7.3.1 Notice of Preparation and Scoping Comments

The scoping process for an EIR begins with publication of the NOP as required by CEQA. The NOP provides formal notice to the public and to interested agencies and organizations that a Draft EIR is being prepared. During the scoping period, agencies and the public are invited to offer comments on the approach to environmental analysis and identify any issues of concern.

In accordance with *CEQA Guidelines* Section 15082(a), Valley Water circulated an NOP for the Project on August 13, 2013. The NOP was circulated to the public; the Governor's Office of Planning and Research State Clearinghouse; responsible, trustee, and other relevant local, state, and federal agencies; and other interested parties.

Although not specifically required by CEQA, Valley Water held an informational public scoping meeting on August 26, 2013, in the Hiram Morgan Hill Room of the Morgan Hill Community and Cultural Center, located at 17000 Monterey Road, Morgan Hill. To solicit attendance, Valley Water published advertisements in a local newspaper and mailed notices to interested parties who had signed up to receive Project-related information at previous public meetings conducted during the Project's planning phase. A scoping report, which includes the NOP and comments received in response to the NOP and at the scoping meeting, is included in this ~~Draft~~ Final EIR as Appendix B, *Notice of Preparation/Initial Study and Scoping Report*. Valley Water considered Scoping Report comments when preparing the relevant sections of this EIR.

Valley Water also prepared an Initial Study (IS) for the Project and circulated the IS for public review along with the NOP. The IS evaluated potential environmental impacts associated with the Project based on preliminary information. Valley Water determined in the IS that several environmental resource topics did not have the potential for significant impacts. For this reason, those environmental resource topics have been dismissed from further evaluation in this EIR. Determinations to dismiss any environmental resource topics from evaluation in this EIR are explained in detail as part of Section 3.0, *Regulatory and Environmental Setting and Impact Analysis*.

1.7.4 Tribal Consultation

Assembly Bill (AB) 52, passed in 2014, requires formal consultation with Native American Tribes during the CEQA process for projects that have an NOP filed on or after July 1, 2015. Formal consultation under AB 52 is not required for this EIR because the NOP was filed on August 13, 2013; however, Valley Water has provided notification letters to Tribal representatives throughout the EIR development, and has consulted with Tribes that may be affected by the Project, consistent with CEQA requirements.

1.7.5 Draft Environmental Impact Report Comments ~~Period~~

On September 1, 2023, Valley Water ~~has~~ issued a Notice of Availability of the Draft EIR to provide agencies and the public with formal notification that the Draft EIR ~~is~~ was available for review and comment. The Notice of Availability, Draft EIR and selected appendices ~~are~~ were made available at the following website: www.valleywater.org/ADSRP. The Draft EIR and all appendices ~~are~~ were also made available for review at the following locations:

Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118-3686
(408) 630-3055

City of Morgan Hill
17575 Peak Avenue
Morgan Hill, CA 95037

City of Morgan Hill Library
60 West Main Ave
Morgan Hill, CA 95037

~~The Draft EIR can be reviewed on any Valley Water business day between the hours of 7:30 a.m. and 5:00 p.m., Monday through Thursday, at the Valley Water headquarters building, located at 5750 Almaden Expressway, San José, CA 95118. Please contact Ms. Tiffany Chao at (408) 630-3107 to arrange a date and time for review.~~

Valley Water circulated the ~~is circulating this~~ Draft EIR for a 68-day ~~60-day~~ public review and comment period between September 1 and November 8, 2023. ~~and will host a public meeting during this period, to be announced in the Notice of Availability and on the Project website.~~ The public meeting for the Draft EIR was held on October 4, 2023, from 6:30 p.m. to 8:00 p.m. at the Morgan Hill Community and Cultural Center. The purpose of public circulation was ~~is~~ to provide agencies, stakeholders, and interested individuals with opportunities to comment on the contents of the Draft EIR.

~~Written comments concerning this Draft EIR should be mailed or emailed during this review period and should be directed to the name and address listed below. Please submit your written comments at the earliest possible date, but no later than 60 days from September 1, 2023, release of the Draft EIR on November 1, 2023. Public meeting for the Draft EIR is scheduled for October 4, 2023, from 6:30 p.m. to 8:00 p.m. at the Morgan Hill Community and Cultural Center.~~

~~Tiffany Chao, Senior Environmental Planner~~
~~Santa Clara Valley Water District~~
~~5750 Almaden Expressway~~
~~San José, CA 95118-3686~~
~~(408) 630-3107~~
~~ADSRPcomments@valleywater.org~~

~~Written comments received in response to the Draft EIR will be addressed in the Final EIR.~~

Valley Water received a total of 90 comment letters or other written communications, such as emails on the Draft EIR, before the close of the public review period. Written comments received on the Draft EIR are included and responded to in Chapter 7 of this Final EIR. Additionally, 34 letters related to Draft EIR contents were received related to the separate FERC petition process associated with the Project during the Draft EIR public review and comment period. These 34 FERC-related letters are included and addressed in Chapter 7 although they were not submitted as Draft EIR comment letters and therefore no responses were required under CEQA.

1.7.6 Partially Recirculated Draft EIR Public Comment Period

After circulation of the Draft EIR, Valley Water met with the Project Board of Consultants (BOC), which reviews the Project and makes recommendations to FERC, to discuss updated design plans and construction sequencing. In response to that meeting and BOC recommendations, Valley Water made certain construction changes such as extending work hours, adding some weekend days, and beginning work on certain Project components sooner. These proposed changes would allow Valley Water to construct planned Project components within the planned construction timeline before the wet season each year to improve its ability to complete the Project on schedule.

These Project changes necessitated revisions to certain impact analyses in the aesthetics, air quality, greenhouse gas emissions, and noise and vibration sections of the Draft EIR, as well as associated technical appendices, which were included in a Partially Recirculated Draft EIR.

On August 5, 2024, Valley Water issued a Notice of Availability of the Partially Recirculated Draft EIR to provide agencies and the public with formal notification that the Partially Recirculated Draft EIR was available for review and comment. The Notice of Availability, Partially Recirculated Draft EIR, and selected appendices were made available at the following website: https://www.valleywater.org/public-review-documents. Copies of the Partially Recirculated Draft EIR and appendices were also available for review at the following locations:

Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118-3686

City of Morgan Hill
17575 Peak Avenue
Morgan Hill, CA 95037

City of Morgan Hill Library
60 West Main Ave
Morgan Hill, CA 95037

Valley Water circulated the Partially Recirculated Draft EIR for a 45-day public review and comment period between August 5 and September 20, 2024.

Valley Water received a total of 11 comment letters or other written communications such as emails on the Partially Recirculated Draft EIR before the close of the public review period, Written comments received on the Partially Recirculated Draft EIR during the public review period are included and responded to in Chapter 8 of this Final EIR.

1.7.7 Preparation of Final Environmental Impact Report and Project Approval Process

The Final EIR consists of a comprehensive revision to the EIR that occurred after public circulation of the Draft EIR and Partially Recirculated Draft EIR (including technical appendices), public comments on the Draft EIR and Partially Recirculated Draft EIR received during public review periods, and responses to the public comments. Revisions include the following:

- Updates to the Project description to replace construction of the North Channel Extension with the Maintenance of the North Channel Reach
- Changes to the Ogier Ponds Conservation Measure
- Refinements to the Sediment Augmentation Program,
- Refinements to the number of construction and haul trips
- Changes to the temporary trail closures
- Changes to the construction sequencing of the Phase 2 Coyote Percolation Dam CM,

- Clarifications of the construction phase monitoring
- Other minor changes and corrections.

Changes to the Project description are reflected in revised modeling for air quality, greenhouse gasses, energy, and noise and vibration. In addition, minor changes and clarifications were made to the FAHCE-Plus Modified Alternative description and impact analysis.

Some of the Chapter 3 impact analyses and mitigation measures were revised to reflect changes in the Project description to address public and regulatory agency Draft EIR comments, and to increase accuracy, but impact significance conclusions remained the same. Preparation of a Water Quality Monitoring and Protection Plan was added as new Mitigation Measure WQ-1 to reduce significant unavoidable water quality and erosion impacts related to in-reservoir construction that were identified in the Draft EIR. Mitigation Measure REC-1 was refined based on Draft EIR comments and coordination with Santa Clara County. The wildfire impact analysis and Mitigation Measure WF-1 were refined in response to Draft EIR comments and additional public input. Additionally, Mitigation Measure GHG-1 was refined to provide flexibility in offsetting greenhouse gas emissions. Mitigation Measure NOI-3 was refined based on the revised noise analysis which was updated based on Project Description changes.

All written comments received on the adequacy of the ~~this~~ Draft EIR and Partially Recirculated Draft EIR during the public review periods are ~~will be~~ addressed in ~~a~~ "response to comments" chapters in ~~the~~ this Final EIR (Chapters 7 and 8). The response to comments and Final EIR will also present ~~any~~ changes to the Draft EIR resulting from public and agency comments, and Valley Water staff-initiated changes.

Text changes to the Draft EIR or Recirculated Draft EIR are shown in this Final EIR in underline (new text added) and ~~strikeout~~ (deleted text) format. Occasional changes to figures are shown by inserting new figures and striking out the prior figures. Appendices are not included in underline and strikeout to improve readability.

As previously mentioned, the revisions to the Project and alternatives descriptions in the Final EIR do not change the fundamental nature or main features of the Project or alternatives None of the comments, responses, or Final EIR revisions constitute "significant new information" that would require further Draft EIR recirculation under CEQA Guidelines Section 15088.5. Commenting agencies will receive a notice of the Final EIR's availability, including proposed responses to their comments and proposed revisions to the EIR, at least 10 days before Project approval.

Prior to any decision on the Project, the Board will review the Final EIR and consider certifying the document and approving the Project or an alternative at a regularly scheduled Board meeting. Prior to making a decision on the Project, the Valley Water Board must certify that: (1) the Final EIR has been completed in compliance with CEQA, (2) the Final EIR was presented to the decision-making body of the lead agency (Valley Water Board), and (3) the decision-making body (Valley Water Board) reviewed and considered the information in the Final EIR prior to approving a project (CEQA Guidelines Section 15090). ~~Upon EIR certification, Valley Water may proceed with Project approval actions. Approval of the Project would be preceded by~~ Following EIR certification, the Valley Water Board would then consider adopting written findings for each significant adverse environmental effect identified in the EIR (*CEQA Guidelines* Section 15091)~~, and if necessary,~~ and a statement of overriding considerations (*CEQA Guidelines* Section 15093). At the time that CEQA findings are adopted, Valley Water would also adopt a mitigation monitoring and reporting program for adopted mitigation measures. Descriptions of these documents are as follows:

- **Findings/Statement of Overriding Considerations.** For each significant impact of the Project identified in the EIR, Valley Water must find, based on substantial evidence, that either: (1) the Project has been changed to avoid or substantially reduce the magnitude of the impact, (2) changes to the Project are within another agency's jurisdiction and such changes have or should be adopted, or (3) specific economic, social, or other considerations make the mitigation measures or Project alternatives infeasible (CEQA Guidelines Section 15091). A Statement of Overriding Considerations must be adopted for significant unavoidable impacts that sets forth the specific social, economic, or other reasons supporting the agency's decision (CEQA Guidelines Section 15093).
- **Mitigation Monitoring Reporting Program.** CEQA requires the lead agency to adopt a Mitigation Monitoring and Reporting Program for mitigation measures that are adopted to avoid or substantially lessen significant effects on the environment. (CEQA Guidelines Section 15097[a]).

After these actions, Valley Water would consider whether to approve the Project or an alternative. If the Board decides to certify the EIR and approve the Project or an alternative, Valley Water would then file a Notice of Determination.

1.8 Organization of this ~~Draft~~ Final Environmental Impact Report

This ~~Draft~~ Final EIR contains the following components:

***Executive Summary*.** Summaries of the Project, Project alternatives, environmental impacts, and mitigation measures are provided in this chapter.

Chapter 1, Introduction. This chapter describes the Project background, EIR purpose and organization, and EIR preparation and review process.

Chapter 2, Project Description. This chapter describes the Project, including a brief description of the Project's location, the Project's purpose and dam safety requirements, the Project's objectives, Project components, Project construction approach and activities, updated dam and reservoir operational rule curves, and the AMP.

***Chapter 3, Regulatory and Environmental Setting and Impact Analysis*.** Chapter 3 includes 22 sections that describe existing regulatory and environmental conditions and the Project's anticipated environmental impacts. The introduction to Chapter 3 (Section 3.0) also discusses potential Project impacts that were dismissed from further analysis, including dismissed resource topics (e.g., mineral resources and population and housing). The following resource topics are addressed in Chapter 3:

- 3.1 – Aesthetics
- 3.2 – Agriculture and Forestry Resources
- 3.3 – Air Quality
- 3.4 – Biological Resources – Fisheries
- 3.5 – Biological Resources – Botanical/Wildlife
- 3.6 – Cultural Resources
- 3.7 – Energy
- 3.8 – Geology and Soils
- 3.9 – Greenhouse Gas Emissions
- 3.10 – Hazards and Hazardous Materials
- 3.11 – Hydrology
- 3.12 – Groundwater Resources
- 3.13 – Water Supply
- 3.14 – Water Quality
- 3.15 – Land Use and Planning
- 3.16 – Noise and Vibration
- 3.17 – Public Services
- 3.18 – Recreation
- 3.19 – Transportation
- 3.20 – Tribal Cultural Resources
- 3.21 – Utilities and Service Systems
- 3.22 – Wildfire

These resource sections also identify feasible mitigation measures to address impacts determined to be significant. This chapter also includes a discussion of the approach to cumulative impacts analyses and addresses the Project's potential to contribute to cumulative impacts at the end of each resource section.

Chapter 4, Other Statutory Requirements. Chapter 4 also outlines the Project's potential to induce growth and identifies irreversible environmental changes and significant unavoidable impacts resulting from the Project.

Chapter 5, Alternatives. This chapter describes the process through which alternatives to the Project were developed and screened, describes the alternatives selected for detailed evaluation, evaluates their likely environmental impacts, and identifies the environmentally superior alternative.

Chapter 6, Report Preparation. This is a list of the individuals involved in preparing the EIR and their responsibilities.

Chapter 7: Draft EIR Comments and Responses. This chapter contains public comments received on the Draft EIR and responses to those public comments.

Chapter 8: Partially Recirculated Draft EIR Comments and Responses. This chapter contains public comments received on the Partially Recirculated Draft EIR and responses to those public comments.

Appendices. The appendices to the EIR provide additional, often more technical or specialized information about various environmental topics discussed in the EIR.

Appendix A	Best Management Practices and Santa Clara Valley Habitat ~~Conservation~~ Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures ~~Incorporated in the Project~~
Appendix B	Notice of Preparation/Initial Study and Scoping Report
Appendix C	Stakeholder Engagement
Appendix D	ADSRP AMP Detailed Tables
Appendix E	Air Quality, ~~and~~ Greenhouse Gas, and Health Risk Assessment Technical Report ~~Emissions Technical Appendix~~
Appendix F	Biological Resources – Fisheries Technical Appendix
Appendix G	Biological Resources – Rejected Special Status Plants
Appendix H	Cultural Resources Technical Appendix (Confidential)
Appendix I	Historic Resources Technical Appendix
Appendix J	Groundwater Technical Memorandum
Appendix K	Hydrology Technical Appendix
Appendix L	Water Quality Technical Memorandum ~~Appendix~~
Appendix M	Noise and Vibration Technical Memorandum
Appendix N	Recreation Appendix
Appendix O	Transportation Technical Memorandum
Appendix P	Paleontological Resources Impact Assessment

1.9 References

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Chapter 2
PROJECT DESCRIPTION

2.1 Introduction

The proposed Seismic Retrofit of Anderson Dam would involve retrofitting and upgrading the dam and associated facilities to meet public safety requirements. The Project would also include the decommissioning of the hydroelectric facility at the dam to reduce operating costs, implementing conservation measures to offset Project impacts, and continuing to operate and maintain the dam after retrofit.

This chapter describes the Project. Topics included in this chapter are:

- Project location (Section 2.2)
- Project purpose, objectives, and benefits (Section 2.3)
- Overview of Project ~~project~~ components (Section 2.4)
- Seismic Retrofit construction (Section 2.5)
- Conservation Measures construction (Section 2.6)
- Construction phase monitoring (Section 2.7)
- Post-construction Anderson Dam facilities operations and maintenance (Section 2.8 ~~2.7~~)
- Post-construction Conservation Measures operations and maintenance (Section 2.9 ~~2.8~~)
- Project ~~ADSRP~~ and FAHCE Adaptive Management Program (Section 2.10 ~~2.9~~)
- Avoidance and Minimization Measures (Section 2.11 ~~2.10~~)
- Permits, approvals, and consultations (Section 2.12 ~~2.11~~)

The environmental impacts of each of these topics are analyzed in the various sections of Chapter 3, *Environmental and Regulatory Setting and Impact Analysis*.

2.2 Project Location

2.2.1 Regional Area – Coyote Creek Watershed

The Coyote Creek Watershed is the largest watershed in Santa Clara County,[1] encompassing an area of over 320 square miles. The headwaters of the Coyote Creek Watershed are on the east side of the county in the Diablo Range, originating on the slopes of Mount Sizer near Henry Coe State Park. The creek travels north and west across approximately 42 miles of the Santa Clara Valley floor, flowing into the San Francisco Bay south of Fremont and north of Milpitas (near Dixon Landing Road and Mud Slough) (**Figure 2-1**). Milpitas, and portions of San José and

[1] The geographic area of Santa Clara County is referred to herein as "the county." The governmental jurisdiction of the County of Santa Clara is referred to herein as "the County."

Morgan Hill, lie within the watershed boundaries, with the remaining watershed consisting of unincorporated lands within Santa Clara County.

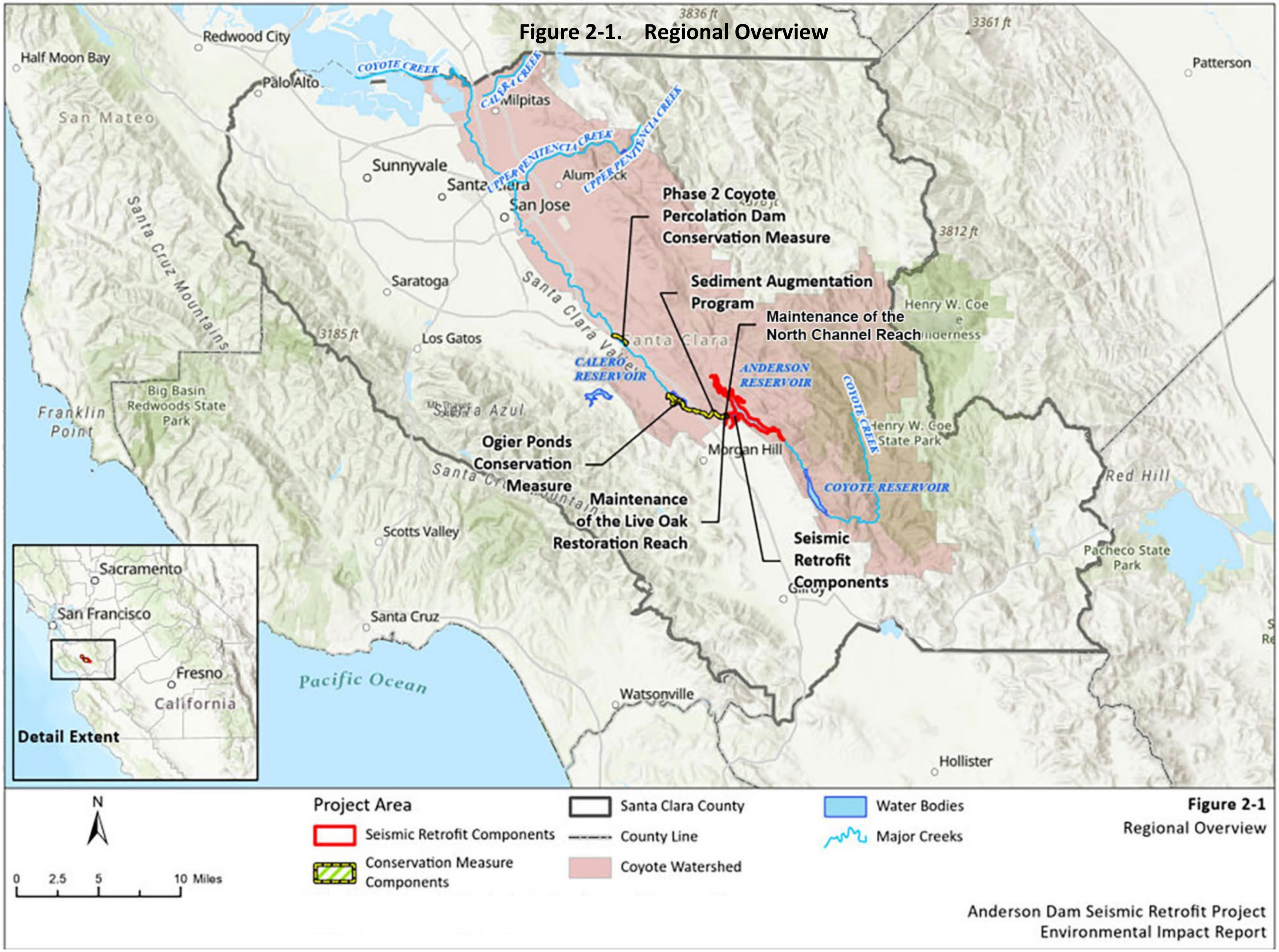
There are two water supply reservoirs owned by Valley Water along Coyote Creek: Anderson and Coyote (**Figure 2-1**). Anderson Reservoir, constructed in 1950, is a 235 -foot-high earthen dam that measures 1,430-feet long by 900-feet wide and sits on the Coyote Creek-Range Front Fault. It holds over 89,000 AF of water when full, with a surface area of 1,253 acres, more than all the other Valley Water surface water reservoirs combined. Coyote Reservoir is a 140-foot-high, 980-foot-long, earth and rock dam built in 1936 and holds 2,541 AF of water when full with a surface area of 633 acres. Because Coyote Reservoir is approximately 1.5 miles upstream of Anderson Reservoir, its normal operations, together with other inflows in the tributary area, affect flows into Anderson Reservoir. Winter runoff is stored in Coyote Reservoir and released during the dry season.

Anderson Dam impounds surface water runoff from the 195 square miles of the Coyote Creek Watershed, which includes inflow from several tributaries and releases from Coyote Reservoir, which is approximately 1.5 miles upstream of Anderson Reservoir. The upstream reaches of Coyote Creek and the watershed that feed into Anderson Reservoir are largely undeveloped. The contributing streams to Anderson Reservoir include Upper Coyote Creek, Las Animas Creek, Packwood Creek, and other small streams that drain directly into the reservoir (**Figure 2-1** and **Figure 2-2**). Downstream of Anderson Dam, Coyote Creek flows approximately 37.5 miles north-northwest through many densely urbanized areas in Santa Clara County, before ultimately reaching San Francisco Bay. Valley Water manages aquifer recharge using local water supply and imported water releases to Coyote Creek below Anderson Dam via the CDL and Cross Valley Pipeline.

Coyote Creek downstream of Anderson Dam has approximately 10 primary tributaries, the largest of which is Upper Penitencia Creek. Upper Penitencia Creek originates in the Diablo Range, several miles above Cherry Flat Reservoir (**Figure 2-2**). Historically, Upper Penitencia Creek did not have a hydrologic connection to the bay until an extension to Coyote Creek was constructed in 1876 (Santa Clara Basin Watershed Management Initiative [SCBWMI] 2001). Hydrology in the Upper Penitencia Creek Watershed is affected by the Penitencia Creek percolation ponds and by Cherry Flat Dam, a 500-AF dam, owned by the City of San José that detains water from 2.4 square miles of the 24-square-mile Upper Penitencia Creek Watershed. When available, Valley Water augments flow in Upper Penitencia Creek using imported water delivered through the DWR South Bay Aqueduct to provide on and off-channel recharge, mostly during periods when the creek would otherwise be dry.

The portion of Coyote Creek from Anderson Dam to San Francisco Bay and Upper Penitencia Creek from Cherry Flat Reservoir to the confluence of Coyote Creek is deemed critical habitat for Central California Coast (CCC) steelhead (*Oncorhynchus mykiss*), which is listed as threatened under the Endangered Species Act (ESA). Additionally, hatchery stray, Central Valley fall-run Chinook salmon (*Oncorhynchus tshawytscha*; Federal Species of Concern and State Species of Special Concern) may use reaches of Coyote Creek.

Figure 2-1. Regional Overview



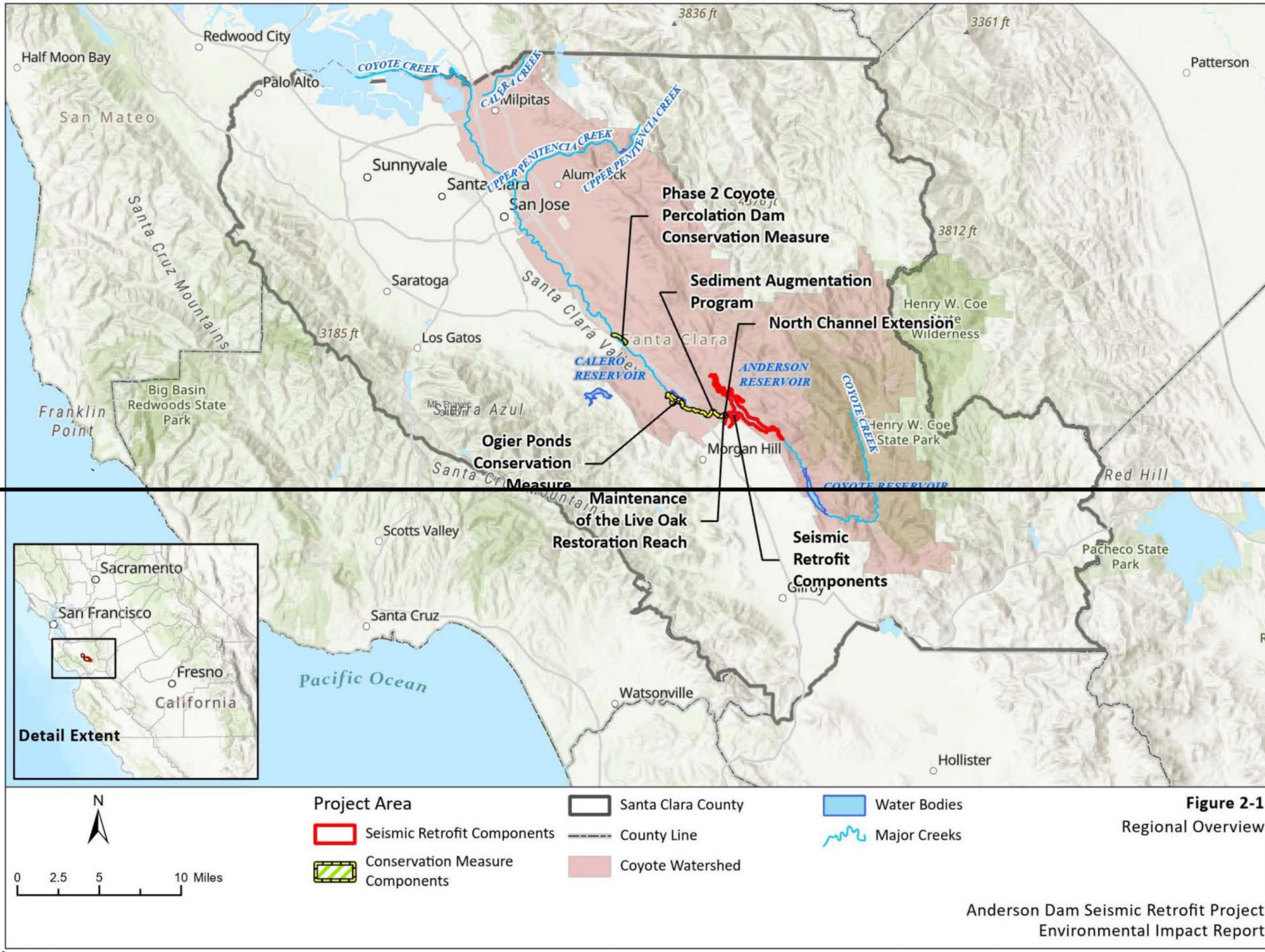
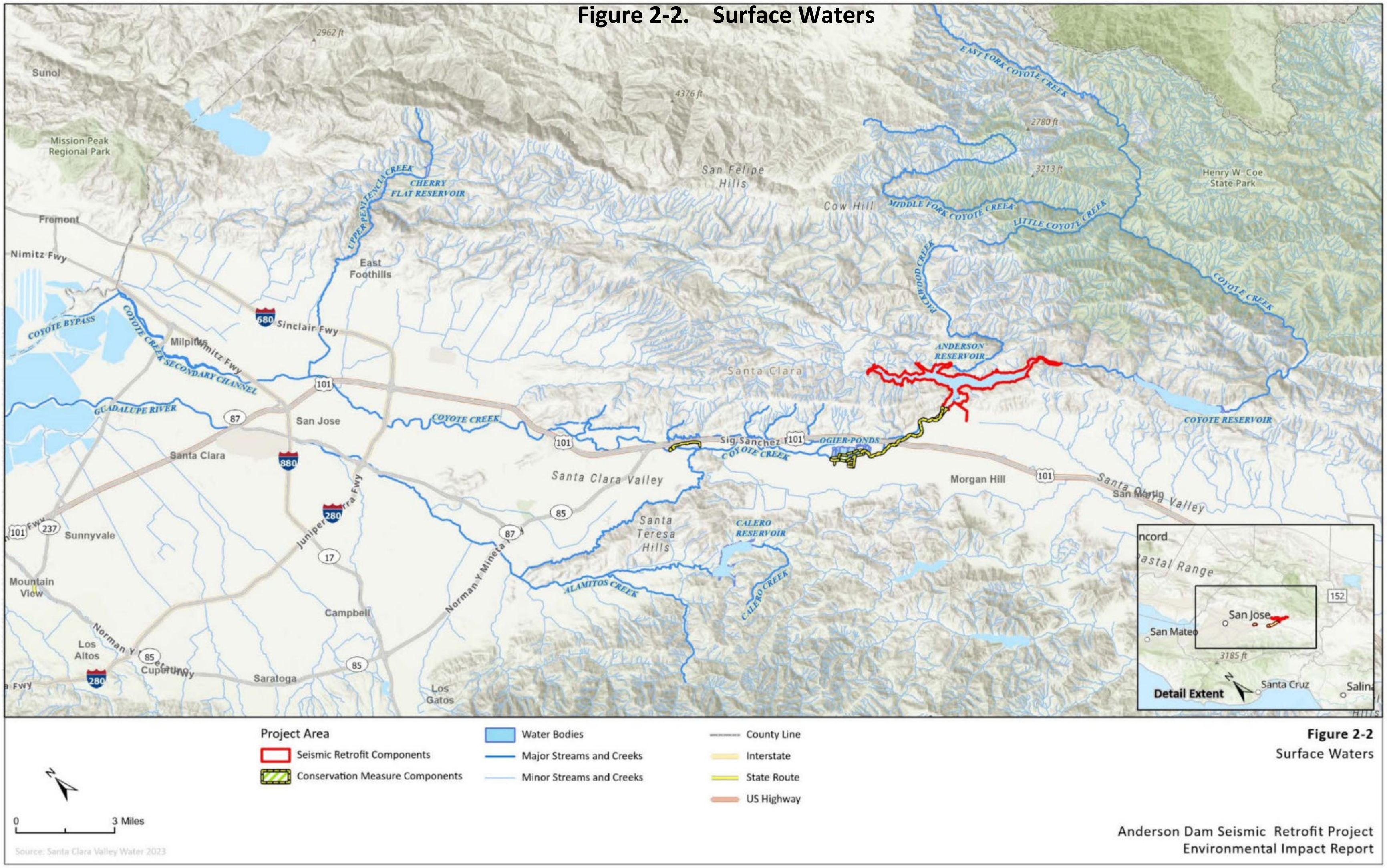


Figure 2-1
Regional Overview

Figure 2-2. Surface Waters



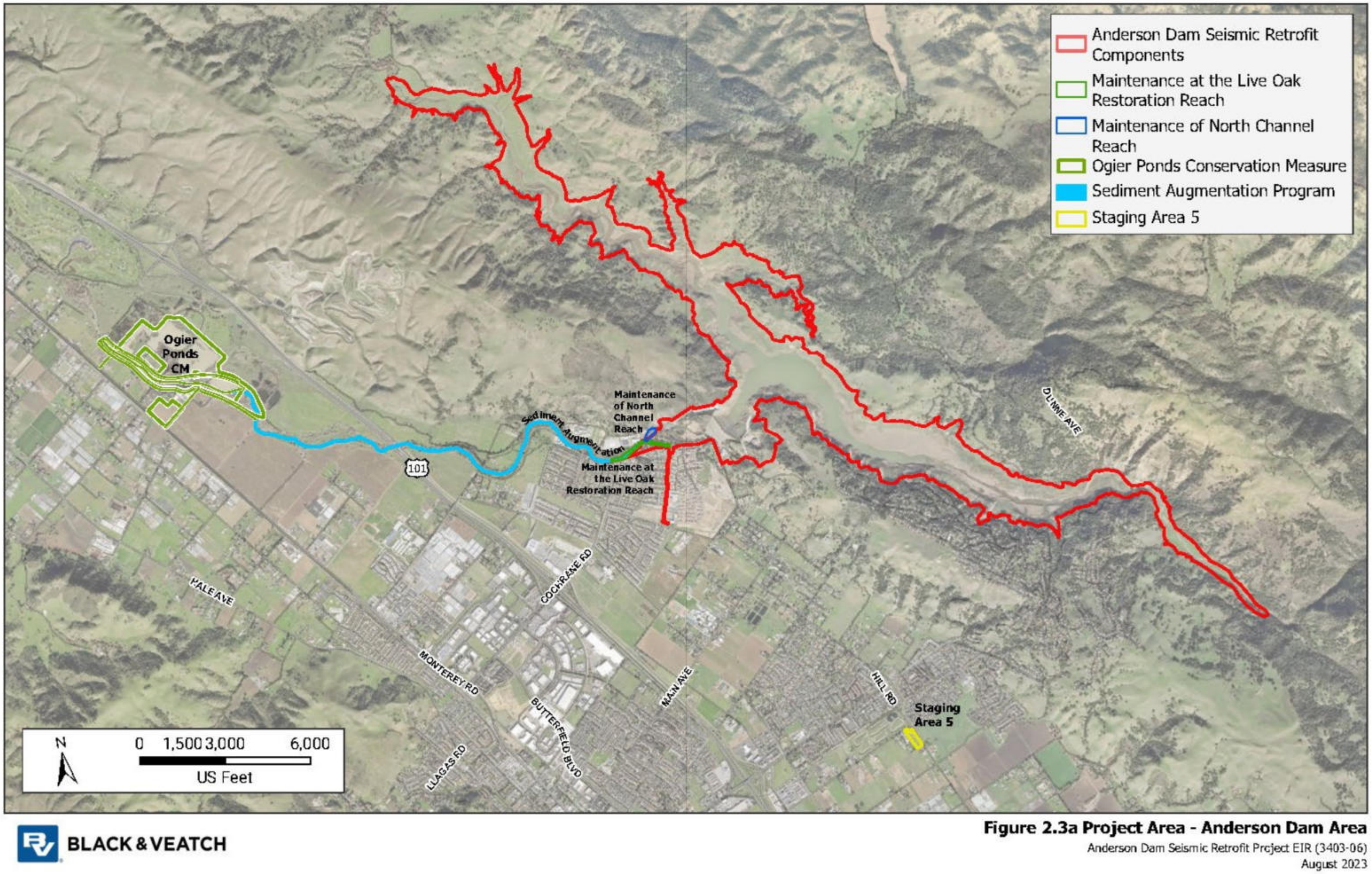
2.2.2 Project Area – Anderson Dam and Reservoir, Coyote Creek, Ogier Ponds, and Coyote Percolation Pond

Anderson Dam is located near the junction of Cochrane Road and Coyote Road in Santa Clara County, California, 0.8 miles east of U.S. Highway 101 (US 101) (Cochrane Road exit). It is 18 miles southeast of downtown San José, and 2.5 miles northeast of downtown Morgan Hill (**Figure 2-1**). Anderson Reservoir is located on lands within unincorporated Santa Clara County, Morgan Hill, and San José (Santa Clara County 1994, City of Morgan Hill 2017, City of San José 2023 ~~2020~~).

For the purposes of this EIR, the Project Area refers to the area and immediate vicinity within which all construction-related activities or ground disturbance would occur and the areas and facilities that would be operated through the implementation of the Project. The Project Area includes Anderson Reservoir, Anderson Dam, and other Seismic Retrofit Components; ~~North Channel Extension;~~ Sediment Augmentation Program; Ogier Ponds (approximately 4 miles downstream of Anderson Dam); maintenance of the North Channel and Live Oak Restoration reaches; the Coyote Percolation Dam (approximately 10 miles downstream of Anderson Dam); and lands in the immediate vicinity of Anderson Reservoir and Coyote Creek that are owned by Valley Water and the County of Santa Clara, as well as portions of the Cochrane Road and Coyote Road rights-of-way (**Figure 2-3a** and **Figure 2-3b)**. The Project Area also includes the Coyote Creek channel from Anderson Dam to the Coyote Percolation Dam. All proposed construction staging areas, borrow areas, stockpile areas, disposal areas, parking areas, and “off-street” access roads are also included in the Project Area (**Figure 2-4**).

The Project Area includes the cold water ~~coldwater~~ management zone (CWMZ), an approximately 6~~5~~ mile stretch of Coyote Creek between the Anderson Dam outlets and Coyote Creek Golf Drive, as defined in the FAHCE *Settlement Agreement* (2003). ~~Within this~~ This stretch of Coyote Creek encompasses ~~there is~~ the majority of the ~~potential for effects to occur to~~ ESA-listed steelhead *(O. mykiss)* rearing and spawning habitat in Coyote Creek. It is also the stretch where adverse impacts from the Project on fisheries resources would be most concentrated and where the majority of the conservation measures occur. However, there are also impacts and conservation measures downstream of this stretch, within the fisheries resources study area that are addressed throughout the impact analysis as well ~~as a result of Anderson Dam operations~~. The intersection of Coyote Creek with Coyote Creek Golf Drive occurs downstream of the Ogier Ponds. The existing physical conditions within this lower reach of Coyote Creek reduce habitat suitability for *O. mykiss* downstream of the ponds. As such, the current functional cold water management zone (FCWMZ) effectively ends at the upstream end of Ogier Ponds, 4 miles downstream from Anderson Dam. In this EIR, the FCWMZ refers to the reach between Anderson Dam and Ogier Ponds, and is the area that ~~is~~ currently contains the most known suitable spawning and rearing habitat for *O. mykiss*. With the completion of the Ogier Ponds Geomorphic and Habitat Restoration Conservation Measure (Ogier Ponds CM) that includes creek pond separation (Section 2.6.1.), it is anticipated that the 6- ~~5-~~mile CWMZ would be restored within Coyote Creek to Coyote Creek Golf Drive.

Figure 2-3.a. Project Area – Anderson Dam Area



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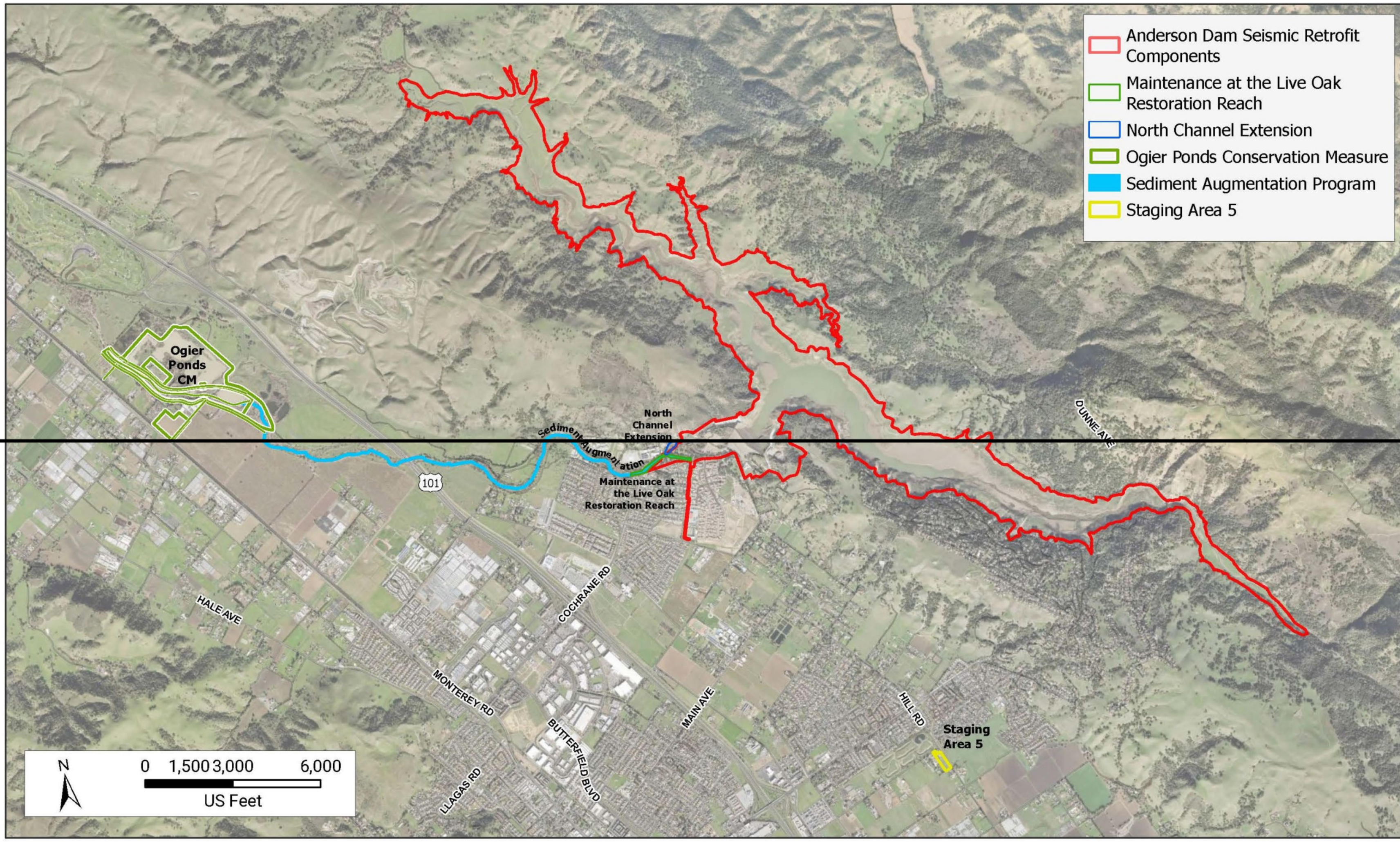

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Figure 2.3a Project Area - Anderson Dam Area
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

1 **Figure 2-3b. Project Area – Coyote Percolation Dam**

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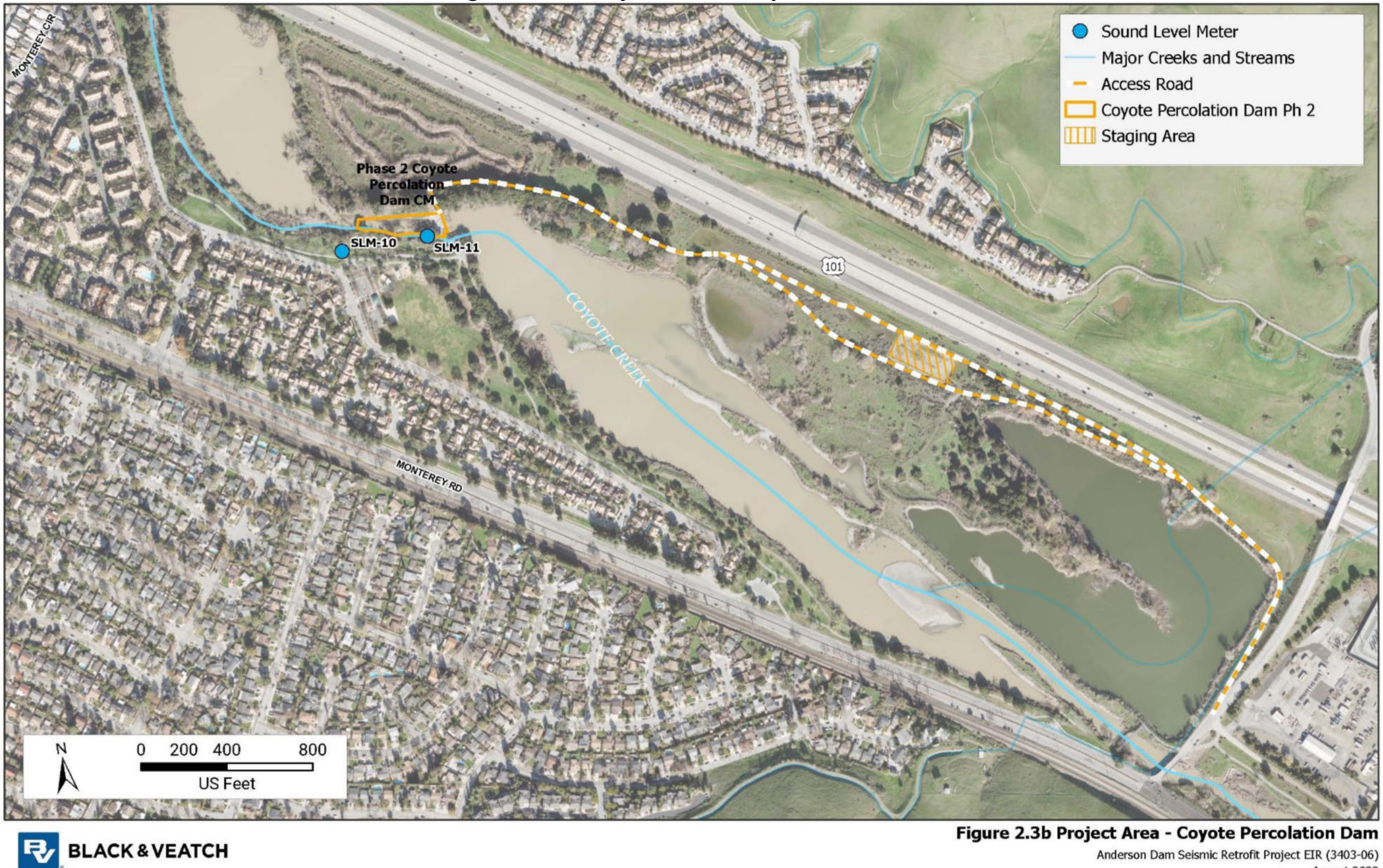
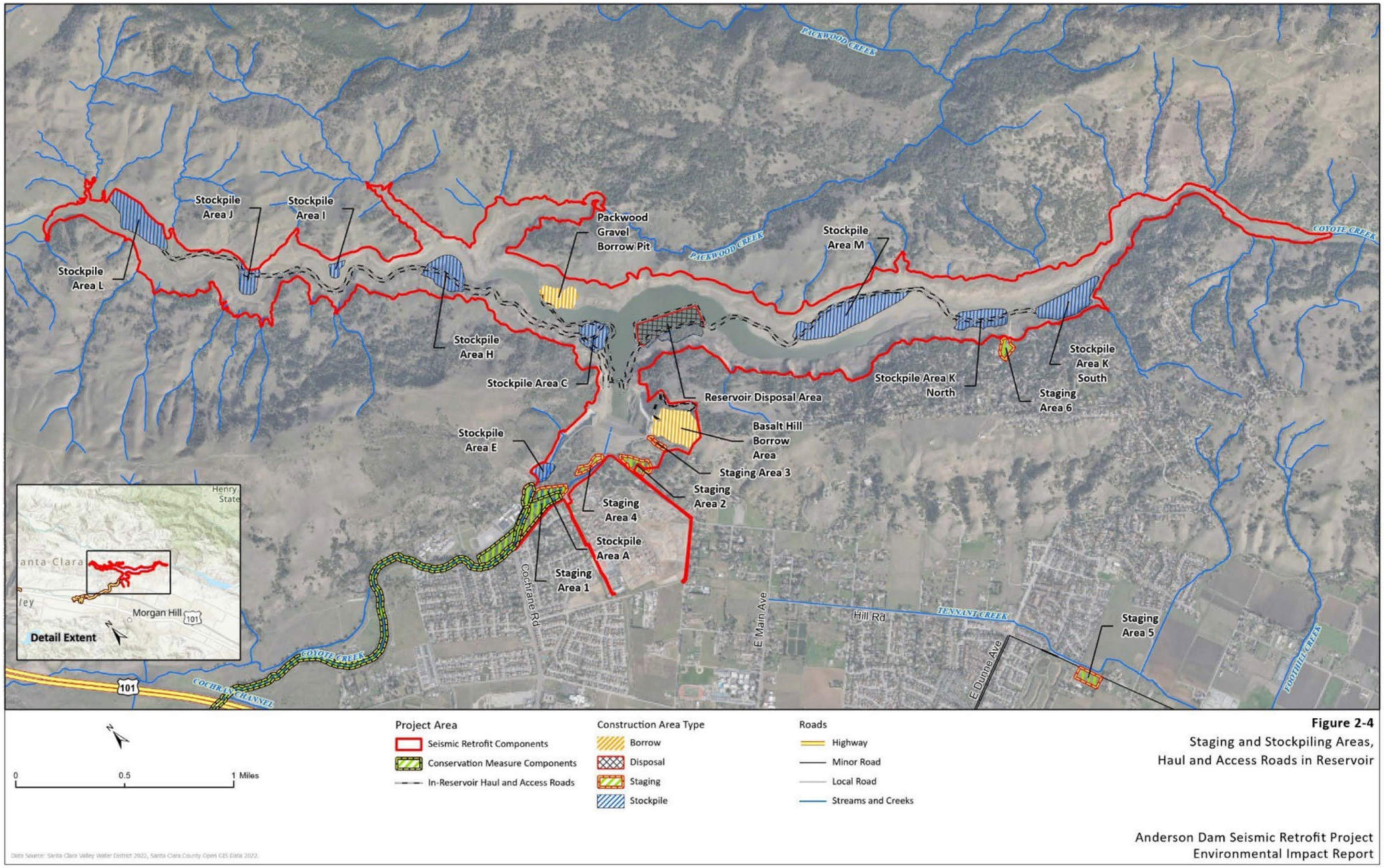


Figure 2.3b Project Area - Coyote Percolation Dam
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

Figure 2-4.. Staging and Stockpiling Areas, Haul and Access Roads in Reservoir



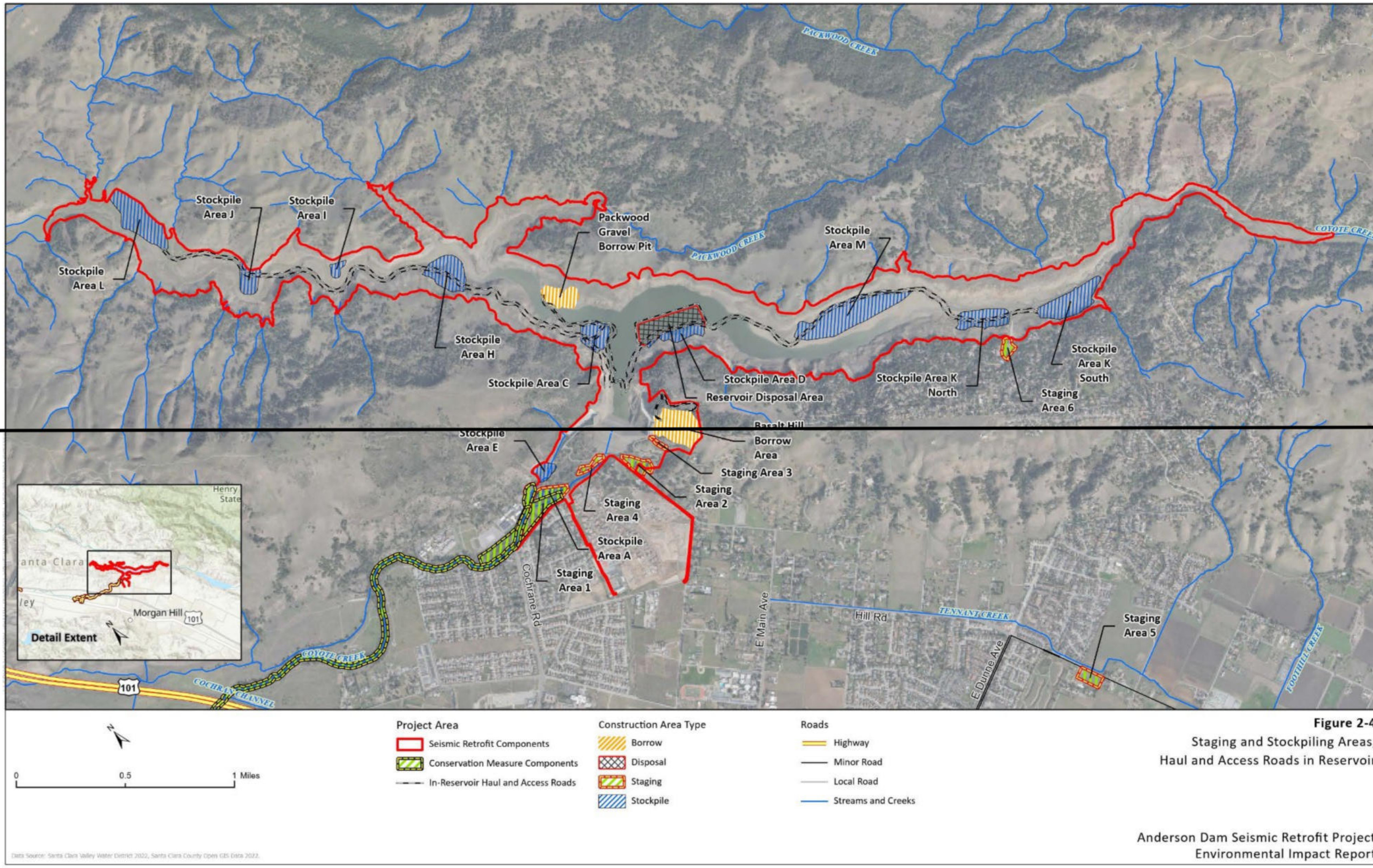


Figure 2-4
Staging and Stockpiling Areas, Haul and Access Roads in Reservoir

2.2.3 Surrounding Land Uses

Existing land uses within and adjacent to the Project Area include areas of parkland. Surrounding Anderson Reservoir, the Anderson Lake County Park has many features, including the Anderson Reservoir boat ramp, multiple picnic areas, Anderson Lake Visitor's Center, Serpentine Trail, Lakeview Trail, and Rancho Laguna Seca Trail. Other land uses around the reservoir include grazing lands and single-family residences (both rural and suburban).

Downstream of Anderson Dam, Anderson Lake County Park adjoins the Coyote Creek Parkway, approximately 1 mile downstream of Anderson Dam. Coyote Creek Parkway encompasses Coyote Creek downstream to approximately 15 miles and contains a number of paved and unpaved multi-use trails that connect Anderson Lake County Park with Hellyer County Park. This area also includes a variety of recreational amenities, including picnic and rest areas, Ogier Ponds, and a model airplane field. This area also supports orchard lands, the Santa Clara County Justice Training Center and William F. James Boys Ranch. Coyote Creek Parkway includes the Coyote Creek Trail that runs adjacent to the footprint of Coyote Creek. Coyote Creek Trail extends from the San Francisco Bay to the northern end of Morgan Hill. The Coyote Creek Trail runs through and adjacent to the Project Area, from Anderson Lake Visitor Center to the southern end of Ogier Ponds.

2.3 Project Purpose, Objectives, and Benefits

2.3.1 Project Purpose

The purpose of the Project is to seismically retrofit, maintain, and operate Anderson Dam and Reservoir to meet FERC and DSOD safety requirements, thereby allowing Valley Water to maximize water supply and related incidental benefits, while avoiding and minimizing environmental impacts of the implementation of those safety directives and requirements. Without such regulatory compliance, Valley Water would be required to maintain a very low water level in Anderson Reservoir, that would in turn reduce water supplies that would otherwise be available for water supply deliveries to treatment plants, managed groundwater recharge, and maintenance of a local source of emergency water supply. Valley Water would likely have to replace those lost supplies to achieve its water supply and management goals that may result in significant cost increases, to the extent that any alternative resources are available.

FERC and DSOD requirements that pertain to the Project are described below.

2.3.1.1 FERC Requirements

Per FERC requirements, the Project addresses seismic deficiencies of the dam, specifically providing a stable dam embankment capable of withstanding MCEs on the Calaveras and Coyote Creek Range Front Faults. In addition to the seismic deficiencies of the dam, presently the spillway lacks the capacity to safely pass the flood flows related to passage of a PMF event. An updated PMF evaluation completed in 2013 (HDR 2013) predicts a peak spillway discharge of 95,800 cubic feet per second (cfs) at a reservoir stage of elev. 652.5 feet during a PMF. The PMF flow exceeds the current spillway capacity by 50 percent and would cause overtopping of the existing dam embankment by several feet. Overtopping of the dam could lead to dam failure.

FERC (as well as DSOD) dam safety criteria require that spillways be sized to safely pass PMF flows without overtopping the dam. Consequently, the spillway would be modified and improved, in conjunction with raising of the dam crest, to address this deficiency.

2.3.1.2 DSOD Requirements

DSOD requires the new outlet works at Anderson Reservoir to be capable of lowering the reservoir's maximum storage depth by 10 percent within 7 days and draining its full content within 90 days (DSOD 2018 ~~2017~~), even if a fault offset were to occur. DSOD also requires that the entire spillway (including the currently unlined portion of the spillway) to be able to contain the PMF, and will require deepening and hardening of the unlined portion in order to mitigate the risk of spillway failure in the event of a PMF (DSOD 2021).

2.3.2 Project Objectives

The objectives of the Project, consistent with FERC and DSOD dam safety requirements, are to:

1. Seismically retrofit and maintain the dam so that Valley Water may continue to operate it at capacity. This objective would be achieved by:
   - Replacing the existing dam to withstand the MCEs on the Calaveras and Coyote Creek Range Front Faults
   - Replacing the existing spillway to meet FERC and DSOD safety requirements related to the safe passage of a PMF
   - Replacing the outlet works to meet current DSOD outlet works requirements and accommodate fault offset
2. Improve cost efficiency of dam operations by decommissioning the hydroelectric facility
3. Avoid and minimize environmental effects of construction and operations.

2.3.3 Project Benefits

Implementation of the Project components, including the Conservation Measure, would result in a more seismically safe dam that would allow Valley Water to better carry out water supply and groundwater recharge activities. Operational flexibility would also be improved by the Project that would:

- minimize the risk of reservoir spills and downstream flooding
- provide in-stream environmental flows consistent with regulatory requirements
- restore recreational opportunities at Anderson Reservoir and along the Coyote Creek corridor

2.4 Overview of Project Components

The Project consists of numerous Project ~~project~~ components that fall into six over-arching categories:

1) **Seismic Retrofit Components:** Project components related to the Anderson Dam facility upgrades and improvements to stabilize and mitigate potential seismic risks and comply with current public safety requirements.

2) **Conservation Measure Components:** Project components designed to avoid and minimize adverse environmental impacts, and in some cases provide environmental benefits. These Project components would be implemented throughout Project construction and/or operation phases. These measures would reduce construction-related impacts and allow for managed aquifer recharge to support water supply requirements, while improving and maintaining wetted habitat for fish, wildlife and other groundwater-dependent habitats. Many of these Project components align with the FAHCE Phase 1 non-flow measures, as described in FHRP, and would provide improved fish passage, steelhead spawning and rearing habitat, and restored hydrologic functions.

3) **Construction Monitoring:** Project components include habitat and species monitoring during construction to document project effects on the environment.

4) **Post-Construction Anderson Dam Facilities Operations and Maintenance:** Project components that involve how proposed, permanent Anderson Dam facilities would be operated and maintained following construction. These Project components include implementation of the FAHCE Phase 1 flow measures at the Anderson Dam facility, post-construction monitoring, and post-construction maintenance.

5) **Post-Construction Conservation Measure Operations and Maintenance:** Project components that involve how proposed, permanent Conservation Measure facilities would be operated and maintained following construction. These Conservation Measure facilities include implementation of the Ogier Ponds CM, maintenance of the North Channel and Live Oak Restoration reaches, ~~North Channel Extension,~~ Phase 2 Coyote Percolation Dam Fish Passage Enhancements (Phase 2 Coyote Percolation Dam CM), and the Sediment Augmentation Program.

6) **Post-Construction Project and FAHCE Adaptive Management Program**: Adaptive management of all post-construction operations, and all habitat restoration Conservation Measures components would occur in accordance with the FAHCE AMP. Pursuant to the FAHCE Framework, a Project-specific ADSRP AMP has been developed. The AMP includes four key elements: measurable objectives for steelhead and salmon fisheries and their habitats; compliance monitoring, validation monitoring, effectiveness monitoring, and long-term trend monitoring; adaptive actions that may be identified to assure measurable objectives are met; and reporting.

Table 2-1 provides a detailed summary of each Project component, as organized under the six over-arching categories described above. **Table 2-1** includes columns that summarize the Project ~~project~~ component and purpose, activities that would occur during the construction phase of the component, and/or activities that would occur during the post-construction (operations and maintenance) phase of the Project. Where appropriate, text is included that directs the reader to sections(s) where construction, operations, and maintenance activities are described in greater detail. Additionally, **Table 2-1** includes a column that identifies figures or figure sets where the Project component(s) are identified, illustrated, and/or depicted.

1 **Table 2-1. Project Components**

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
Seismic Retrofit (Refer to Figure 2-3a, Anderson Dam Seismic Retrofit Overview Map)				
Dam Embankment	Removal and replacement of the existing dam to withstand MCEs on the Calaveras Fault and Coyote Creek Range Front Fault. The replacement dam would be placed at the same location as the existing dam.[2] All but a portion of the existing dam's clay core (approximately 500 feet across, 10 feet wide, and 50 feet tall) would be excavated and replaced systematically to create a zoned embankment dam. The zones would include a clay central core zone placed over the remnant core, and have adjacent filter (sand), drain (gravel), and transition-zones, and relatively coarse-grained shells. The completed replacement dam would have a crest length of approximately 1,700 feet and a crest height of elev. 656 feet.	Dam excavation and reconstruction involves a multi-stage construction process, described in Section 2.5.	Post-construction maintenance of Anderson Dam facilities is described in Section 2.8.	None
Dam Crest	Increase in height of the existing dam crest (from elev. 647.9 to elev. 656 feet) to accommodate the PMF. The replacement dam would also include 4 feet of camber (i.e., overbuild) in the central portion of the dam and less near the dam abutments to accommodate anticipated post-construction settlement. The dam crest would retain its current width of approximately 40 feet and would be paved for Valley Water and County personnel vehicular access.	Retrofitting the dam and raising the dam crest involves a multi-stage construction process, fully described in Section 2.5.4.	Post-construction maintenance of Anderson Dam facilities is described in Section 2.8.5.	None
Spillway	Removal and replacement of the existing spillway to accommodate safe passage of the PMF (i.e., 95,800 cfs). The existing spillway is situated on the right abutment (north side) of the dam. It is ungated, with a 223-foot-long ogee crest, and an 860-foot-long concrete-lined chute that terminates in a dentated flip bucket. The concrete-lined chute has a width of 150 feet at the upstream end and 100 feet at the downstream end. At the downstream end of the chute, the spillway drops off vertically about 20 feet (elev. 520 feet) into an unlined spillway channel that terminates at a 70-foot waterfall (Valley Water 2021a). The replacement spillway would be located within the same general footprint occupied by the existing spillway and unlined spillway channel; however, the new spillway would be fully lined. The new spillway crest would have the same length, elevation (elev.627.9 feet), and generally the same shape as the existing spillway. Because the spillway crest elevation would be unchanged, the capacity of Anderson Reservoir would also not change due to a difference in the maximum water surface elevation[3].	Construction of the new spillway would involve removal of most of the existing spillway concrete except a small portion underlying the right chute wall at the right end of the existing spillway crest. Construction required for spillway replacement is described in Section 2.5.4.	Several of Project components, including the modified spillway, would allow for the implementation of FAHCE rule curves, described in Section 2.8.3. Post-construction maintenance of Anderson Dam facilities is described in Section 2.8.5.	None
Temporary Diversion Systems	Conversion of the Stage 1 Diversion System (also known as the Anderson Dam Tunnel, which was previously constructed as part of the FOCP) to the Stage 2 Diversion System would reduce the risk of interim embankment overtopping during dam construction. The Stage 2 Diversion System consists of most of the Stage 1 Diversion System except a portion at the upstream end, with the addition of a cofferdam and an extension pipe within the reservoir that would allow the storage level to lower to elev. 453. The ~~screened~~ intake structure and tunnel constructed during conversion to Stage 2 would replace the lake tap pipe and trash rack of the Stage 1 Diversion System. The cofferdam would be constructed upstream of the embankment work area to intercept	Construction associated with the temporary diversion system is described in Section 2.5.4.	Because the diversion systems would be converted into the LLOW and HLOW prior to completion of Project construction, there is no additional operation and maintenance involved with this Project component.	Figure 2-5 Existing Stage 1 Diversion System Figure 2-6 Proposed Stage 2 Diversion System

[2] The replacement dam would have a footprint (37 acres) that is larger than the existing dam (29 acres).
[3] The current capacity of 89,278 AF has been reduced from its original capacity by an estimated 1,790 AF due to sediment accumulation (Valley Water, 2020a). Over the duration of the Project, a portion of the accumulated sediment would be transported out of the reservoir area during diversion of reservoir inflows around the construction area resulting in some recovery of lost reservoir capacity. The volume of recovery depends on the number and severity of storms that occur during the diversion period. Additionally, some storage would be lost due to in-reservoir disposal. When the <u>Project</u> ~~project~~ is completed, it is estimated that the reservoir will have a storage capacity of approximately 88,800 AF.

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
	reservoir inflow, which would be passed downstream via an extension pipe that connects to the diversion system intake. The area between the cofferdam and dam embankment would be fully dewatered during each construction season to create a dry work area.			
Outlet Works	Construction of outlet works along the right (northern) dam abutment (along the south side of the spillway) would include a HLOW and a LLOW. The LLOW would provide discharge capacity for normal operations, and the majority of the discharge capacity for emergency releases. The LLOW would be capable of simultaneously making releases to Coyote Creek and delivering flows to the Valley Water raw water transmission system through the Anderson Force Main (Valley Water 2021h ~~2023d~~). The HLOW would provide additional discharge capacity, in combination with the LLOW, in the event of an emergency.	Construction associated with the outlet works system is described in detail in Section 2.5.4.	The LLOW would be capable of releasing up to 1,485 cfs of water from the reservoir to Coyote Creek through the 78-inch conveyance pipeline (release capacity of 1,315 cfs) and the 33-inch bypass pipeline (release capacity of 170 ~~1,05~~ cfs). Having two pipelines within the LLOW allows Valley Water to simultaneously release water from the reservoir to the creek, while maintaining a connection with the raw water system (i.e., sending water to the treatment plants or pumping imported water into the reservoir). The HLOW would be used for dam releases that exceed the capacity of the LLOW system, up to a maximum flow capacity of 5,300 cfs, in the event of an emergency. The new outlet works, including valves, vaults, pipeline junctions, and appurtenances, would be maintained under the Dam Maintenance Program, which would include routine inspections, valve tests, repairs, and monitoring. Post-construction maintenance is described in Section 2.8.5.	Figure 2-7 High-level Outlet Works System Figure 2-8 Low-level Outlet Works System
Pipeline Realignments	Connections to existing Anderson Force Main and Main Avenue Pipelines. Connection to the existing underground 54-inch-diameter Anderson Force Main includes constructing 200 feet of new pipeline and either removing or abandoning in-place (e.g., fill with CLSM) a similar length of existing Anderson Force Main. Connection to the existing 36-inch diameter Main Avenue Pipeline includes constructing 375 feet of new pipeline and either removing or abandoning in-place (e.g., fill with CLSM) a similar length of existing Main Avenue Pipeline. Cathodic protection systems would also be installed.	Construction associated with pipeline realignment is described in Section 2.5.4.	Realignment and connections of the underground Anderson Force Main and Main Avenue Pipelines would be maintained in a manner consistent with the existing Valley Water DMP and PMP. Valves, vaults, pipeline junctions, and appurtenances at the LLOW would be maintained as part of the DMP, which would include routine inspections, annual tests, repairs, and monitoring. The Anderson Force Main and Main Avenue Pipelines would be maintained in accordance with the PMP, which includes scheduled maintenance, inspections, cathodic protection, and periodic dewatering. Pipeline dewatering of these pipe sections would be achieved though releasing water into Coyote Creek via the LLOW (Valley Water 2007, 2012). Post-construction maintenance is described in Section 2.8.5.	Figure 2-9 Proposed Pipeline Realignment
Communication Lines Beyond Dam Excavation Footprint	To improve and provide communication network connectivity in the Project Area, communication lines from Anderson Dam to Peet Road would be installed. Fiber optic lines would be installed and telemetry cables would be replaced. This Project component would consist of approximately 5,000 linear feet of trenching along Anderson Force Main. The communication line would provide network connectivity to Anderson Dam, the hydroelectric facility, and the Coyote Pumping Warehouse.	Construction associated with the telemetry cable replacement is described in Section 2.5.4.	Communication lines would be maintained in a manner consistent with the DMP.	Figure 2-10 Proposed Communication Lines
Temporary and Permanent Roadway Modifications	Existing roadways throughout the Project Area would be modified to accommodate improved and new Anderson Dam facilities. Permanent modifications include: (1) Coyote Road through the boat ramp parking area; (2) Coyote Road across the dam crest, (3) Coyote Road along the spillway; (4) addition of permanent access roads that lead to parking areas at the base of the dam, (5) addition of a new permanent access road on the downstream slope of the dam from Coyote Road to the right abutment to the high-level	Construction associated with roadway modifications is described in Sections 2.5.2.(temporary access roads) and 2.5.4. (permanent roadways).	Facility maintenance roadways and gates will be maintained in manner consistent with the DMP. Park access roadways would be operated and maintained by County Parks and would not require additional actions as part of the Project.	None

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
	outlet tunnel, and (6) the addition of a new permanent access road to the left bank of the Northern Channel downstream of the dam. Permanent roadway modifications are further described in Section 2.5.4. Temporary roadway modifications include adjusting (ADTP) access roads for hauling and accessing the dam and other construction areas during construction. Temporary access roads would be constructed along the upstream slope of the dam, downstream slope of the dam, and in the reservoir areas. Several temporary access roads would be constructed in the reservoir to access the Packwood Gravel Borrow Pit and stockpiles. The temporary access roads are further described in Section 2.5.2.			
Decommissioning of Hydroelectric Facility	Termination of connection and power generation of the existing built hydroelectric facility, located within Valley Water property along Cochrane Road to the west of Anderson Dam. Decommissioning would involve the disassembly, removal, and/or abandonment of two turbines and other aboveground and belowground mechanical and electrical equipment from the existing hydroelectric facility. This process would involve coordination with PG&E for the termination of connection between the existing facility and existing PG&E infrastructure related to power generation.	Construction, including disassembly, removal, and/or abandonment of facilities, associated with decommissioning of the hydroelectric facility is described in Section 2.5.4.	Once the existing hydroelectric facility has been decommissioned, this component would require no additional activities related to operation. The decommissioned facility would require minimal maintenance-related activities, including activities that would maintain the abandoned building to prevent dilapidation of the structure. This might include routine annual inspections, building maintenance and repair, trash and debris removal, and vegetation management.	None
Conservation Measures				
Normal Operation of Coyote Reservoir	Coyote Reservoir is approximately 1.5 miles upstream of Anderson Reservoir. Along with other inflows to Anderson Reservoir, its operation would affect flows through Anderson Reservoir during Project construction. Valley Water would maintain existing normal operations of Coyote Reservoir throughout the drawdown of Anderson Reservoir, and construction of the Seismic Retrofit components. By maintaining existing operations of Coyote Reservoir during construction of the FOCP and Project, Valley Water would partially retain the ability to store winter runoff in Coyote Reservoir and release it through Coyote Reservoir's outlet pipe to Coyote Creek to pass through Anderson Dam during the dry season, benefitting the native aquatic plants and animals that reside in this reach. As seismic retrofit construction progresses, all Coyote Reservoir releases would pass through the existing Anderson Dam outlet, through the Stage 1 Diversion System, through the Stage 2 Diversion System, and finally through the LLOW. Valley Water aims to maintain a minimum streamflow of 3 to 5 cfs at Gage SF12 (downstream of Coyote Reservoir) through releases from Coyote Reservoir in the spring and summer (when supply is available) and managing storage consistent with ~~in~~ the ~~winter to stay within~~ DSOD restriction established in 1992. Full capacity of the Coyote Reservoir outlet would be used when ~~restrictions (maximum~~ storage in Coyote Reservoir exceeds ~~is~~ 11,843 AF, which corresponds to the DSOD restriction on water surface elevation of 758.0 feet in local datum or 760.9 feet in NAVD 88, to reduce storage in Coyote Reservoir to the DSOD-restricted level.~~).~~ Furthermore, no operational changes are proposed for Coyote Reservoir during post-construction operations. Flows between Coyote and Anderson Reservoirs within Coyote Creek would continue within current, normal ranges during the entirety of the Project.	None. This component involves continued operation of existing infrastructure and operations at Coyote Reservoir.	None. This component involves continuation of existing operations at Coyote Reservoir, which would continue to be maintained per the DMP.	Figure 2-1 Regional Overview Map, which identifies Coyote Reservoir

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
Construction Period Wet Weather Bypass and Dry Weather ~~Imported Water~~ Releases for FCWMZ (releases from CDL and Cross Valley Pipeline Extension, and Use of Chillers)	During construction, wet weather natural flows would be passed through or around the dam and dam work area to provide pulse and instream flows in Coyote Creek to support steelhead and salmon migration. During the dry weather periods of the construction phase, releases of available local water stored in Anderson reservoir (if any) would be supplemented by releases of imported water from the CDL and the Cross Valley Pipeline Extension. These supplemental releases would support instream flows, groundwater recharge and groundwater-dependent ecosystem management, as well as improved water quality, decreased energy costs, water supply management, support of native aquatic fish and wildlife habitat, and riparian vegetation. Valley Water would augment releases of local water using other sources of supply, including releases from the CDL and releases from the Cross Valley Pipeline Extension. Imported water would be released into Coyote Creek just below the dam via the CDL. The amount of flow released from the CDL would depend on the time of year, the temperature, the amount of local water available for release from the reservoir to mix with the imported water, and actual hydrology at the time of the release (10 to 65 cfs), with the target of having a minimum flow of 2.5 cfs at the Edenvale streamflow gage (SF5058). As part of the FOCP, Valley Water extended the Cross Valley Pipeline to allow for imported water releases downstream of Ogier Ponds. Releasing imported water below Ogier Ponds ensures that more reaches of Coyote Creek stay wetted, enables recharge of the Coyote Valley and South San José areas throughout the construction period, and supports the maintenance of aquatic habitats for wildlife and riparian vegetation. Augmented releases of imported water also reduce potential subsidence in downstream lands. The extension is designed to have the capacity to carry 67 cfs of imported water. To avoid the potential for improper fish attraction cues at the Cross Valley Pipeline Extension outfall, the Cross Valley Pipeline Extension releases would not occur during higher flows. Valley Water would cease Cross Valley Pipeline Extension releases when flows exceed 65 cfs at streamflow station 5082 and Coyote Creek at Madrone during the adult upstream migration season (December 1 to April 30), unless there is less than 2.5 cfs at streamflow station 5058, Coyote Creek Edenvale. During construction, if imported water releases are determined to be too warm for *O. mykiss*, chillers installed under the FOCP would be used to cool up to 10 cfs of imported water prior to release via the CDL into Coyote Creek within the FCWMZ, and additional imported water would be released via the Cross Valley Pipeline Extension downstream of Ogier Ponds to continue to provide groundwater recharge below the FCWMZ. A total of three chillers (two chillers would be used with a third chiller available in reserve) would take an 800-amp current to chill a combined flow of up to 10 cfs by 7°C to provide cooler temperature flow to the FCWMZ. More information is provided in Section 2.5.3.	None. Involves use of infrastructure that would be constructed as part of the FOCP.	This component would support temperature regulation of surface waters during construction of the Project. Imported water releases to occur following construction are described below (refer to "Post-Construction Imported Water Releases" below). Following construction of the Project, site restoration and short-term maintenance for the Cross Valley Pipeline Extension would involve activities for the control of invasive weeds, removal and replacement of dead plants, implementation of plant protection measures, installation of signage, irrigation supply and/or system maintenance, surficial erosion control, removal of trash and debris, and control for opportunistic invasive wildlife species. Long-term maintenance for the CDL and Cross Valley Pipeline Extension would be conducted under Valley Water's PMP and SMP, where activities would be conducted in a manner that is consistent with these existing programs. Both of these programs have their own environmental review, permitting, and mitigation processes. This includes the replacement of valves after 30 years, and an assessment of appurtenances every 10 years. Chillers and ancillary chiller plant equipment (constructed as part of the FOCP) would be decommissioned after the completion of the Project construction. The aboveground pipelines would be demolished, and the underground pipes would be abandoned in place. The chillers plant would be removed and stored at an offsite location.	None

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
Ogier Ponds CM[1]	The Ogier Ponds CM would separate Coyote Creek from Ogier Ponds. This conservation measure would provide ecological enhancements to the channel and floodplain, improve water temperature impacts of the ponds, enhance fish migration, and reduce fish entrainment, and integrate public access. The Ogier Ponds CM would consist of reconstructing the pre-1997 creek channel to create a geomorphically stable creek with a connected floodplain, adding habitat and biological features to the creek and floodplain. The new section of creek channel would start at the former location of Pond 1 and connect to the pre-1997 channel alignment located west of Ponds 2, 3, 4, and 5. The new channel alignment would be approximately 6,500 feet in length, reconnecting to the current Coyote Creek channel downstream of the Ogier Ponds complex. The floodplain total width along the new channel would range up to 700 ~~600~~ feet, all within the creek alignment. The Ogier Ponds CM would fill Pond 1 and construct two berms to create a new section of the creek channel and floodplain in the area of the pre-1997 creek channel. The Ogier Ponds CM would completely fill and remove ~~removal~~ Ponds 1 and 5, and~~,~~ partially fill Ponds 2, and 4, separating all of the ponds ~~3, and 5~~ from the restored channel except during high flow conditions. No changes are proposed at Ponds 3 and 6. A fish culvert would be installed to spill into Coyote Creek at Pond 4. Native vegetation would be planted in areas along the floodplain to create riparian habitat. Full description of this Conservation Measure component is provided in Section 2.6.1.	Construction of the Ogier Ponds CM is described in Section 2.6.1.	Maintenance activities required for this Project ~~project~~ component include invasive vegetation management, trash removal, and repair and replacement of berms, spillways, fish screens, in-channel bio-engineered habitat enhancements, rock slope protection, stormwater outfalls, and maintenance roads. Routine inspection of spillways, berms, fish screens, and stormwater outfalls would also be conducted. Operations activities for Ogier Ponds would involve allowing creek flows to flow through the pond only in certain circumstances. The spillway structure would be operated to divert flows from the restored channel to the ponds to protect the channel when flows exceed greater than 2,000 cfs. Monthly inspections would be conducted to monitor water quality changes. To maintain or improve DO in the ponds during normal conditions in the absence of creek flow-through, solar powered floating aerators would be installed to maintain or improve DO as compared to existing conditions. Other water quality best management practices may also be deployed, if necessary as indicated by pond water quality monitoring results to maintain or improve upon existing water quality conditions in the ponds. Full description of operation and maintenance activities necessary for this Conservation Measure component is presented in Section 2.9.2.	Figure 2.3a Project Area – Anderson Dam Area
Ogier Pond to Metcalf Pond ~~Lower CWMZ~~ Restoration Evaluation[1,9]	Following the construction of the Ogier Ponds CM described above, and following implementation of post-construction operations, conditions for steelhead are anticipated to improve not only in the FCWMZ, but also downstream of Ogier Ponds, potentially improving the function of the CWMZ downstream of Ogier Ponds to Coyote Creek Golf Course Drive and habitats further downstream ~~towards Metcalf Road~~. In consideration of the predicted improved rearing conditions for steelhead, a geomorphic and habitat evaluation of Coyote Creek from Ogier Ponds to Metcalf Road would be conducted to describe existing channel conditions and habitat suitability for steelhead (e.g., channel confinement, channel incision, floodplain condition, spawning gravel quality and deposition, water temperatures, flows, and passage). This evaluation would include a detailed evaluation of flows and water temperatures post-construction within the reach from Ogier Ponds to Metcalf Road. Future restoration opportunities to increase channel width, decrease pool depth, increase access to off-channel or side channel habitat, increase spawning gravel deposition and quality, and assess passage challenges for steelhead in this reach would be described. This effort would also include conceptual design opportunities in up to three key locations that could be used for future restoration projects by other programs (e.g., FAHCE).	None. This component includes an evaluation study only and does not involve construction activities.	None. This component includes development of an evaluation study that does not involve operation and maintenance activities. Implementation of any conceptualized habitat improvements identified in the evaluation study would occur as part of future adaptive management phases of the FHRP and could require additional CEQA assessment and other regulatory approvals.	None

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
Maintenance of the North Channel Reach ~~North Channel Extension~~	During and after completion of Project construction, Valley Water would continue to maintain the wetland bench, restoration plantings, and flow capacity within the North Channel Reach, directly downstream of Anderson Dam, which was restored as part of the FOCP and FOCP's HMMP. This restoration activity would include regular monitoring to ensure the integrity of reach, as needed, and the clearing of the channel if flows are compromised. More information is provided in Section 2.6.2. ~~During the FOCP, weirs were constructed at the mouth of both the North and South Channels of Coyote Creek downstream of the existing outlet structure. The construction of the weirs provides the ability for Valley Water to split outlet flows between the North and the South Channels. The weirs were designed so that flows would be split between the channels in a manner that provides environmental benefits to each channel and would not increase the existing potential for fish stranding. The restoration of the North Channel through the historic creek alignment as part of the Project would include extending the limits of the North Channel that was constructed as a part of the FOCP, by grading additional channel through County Parks and private property and reconnecting the channel to the Coyote Creek confluence with the South Channel downstream. High flows would be managed between the channels to direct larger flows through the restored North Channel, limiting flows within the South Channel. This would minimize the potential for erosion and support salmonid spawning within the South Channel, while minimizing fish stranding throughout the restored North Channel where deep holes would be graded out, and facilitate access for channel maintenance. The grading of the North Channel alignment would eliminate the existing deep pools throughout this reach that otherwise may result in fish stranding as water recedes after high flow events.~~ ~~Habitat enhancements in the restored North Channel may also include the establishment of a sediment injection point for the placement of 500 cy of sediment that would be mobilized by high flows for improving downstream substrate conditions. This action would be integrated with the long-term Sediment Augmentation Program described below. Additional restoration activities in this area would include replanting native vegetation, native landscaping, and integrating park features around the restoration areas (fences, trails, benches).~~	Maintenance for FOCP HMMP components would be implemented throughout the construction-phase of the Project to ensure that the benefits are protected from additional sediment release while Anderson Reservoir is held at a low elevation, and to account for any changes to this section of Coyote Creek that may occur during the Project. ~~Construction related to modifications of the North Channel is described in Section 2.6.2.~~	Maintenance of the wetland bench, restoration plantings, and flow capacity would include the replacement of plantings and/or materials that would be required to restore the wetland bench. In-channel work may also be required to remove accumulated sediment, debris, and vegetation if flows are impeded within the North Channel. ~~Maintenance within the North Channel would include ongoing vegetation and sediment management, as needed. This may include hand removal and/or work equipment within the channel to maintain flow capacities. Ongoing sediment placement within the North Channel would also occur to enhance salmonid habitat downstream throughout Coyote Creek in accordance with the Sediment Augmentation Program. These activities are further discussed in Section 2.9.3.~~	Figure 2-3a Project Area – Anderson Dam Area
Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach (Maintenance Activities at the Live Oak Restoration Reach)	During and after completion of Project construction, Valley Water would continue to maintain spawning gravel and rearing habitat improvements in the Live Oak Restoration Reach directly downstream of Anderson Dam, which was restored as part of the FOCP's HMMP. Maintenance of the Live Oak Restoration Reach will address the potential effects of reservoir dewatering and sediment deposition on spawning and rearing habitat from the FOCP and Project, and address ongoing operational effects of the dam post-construction~~.~~ ~~This restoration activity would include regular~~ Regular monitoring would ~~to~~ ensure the integrity of the placed woody debris; and, as needed, replacement of gravel that may have been eroded. Spawning gravel placement would be integrated with the long-term Sediment Augmentation Program, described below. More information is provided in Section 2.6.5.	Maintenance for FOCP HMMP components would be implemented throughout the construction-phase of the Project to ensure that the benefits are protected from additional sediment release while Anderson Reservoir is held at a low elevation, and to account for any changes to this section of Coyote Creek that may occur during the Project.	Maintenance of spawning gravels in the south channel would be accomplished by placing between 1 to 10 cy of gravel in the South Channel every 5 years. If high flows are not experienced in this reach, the spawning gravels may stay in place and require only minor additions. Maintenance of installed wood structures would require replacing structures and associated hardware if they appear to be creating hazardous conditions within Live Oak Park. Stop logs on the southern weir could be deployed to increase frequency of the flows through the North Channel, which could aide adaptive management of vegetation and sediment injection sites.	Figure 2-3a Project Area – Anderson Dam Area

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
Sediment Augmentation Program	To address the historical effects of course sediment loss for steelhead habitat from creek banks and bed incision below Anderson Dam, Valley Water would implement a Sediment Augmentation Program ~~during and~~ after completion of the Project. Sediment augmentation activities would improve geomorphic processes that create and maintain steelhead habitat (sediments and spawning gravels) and reduce channel incision that is typical in Lower Coyote Creek downstream of the dam. Valley Water ~~This program~~ would develop a Sediment Augmentation Plan no later than two years prior to Valley Water's planned completion ~~consist initially of removing and stockpiling approximately 55,000 cy~~ of ADSRP construction ~~suitable sediment from the exposed sources~~ in consultation with the TWG. In accordance with this plan, ~~dry Anderson Reservoir lakebed between the Dunne Avenue Bridge and the Holiday Estates boat launch staging area throughout the duration of Project construction or at an offsite source. The~~ following completion of ADSRP construction, sediment would initially be placed within the Live Oak Restoration Reach, ~~in Coyote Creek at multiple locations downstream of Anderson Dam~~ and later during adaptive management within the Live Oak Restoration Reach or ~~and~~ Ogier Ponds Restoration Reach based on locations most in need of additional sediments, as determined by construction phase sediment monitoring and deposition ~~disposition~~ monitoring. Sediment loads would be delivered by trucks and standard construction equipment. Initially, the trucks would off load approximately 500 cy of sediment starting with one site ~~at the base of the dam, near the confluence of the North and South Channels~~ within the Live Oak Restoration Reach ~~and Ogier Ponds~~. ~~This site~~ The Live Oak Restoration Reach or Ogier Ponds Restoration Reach would be replenished with up to 500 cy every 5 years based on annual monitoring results. From ~~During~~ and after completion of construction, monitoring of the Sediment Augmentation Program would occur as part of the post-construction Project and FAHCE AMP and would be reviewed by the AMT. The monitoring for this habitat restoration CM would ~~will~~ include long-term collection of sediment transport data relative to flows, and carrying out fisheries habitat and sediment deposition monitoring by collecting substrate composition and spawning and rearing habitat quality transect data throughout the CWMZ. Monitoring would also include visual inspections of low-flow trail crossings that tend to accumulate sediment to inform adaptive management and identify areas that may require in-stream maintenance such as unblocking culverts.	Construction actions related to the Sediment Augmentation Program are described in Section 2.6.3	Up to ~~Approximately~~ 500 cy of sediment would be placed in multiple locations within the Live Oak Restoration Reach or Ogier Ponds Restoration Reach every 5 years during the operational phase. Monitoring activities associated with the Sediment Augmentation Program would be part of the Post-Construction Project and FAHCE AMP.	Figure 2-3a Project Area – Anderson Dam Area
Geomorphic Flows Plan	The Geomorphic Flows Plan would identify flow releases from Anderson Dam that would be integrated into Post-Construction Operations to provide additional support for biological features of steelhead critical habitat that are maintained by periodic high flows capable of inundating the floodplain, scouring substrate, mobilizing gravel, and supporting channel migration, as described in the high flows principles of the California Environmental Flows Framework (CEFWG 2021). The Geomorphic Flows Plan would interact with the other conservation measures to achieve the following physical channel maintenance objectives downstream of Anderson Dam: mobilize substrate, scour and transport fine sediments, maintain unembedded gravel, support gravel bar formation, reduce riparian vegetation encroachment, support formation of inset benches and floodplains, increase channel migration and bank erosion, and create and maintain a wider active channel and topographic diversity.	Valley Water would start collecting the data needed and conducting the necessary analysis to work collaboratively with the TWG to develop the Geomorphic Flows Plan aimed at minimizing impacts by identifying the frequency, magnitude, and duration of Geomorphic Flow Releases necessary to achieve the physical channel maintenance objectives. Data collection and analysis may start during the Construction Phase and will continue into the Post-	The Geomorphic Flows Plan would be prepared prior to completion of construction in consultation with the TWG, and implemented post-construction and would include specific flow targets to benefit steelhead and salmon, including floodplain inundation flows, ~~and~~ spawning gravel maintenance flows, and channel forming flows. Implementation of the Geomorphic Flows Plan would occur as part of future adaptive management in consultation with the AMT pursuant to the Post Construction Project and FAHCE AMP, and could require additional CEQA assessment. Initial assumptions for the plan are as follows but would be subject to the Project and FAHCE AMP process: 1. Floodplain inundation flows would initially be >65 cfs for at least 7 days every year and will be revised based on results of inundation mapping and consultation with the	

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
		Construction Phase. ~~None~~	TWG. 2. Spawning gravel maintenance flows would initially be 250 cfs every three years for 24 hours and will be revised based on results of sediment transport modeling and consultation with the TWG. 3. Channel forming flows would initially be 1,000 cfs every seven years for 24 hours and will be revised based on results of sediment transport modeling and consultation with the TWG.	
Phase 2 Coyote Percolation Dam CM[1]	The Coyote Percolation Facility, located 11 miles downstream of Anderson Dam, is used by Valley Water to impound water for the purpose of groundwater recharge. The channel-spanning facility historically has consisted of a flashboard dam (composed of removable steel plates atop a reinforced concrete foundation), rock slope protection, fish ladder, two radial gates, and approximately 40 acres of impoundment (referred to as the Coyote Percolation Pond). As part of the FOCP, Valley Water will complete the Phase 1 improvements to this Facility, i.e., replacing the existing flashboard dam with an inflatable bladder dam to be able to accommodate high flow emergency releases following completion of ADTP. This modification will also improve the existing fish ladder by replacing existing stational fish ladder panels with adjustable panels to improve fish passage during low water level events (refer to Section 1.3.3, "*FERC Order Compliance Project*"). These improvements are referred to as the Phase 1 Coyote Percolation Dam Fish Passage Enhancements. Phase 2 Coyote Percolation Dam Fish Passage Enhancements would include the construction of a roughened channel ~~ramp~~ fishway below and up to the bladder dam to allow for improved fish passage in accordance with NMFS and CDFW fish passage criteria over the deflated bladder dam over a range of flow conditions, including necessary alterations to provide adequate flow depths and velocities across the foundation and deflated bladder dam. Studies would be developed in coordination with the TWG to understand juvenile steelhead outmigration through the Coyote Percolation Pond. These studies would focus on three key areas: predation (piscivorous, avian and aquatic species), out-migration success, and passage conditions under a variety of conditions. These studies would be developed during the Phase 2 construction period and would be implemented after Phase 2 is complete and post-construction Anderson Dam facilities operations have begun.	Construction related to the improved fishway is described in Section 2.6.4.	Consistent with current operational rules of the Coyote Percolation bladder dam, the bladder dam would be lowered only during high flow events (exceeding approximately 250 ~~320~~ cfs) and then be raised after high flow events have receded. The Coyote Percolation Dam and its appurtenances would continue to be maintained as described in the DMP. The Phase 2 Coyote Percolation Dam Fish Enhancements would be monitored post-construction (through the VAKI Riverwatcher [a computer-based fish counter] in the fish ladder and through in-stream flow/passage assessments). Routine maintenance activities associated with the passage enhancements would include removal of accumulated sediments, erosion or scour hole remediation, and vegetation removal. Maintenance staff would also inspect the roughened channel at periodic intervals, particularly after large flows, and replace roughness elements and/or repair in-channel bio-engineered habitat enhancements (e.g., rootwads, stream barbs, overhanging banks), and rock slope protection, as needed, to maintain channel function and maintain fish passage conditions. Maintenance of the Coyote Percolation Dam facility would be covered under Valley Water's DMP (2012) ~~and SMP~~.	Figure 2-3b Project Area - Coyote Percolation Dam
Coyote Creek Facilities Plan[1]	Valley Water would draft a Coyote Creek Facilities Plan that outlines strategies for the implementation of the following two primary components: **Laguna Seca Groundwater Remediation.** The plan as originally described in the FAHCE Settlement Agreement would evaluate alternatives to manage groundwater inflow from Coyote Creek. The goal is to allow flow releases from Anderson Dam to continue uninterrupted to the vicinity of Metcalf Ponds in a manner that protects other parties' properties and water rights. If a feasible alternative can be identified, Valley Water may recommend action, including design and construction schedules for implementation during FAHCE adaptive management. **Metcalf Ponds Stream Corridor Restoration.** In March 2017, Metcalf Ponds sustained damage that affects fish passage. The plan as originally described in the FAHCE Settlement Agreement would evaluate alternatives to isolate percolation ponds, quarry pits, and other	None. This component includes development of a facilities plan only and does not involve construction activities.	None. Implementation of any strategies proposed as part of the Coyote Creek Facilities Plan would occur as part of future adaptive management phases of the FHRP. Should the results of the study lead to infrastructure improvements, these improvements could require additional CEQA assessment and other regulatory approvals.	None

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
	structures from the active Coyote Creek channel in the vicinity of Metcalf Road to reestablish a free-flowing creek channel through this area. If a feasible alternative is developed, the plan may recommend action, including design and construction schedules for implementation during FAHCE adaptive management. Depending on the results of the feasibility assessments conducted for the Coyote Creek Facilities Plan as part of the Project, specific design and implementation methodologies for resultant proposed measures would be selected through the ongoing Project and FAHCE AMP implemented pursuant to the FHRP. Both components of the plan would be coordinated with the NMFS and CDFW prior to design and implementation.			
Cherry Flat Reservoir Cooperative Operating Agreement[1]	Cherry Flat Reservoir is a City of San José facility located on Upper Penitencia Creek upstream from Alum Rock Park, near the top of the watershed catchment basin. The watershed above the reservoir is 2.41 square miles of undeveloped private and publicly owned rangeland. The reservoir was built in the 1930s for flood control, water conservation, and livestock watering. This reservoir is not currently managed to support fish flows in Upper Penitencia Creek, although it is managed to maintain minimal flows through Alum Rock Park (about 0.5 cfs during summer). Presently, Valley Water has a pipeline release point into Upper Penitencia Creek that can provide spring or summer flow in this channel, when in operation. Releases into the creek are based on Valley Water operational needs for groundwater recharge, occur only after natural flows have receded upstream of the release point, and do not extend downstream to the confluence with Coyote Creek. As part of the Project and in accordance with FAHCE *Settlement Agreement* section 6.4.2.1.4 (FAHCE 2003), Valley Water would undertake reasonable best efforts to develop and execute a cooperative agreement with the City of San José regarding the operation of Cherry Flat Reservoir on Upper Penitencia Creek to ensure that habitat upstream of Valley Water facilities are kept in good condition subject to the availability of water for releases from the reservoir. In coordination with the cooperative agreement and operational plan for Cherry Flat Reservoir, Valley Water would also develop and execute an operational plan for Valley Water Facilities on Upper Penitencia Creek designed to maintain and enhance stream flow conditions for steelhead downstream of the Noble Avenue water diversion. The intent of this operational plan is to provide suitable flow conditions for adult fish passage, spawning, egg incubation, juvenile rearing, and downstream migration of steelhead in Upper Penitencia Creek.	None. Staff access could require minor maintenance of access roads and vegetation management to allow for monitoring and future activities required for adaptive management.	This Project ~~project~~ component involves development of operational plans for both City of San José and Valley Water facilities, along with monitoring and future activities for adaptive management. Implementation of an operational agreement that would occur as part of future adaptive management could require additional CEQA assessment and other regulatory approvals.	None
Payment of Santa Clara Valley Habitat Conservation Plan Impact Fees	The Project is a covered activity under the VHP (SCVHA 2012). The VHP would provide the ESA, CESA, and NCCPA compliance pathway for the Project for species under the jurisdiction of the USFWS and CDFW. Valley Water would apply for VHP coverage for Project activities and would pay impact fees for Project activities, including fees for effects on stream, wetland, riparian, and serpentine habitats under the VHA approved In Lieu Fee program. The SCVHA would then use those fees to acquire, preserve, manage, and restore populations of the covered species and the sensitive habitats that are impacted by the Project (refer to Section 3.5, *Biological Resources – Wildlife and Terrestrial Resources*). Conservation Measures would be performed in accordance with the VHP, which in some cases prescribe that the SCVHA closely match the number of individuals and quality of habitat that is acquired, preserved, and managed with the resources that are impacted. As a result, the conservation program of the VHP compensates for the Project's impacts to covered species and habitats, using	None.	None.	None

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
	the impact fees paid by Valley Water.			
Construction Monitoring				
Construction Phase Water Quality Monitoring	To minimize impacts to water quality during construction, Valley Water would conduct in-reservoir and Coyote Creek monitoring to assess water quality trends. Water quality monitoring efforts would include *Water Quality Monitoring, Sediment Deposition Monitoring, Suspended Sediment Monitoring, and Groundwater Monitoring*. More information is provided in Section 2.7.1.	None. Water quality monitoring would occur during Project construction, but would not require access improvements, vegetation management, or other construction activities.	None. No O&M activities involved with this component.	None
Construction Phase Vegetation Monitoring	Vegetation monitoring would be implemented under several approaches until completion of Project construction. Vegetation monitoring efforts would include continuation of FOCP monitoring plans, including *Phytophthora Pathogen Management Plan* (Valley Water, 2020b ~~2020f~~), *Post-Project Phytophthora Monitoring Plan (*Valley Water, 2021h*), Wetland and Riparian Habitat Dryback Monitoring* (Valley Water, 2020c ~~2020f~~*)*, and (unless and until the monarch butterfly is added to the VHP as a covered species) the *Milkweed Survey Plan* (Valley Water, 2020d). More information is provided in Section 2.7.4.	None. Vegetation monitoring would occur during Project construction, but would not require access improvements or other construction activities.	No O&M activities involved with this component.	None
Construction Phase Fisheries Monitoring	~~Fisheries monitoring identified for the FOCP and FAHCE would continue to be implemented under several approaches until completion of Project construction, as follows.~~ The fisheries monitoring efforts during construction would include ~~Fish Sampling (Valley Water 2020e),~~ Juvenile Rearing and Growth Comparative Studies (Valley Water 2023a ~~2023b~~), Environmental DNA Monitoring, ~~Fyke Trapping and PIT Tag Monitoring (Valley Water 2021c),~~ Vaki Riverwatcher Adult Escapement Monitoring, Fish Rescue and Relocation Plan ~~Surveys~~ (Valley Water 2020e ~~2020c~~), Migration Flow Monitoring, ~~Juvenile~~ Migration Study (PIT), ~~and~~ Spawning Surveys (Valley Water 2023a ~~2023b~~), spawning habitat quality and pool depth monitoring, and habitat restoration monitoring. More information on fisheries monitoring efforts is provided in Section 2.7.5.	None. Fisheries monitoring would occur during Project construction, but would not require access improvements, vegetation management, or other construction activities.	No O&M activities involved with this component.	None
Construction Phase Terrestrial Animal Monitoring	Valley Water would continue to conduct surveys for several terrestrial animal species that occur during the FOCP. Such surveys include annual surveys for nesting bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*), and annual monitoring surveys at a pallid bat (*Antrozous pallidus*) roost near Anderson Dam. In addition, implementation of the FOCP *Crotch's Bumble Bee Avoidance Plan* (Valley Water 2024) would continue during Project construction, as long as the species is legally protected or unless and until the Crotch's bumble bee is added to the VHP as a covered species. More information is provided in Section 2.7.7.	None. Terrestrial animal monitoring would occur during Project construction, but would not require access improvements, vegetation management, or other construction activities.	Surveys for pallid bats may occur for up to 3 years post-construction to monitor use of the Cochrane Road barn and any alternative roost structures that Valley Water may construct (if necessary). However, no O&M activities are involved with this component.	None
Construction Phase Reptile Monitoring	In coordination with USFWS, CDFW, and SCVHA, Valley Water would continue to implement western pond turtle (*Emys marmorata pallida*) monitoring efforts in suitable habitat in the FCWMZ. A Western Pond Turtle Monitoring Plan (Valley Water 2020f ~~2020h~~) was prepared for the FOCP under FERC (2020 ~~2020b~~) Order B (12). This Western Pond Turtle Monitoring Plan would be implemented as part of the Construction Phase Reptile Monitoring component. More information is provided in Section 2.7.6.	None. Reptile monitoring would occur during Project construction, but would not require access improvements, vegetation management, or other construction activities.	No O&M activities involved with this component.	None
Construction Phase Invasive Species Monitoring and Control	Valley Water prepared an Invasive Species Monitoring and Control Plan for the FOCP that would continue to be implemented through construction of the Project. The plan targets non-native fish, crayfish (*Cambaridae*), American bullfrog (*Lithobates catesbeianus*), and red-eared sliders (*Trachemys scripta*), as well as opportunistic removal of other non-native species (Valley Water, 2020g ~~2020k~~). More information is provided in Section 2.7.4.	None. Invasive species monitoring and control activities would occur during Project construction, but would not require access improvements, vegetation management, or other construction	No O&M activities involved with this component.	None

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
		activities.		
Post-Construction Operations				
FAHCE Operational Rule Curves[1]	Following Project construction, Anderson Dam facilities would be operated using the FAHCE operational rule curves developed by the Advisory Committee pursuant to the FAHCE *Settlement Agreement* (FAHCE 2003) and outlined in the Coyote Creek FHRP (Valley Water 2023a ~~2023b~~); operations would also adhere to Anderson Reservoir-specific requirements for flood management, water supply, and emergency protocols. The FAHCE rule curves describe planned releases of impounded water within Anderson Reservoir and have been developed using specific criteria with the intent to support the life-cycle needs of steelhead and Chinook salmon living in the lower Coyote Creek Watershed. Rule curve parameters identify reservoir storage levels that trigger flows releases to facilitate passage of upmigrating adult steelhead and outmigrating steelhead smolts, providing instream flows, and maintaining water temperatures suitable for juvenile rearing.	None. This component involves operational changes following construction.	Post-construction operations are described in Section 2.8.3.	Figure 2-13 Anderson-Coyote Reservoirs Combined Storage Rule Curves: FAHCE Winter Base Flows Figure 2-14 Anderson-Coyote Combined Reservoirs Operation Rule Curves: FAHCE Pulse Flows
Post-Construction Cross Valley Pipeline Extension Operation	To manage groundwater recharge and meet minimum flow targets downstream of Coyote Percolation Ponds, Valley Water would release imported water to the downstream end of the CWMZ via the Cross Valley Pipeline Extension. During post-construction operations, the Cross Valley Pipeline Extension would only be operated during dry and severely dry years when releases from Anderson Reservoir are insufficient to maintain a wetted channel to the Cross Valley Pipeline Extension outfall.[4] If stream flow from Anderson Dam does not reach the Cross Valley Pipeline Extension outfall and a dryback is present downstream, Valley Water may release imported water to Coyote Creek from the Cross Valley Pipeline Extension for managed groundwater recharge and to maintain a wetted channel downstream of the release point with no temperature limitations.	None.	During post-construction operations, the Cross Valley Pipeline Extension would only be operated in severely dry years to maintain groundwater recharge. Pipeline maintenance of the Cross Valley Pipeline Extension would be carried out as described in the PMP.	None
Phase 2 Coyote Percolation Dam and Fish Ladder Operations Plan[5]	Valley Water would develop and implement an updated operations plan for the modified Coyote Percolation Dam Facility that maximizes the benefits provided by the fish ladder and roughened approach channel improvements (i.e., Phase 2 Coyote Percolation Dam Fish Passage Enhancement), and provides for fish passage in all typical flow conditions. The updated plan would identify site access, operations to occur during the steelhead migration season (October 16 through June 14) and non-migration season (June 15 through October 15), maintenance requirements, additional details pertaining to the fish ladder, and would include other relevant documentation (e.g., Memorandum of Understanding with applicable regulatory agencies) that has been established governing the specifications and operations of facility operation.	None. This component involves development of an operations plan.	Guidance for operational activities would be developed in coordination with the TWG, and post-construction operations would be adaptively managed in consultation with the Post-Construction and Project FAHCE AMT ~~NMFS~~. Operations would involve deflation of the dam and implementation of adjustments to the fish ladder panels when flows are expected to exceed 250 ~~320~~ cfs.	None
Post-Construction Reservoir and Imported Water Storage and Releases[1]	Historic operations, which allow for storing both local and imported water in Anderson Reservoir, would continue post-Project. Typically, imported water would be put into Anderson Reservoir in late winter and spring, while the temperature of that imported water is still relatively cold, to augment local water and enable an increase in the cold-water volume in Anderson Reservoir. In addition, imported water may be put into Anderson Reservoir to augment local water at other times of the year, if necessary, to avoid losing Valley Water's water supplies stored in San Luis Reservoir or in anticipation of a planned shutdown in the conveyance system from San Luis Reservoir to Santa Clara County. Water would be added to the reservoir using the	None. This measure involves operational changes following construction.	Post-construction reservoir outflow is described in Section 2.8.2.	None

[4] Valley Water 2022a Cross Valley Pipeline Extension Post-Construction Operations Memo
[5] This plan satisfies the requirements for the Coyote Creek Facilities Plan Phase 1 measure in Accordance with Settlement Agreement Section 6.4.2.1.

Project Component	Component Description	Construction Phase	Post-Construction Phase (O&M)	Figure(s)
	multi-port outlet in a way that does not negatively impact the cold water volume available for the release to Lower Coyote Creek with the goal of maintaining/maximizing the cold water pool volume in Anderson Reservoir for discharge downstream of the FCWMZ. Finally, the new outlet works that would be constructed as part of the Project Seismic Retrofit component would enhance reservoir operations and offer flexibility for environmental benefits. Even if imported water needed to be delivered in a summer month to the upper, warmer layers of the reservoir, it would be later released to the distribution system and water treatment plants via the upper portal of the sloping intake structure and Anderson Force Main. On the other hand, releases to Lower Coyote Creek would be from the lower, cold-water pool via a 33-inch pipeline dedicated to managed recharge releases and environmental flows.			
Post-Construction Project and FAHCE AMP	Adaptive management of all post-construction operations, and all non-flow fish barrier remediation and habitat restoration conservation measures would occur in accordance with the FAHCE AMP outlined in Section 6.2 of the FHRP, which has been developed in accordance with the FAHCE *Settlement Agreement*. Pursuant to the FAHCE Framework, a project-specific Project and FAHCE AMP has been developed. The AMP includes four key elements: measurable objectives for of all post-construction operations and all non-flow fish barrier remediation and habitat restoration conservation measures, monitoring, adaptive actions if measurable objectives are not being met, and reporting. The ADSRP AMP provides measurable objectives for steelhead, trout, and salmon fisheries and their habitats. Operations and maintenance procedures and performance standards for flow and nonflow Conservation Measures identified in the AMP will contribute to the achievement of such objectives. The monitoring component would include compliance monitoring, validation monitoring, effectiveness monitoring, and long-term trend monitoring. The Project and FAHCE AMT would play an important role in adaptive management decision-making, as described in detail in the FAHCE AMP. Data and analysis would help determine whether project refinements are needed to incrementally improve instream fisheries habitat conditions. See Section 2.10 for further details.	None.	None. This component includes monitoring, reporting, and adaptive actions if measurable objectives are not being met. Should adaptive actions necessitate new or modified non-flow measures, such actions may require additional CEQA assessment and separate regulatory approvals.	None

Notes:

[1] Denotes FAHCE Phase 1 Measure that would be completed as part of the Project. Please note the following Unscreened Diversion – Upper Penitencia Creek, Singleton Road Low-flow Crossing, and the Trap and Truck Feasibility Study, have already been completed and not evaluated in the EIR. Please reference the FHRP for further information.

Key: ADTP = Anderson Dam Tunnel Project; AF = acre-feet; AMP = Adaptive Management Program; AMT = Adaptive Management Team; CDFW = California Department of Fish and Wildlife; CDL = Coyote Discharge Line; CEFWG = California Environmental Flows Working Group; CEQA = California Environmental Quality Act; CESA = California Endangered Species Act; ; cfs = cubic feet per second; CLSM = controlled low-strength material; County Parks = Santa Clara County Parks and Recreation Department; CWMZ = cold water management zone; cy = cubic yards; DMP = Dam Maintenance Program; DSOD = California Department of Water Resources, Division of Safety of Dams; elev. = elevation in feet above sea level; FAHCE = Fish and Aquatic Habitat Collaborative Effort; FCWMZ = functional cold water management zone; FERC = Federal Energy Regulatory Commission; FHRP = Fish Habitat Restoration Plan; FOCP = FERC Order Compliance Project; HLOW = high-level outlet works; HMMP = Habitat Mitigation and Monitoring Plan; LLOW = low-level outlet works; MCE = maximum credible earthquake; NCCPA = Natural Community Conservation Planning Act; NMFS = National Marine Fisheries Service; O&M = operations and maintenance; PG&E = Pacific Gas and Electric Company; PIT = Passive Integrative Transponder; PMF = probable maximum flood; PMP = Pipeline Maintenance Program; Project = Anderson Dam Seismic Retrofit Project; SCVHA = Santa Clara Valley Habitat Agency; SMP = Stream Maintenance Program; TWG (Technical Working Group); USFWS = U.S. Fish and Wildlife Service; Valley Water = Santa Clara Valley Water District; VHP = Santa Clara Valley Habitat Plan

Metcalf Ponds consist of Coyote Percolation Pond, Parkway Pond, Pond 10a, Pond 10b, and Pond 10c.

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1 **Figure 2-5. Stage 1 Diversion System**

2

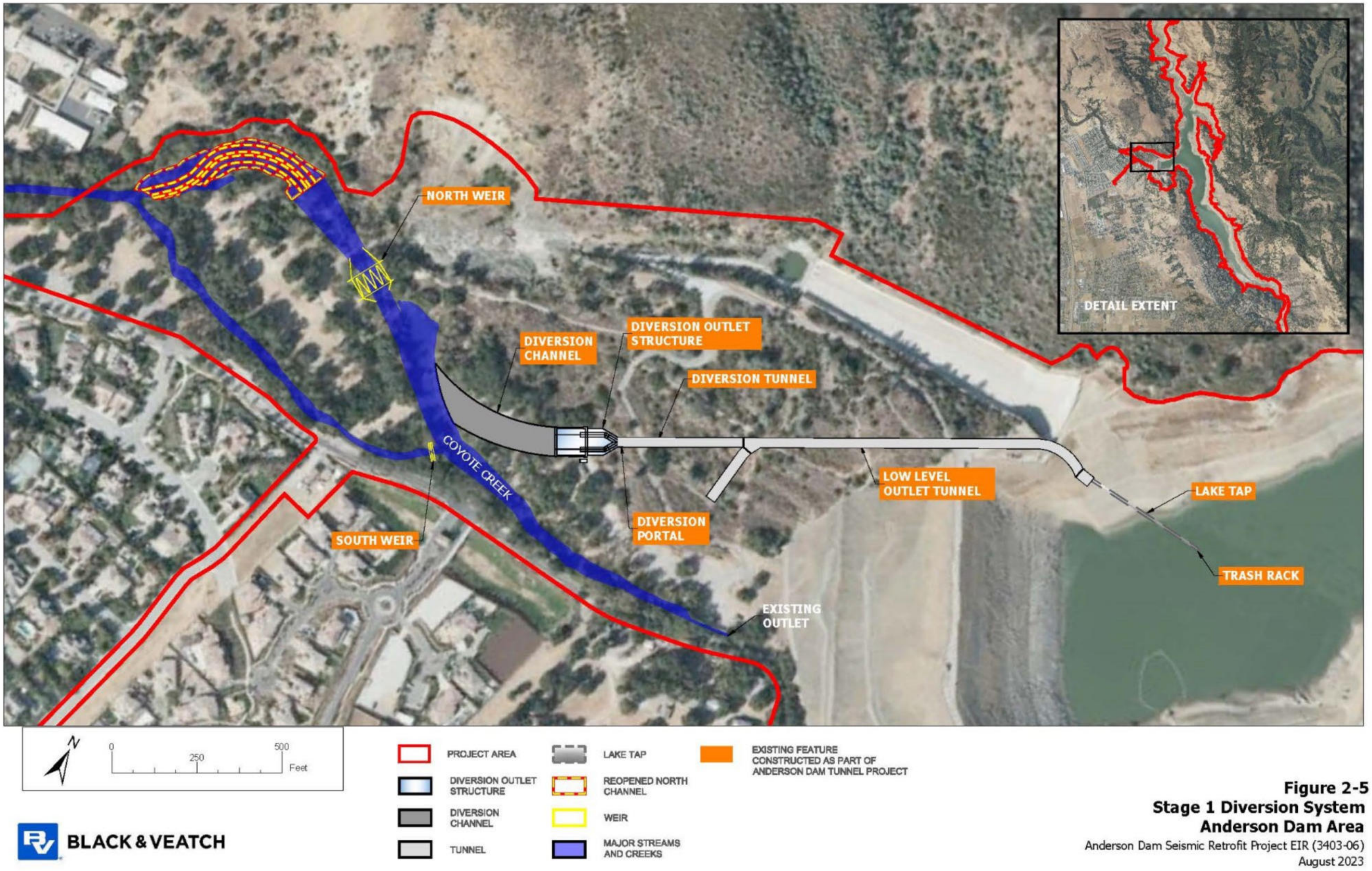
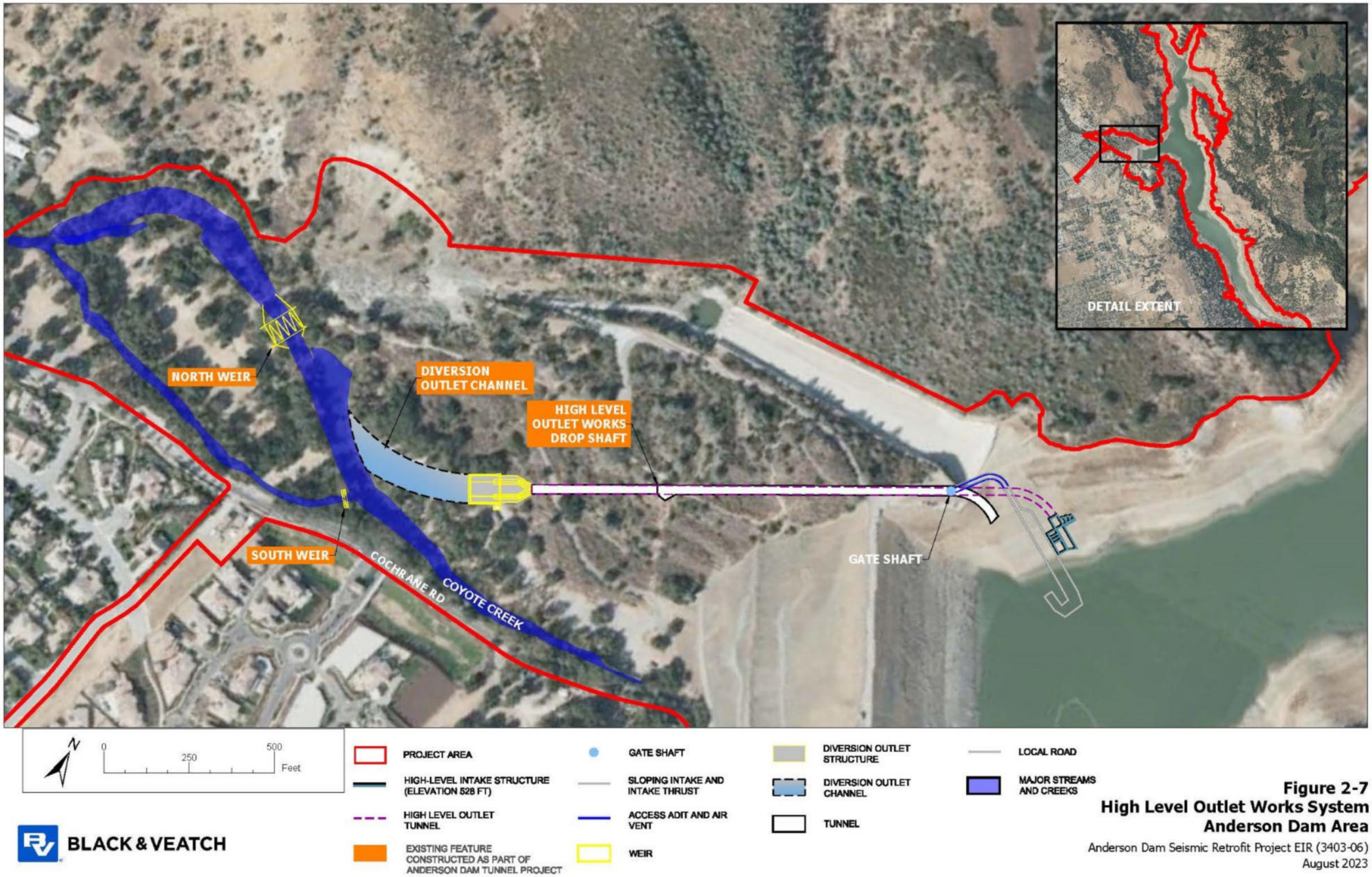


Figure 2-6. Stage 2 Diversion System

Figure 2-7. High-Level Outlet Works System



1 **Figure 2-8. Low-Level Outlet Works System**

2

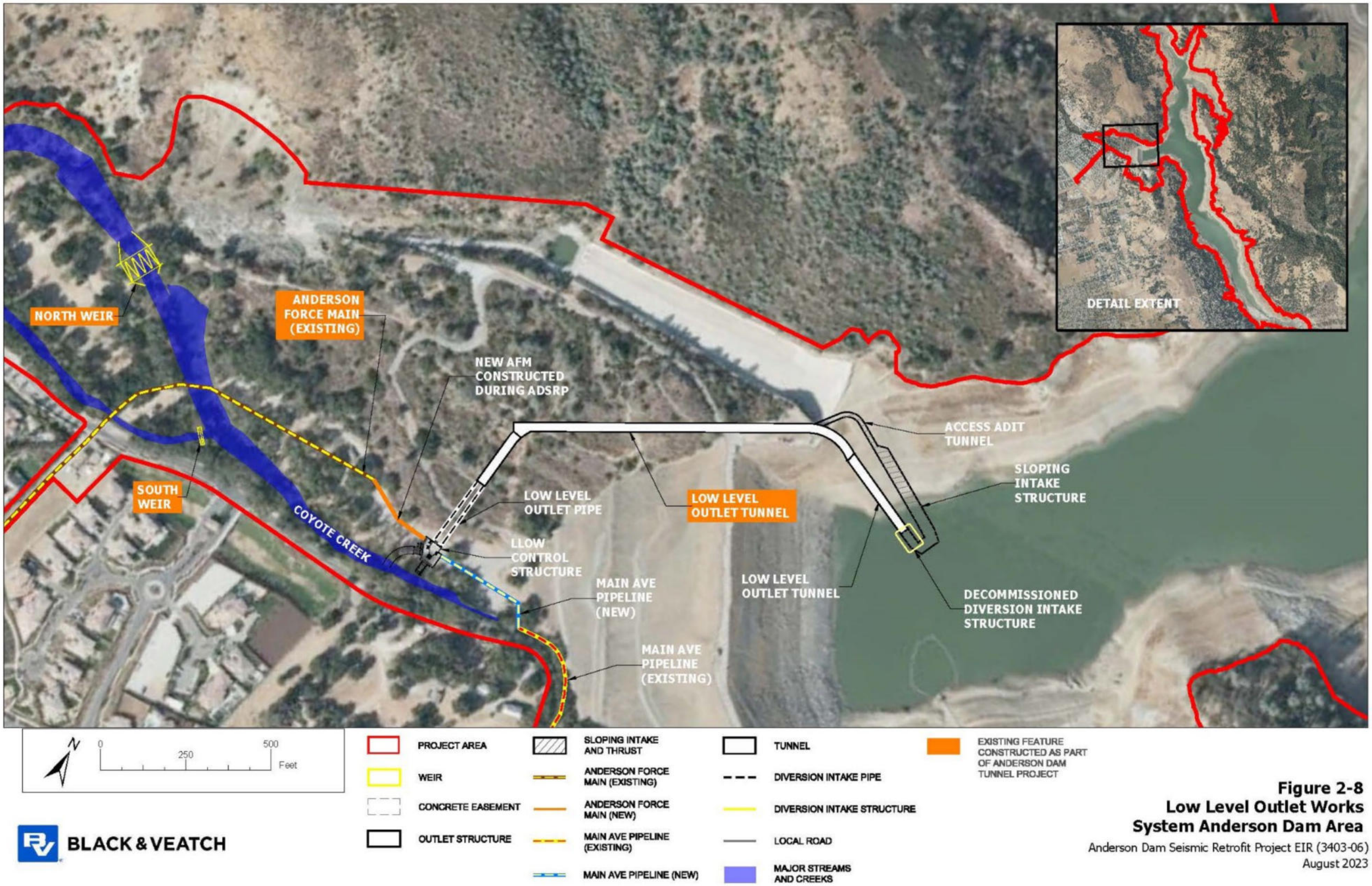


Figure 2-9. Proposed Pipeline Realignment

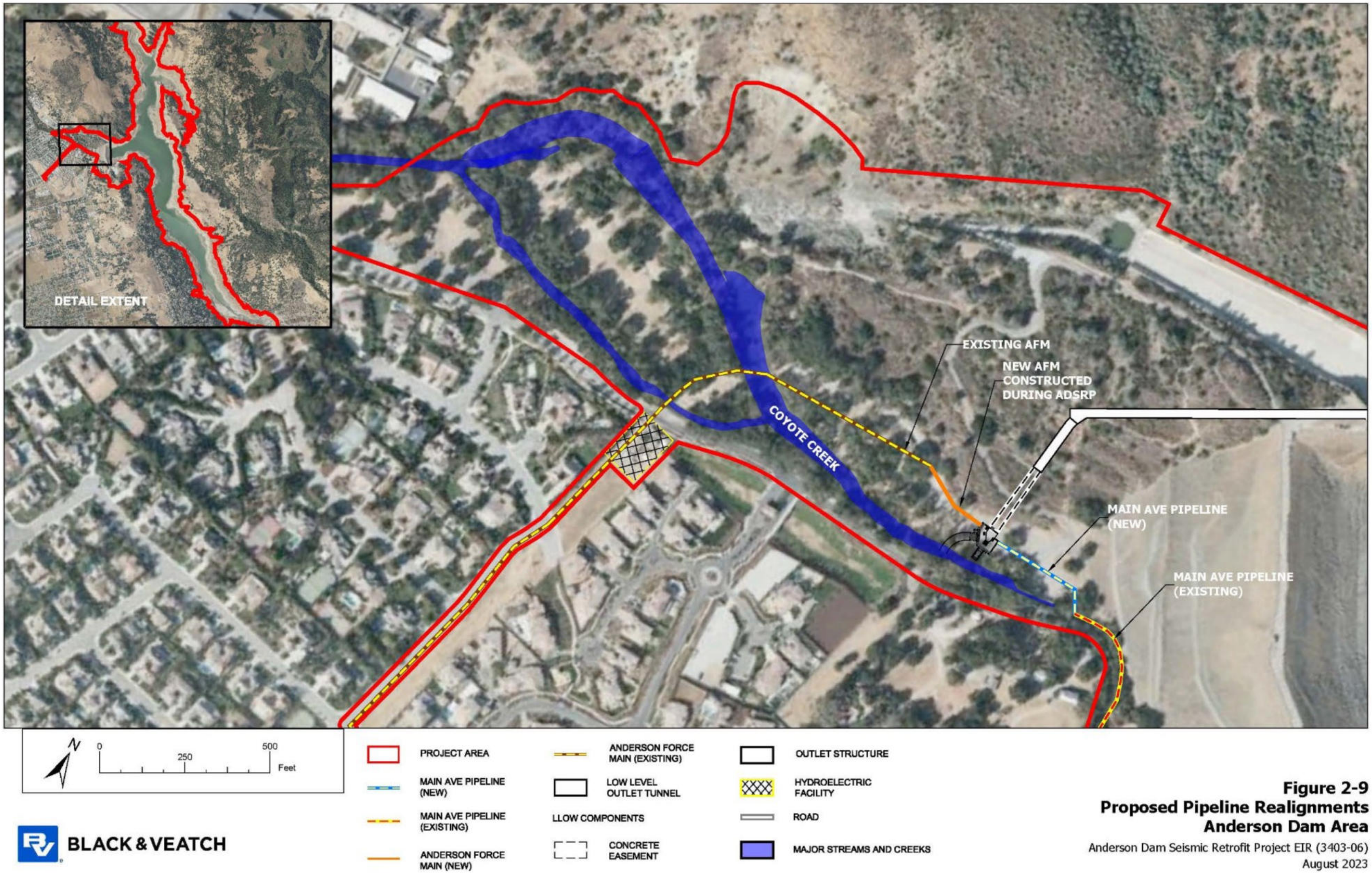


Figure 2-10. Proposed Communication Lines

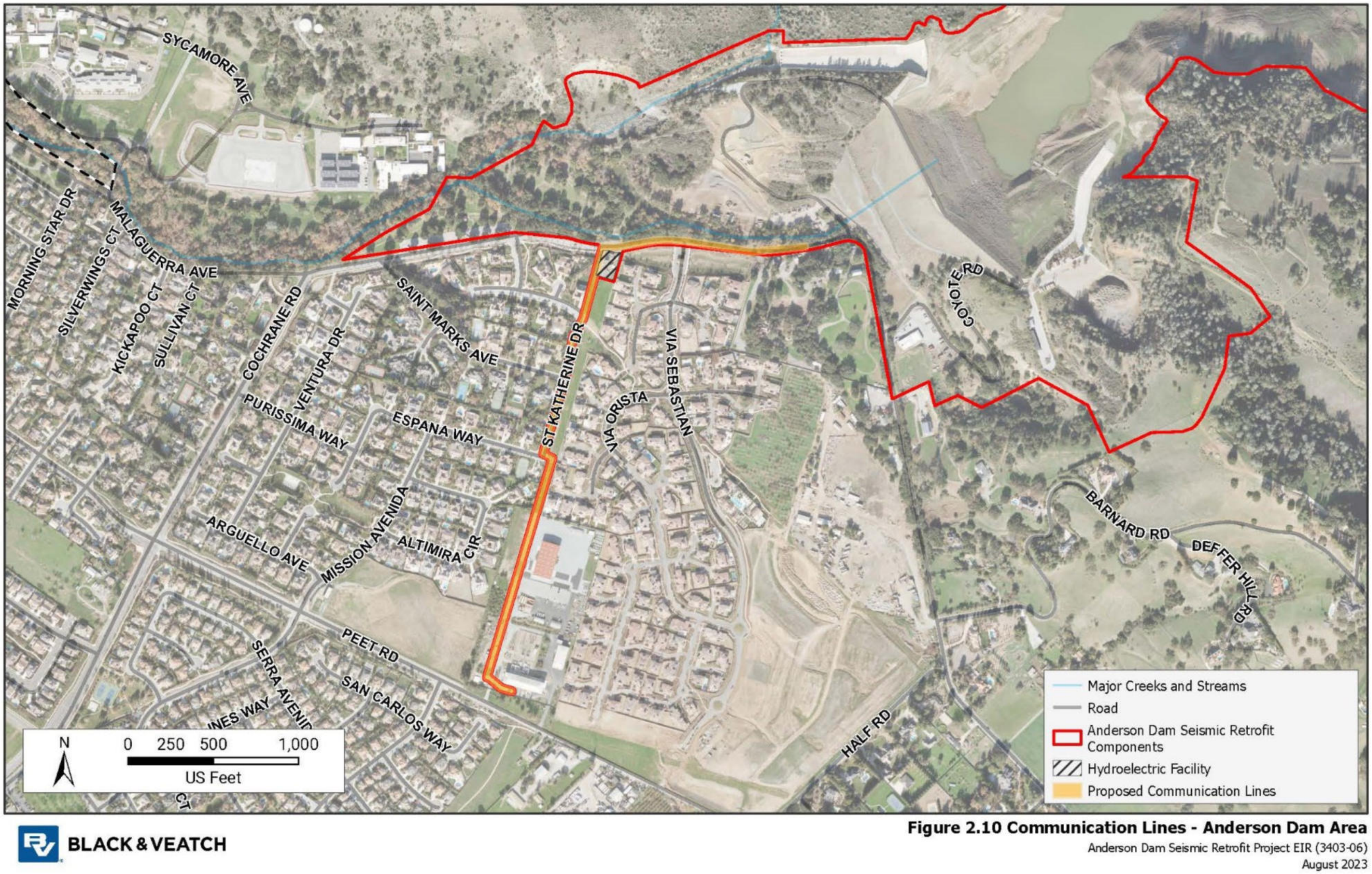


Figure 2-11. Ogier Ponds CM

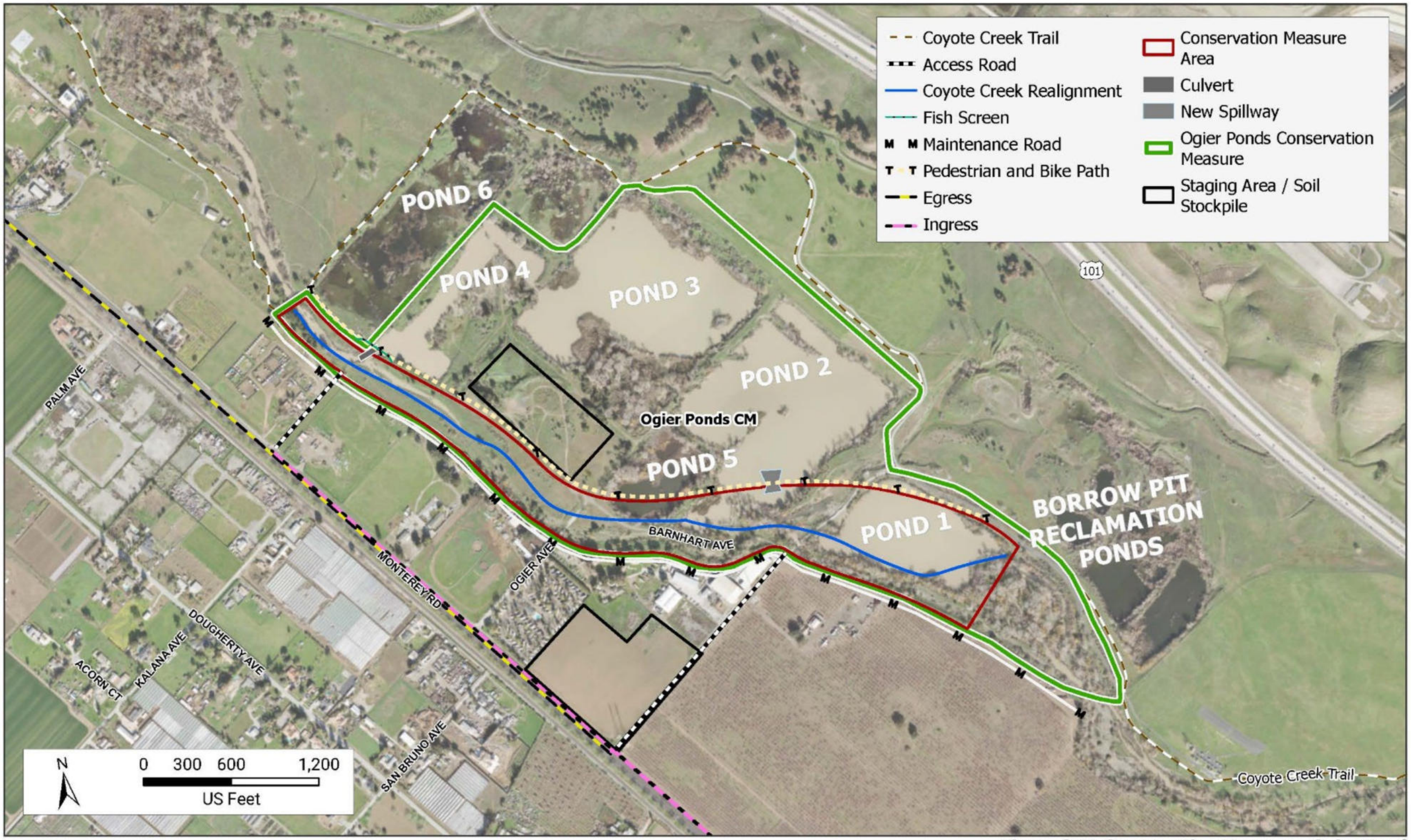


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Figure 2.11 Conservation Measure - Ogier Pond
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

Figure 2-12. North Channel Extension

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Figure 2.12 Maintenance at the North Channel Reach and Habitat Enhancement – Anderson Dam Area

Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

1

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Figure 2.12 North Channel Extension and Habitat Enhancement – Anderson Dam Area
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

2.5 Seismic Retrofit Construction

Construction activities for the Seismic Retrofit components include the following: site mobilization and preparation, including clearing and preparing temporary construction access and haul roads, staging and stockpile areas; reservoir dewatering and cofferdam construction; construction of the temporary water diversion system; dam excavation and fill (including dredging, excavation of embankment materials from borrow areas and disposal of excess materials at disposal areas); construction of the new outlet works and spillway; construction other ancillary facilities; the decommissioning of the hydroelectric facility; and site restoration. Additionally, all of the Seismic Retrofit components would be constructed on bedrock foundations or on compacted fill materials that do not exhibit shrink/swell behavior.

These stages of construction are described in more detail in the sections below.

2.5.1 Construction Process and Phasing

2.5.1.1 Schedule

Construction of the Seismic Retrofit components is planned to extend over a 7-year duration. Seismic Retrofit components activities are expected to commence in the spring of Year 1 and extend through the winter of Year 7. The following bullet points provide an overview of the construction activities projected to occur by calendar year:

- Year 1: Site mobilization; full dewatering of the reservoir from deadpool to elev. 450 feet; preparation of staging areas, access and haul roads, in-reservoir stockpile areas, and borrow sites[6]; and begin tunneling for the low-level outlet works (LLOW); and acquisition of temporary construction easements (as-needed).
- Year 2: Full dewatering of the reservoir from deadpool to elev. 450 feet; cofferdam and extension pipe construction; conversion of existing Stage 1 Diversion System into Stage 2 Diversion System; dam excavation to interim dam[7] with crest of elev. 565 feet (Stage 1a Dam Excavation); and tunneling for high-level outlet works (HLOW)
- Year 3: Dam excavation to interim dam with crest El. 556 feet (Stage 1b Dam Excavation); construction of HLOW; and demolition of the existing spillway
- Year 4: Dam excavation to a remnant core (Stage 2a Dam Excavation) and dam fill to interim dam with crest elev. 556 feet (Stage 2b Fill); and construction of the spillway.
- Year 5: Dam fill to interim dam with crest elev. 565 feet (Stage 3a Dam Fill); construction of the spillway; and construction of the LLOW
- Year 6: Dam fill to new dam crest elev. 657 feet (Stage 3b Dam Fill); completion of LLOW, including sloping intake structure and outlet structure; completion of the spillway, including the unlined chute, and refilling of the reservoir
- Year 7: Permanent roadways and site restoration; and repaving Cochrane Road

[6] Since the issuance of the FERC Order, technical work reveals that the existing deadpool is actually approximately elevation 490 feet NAVD 88, and Valley Water's request to correct the FERC Order definition of deadpool is pending.

[7] During excavation of the existing dam and construction of the replacement dam there will be four winter seasons when reservoir inflows will be conveyed past the dam site through a diversion system. Inflows that exceed the capacity of the diversion system will form temporary reservoirs behind interim dams (Valley Water 2021f).

Where appropriate, construction years are referred to throughout this section to provide the reader with a general understanding for the phase at which construction would be occurring. Note that references to the “dry season” refer generally to spring and summer months when rainfall would not be expected (e.g., April 15 through October 15); references to the “wet season” refer to fall and winter months when rainfall would be expected (October 15 through April 15).[8] In general, in-channel work downstream of the dam, would occur during the dry season, but could be extended in a given year with regulatory agency approvals, contingent on weather conditions, implementation of BMPs, and remaining work activities that would need to be completed within the work season. Work within the reservoir area, including dam excavation and reconstruction, would occur in work season that extends into the “wet season” from April 1 to November 30 or later to complete work for public safety. In-channel work would occur from June 15 to October 15.

2.5.1.2 Work Hours and Crew Size

Construction activities would be conducted during a single 10-hour shift per day, between 6:00 a.m. and 4:00 p.m., Monday through Saturday, with limited Sunday work. Sunday work would include up to 12 Sundays in Years 1 through 3, up to 40 Sundays in Year 4, and up to 12 Sundays in Years 5 through 7. Specific Project ~~project~~ components that would require modified construction hours include:

- Excavation of the existing dam and construction of the replacement dam and spillway, and conversion of existing Stage 1 Diversion System into Stage 2 Diversion System – two 10-hour shifts, with a 0.5-hour lunch break (one shift between 6:00 a.m. and 4:30 p.m., and the second shift from 6:00 p.m. to 4:30 a.m., Monday through Saturday and certain Sundays
- Blasting at the Basalt Hill Borrow Area (BHBA) (described in Section 2.5.2) – restricted hours of 8:00 a.m. to 5:00 p.m.;
- Cochrane Road – communication lines and repaving – construction may occur outside the work window of 6:00 am and 4:00 pm, including weekends on a limited basis up to 24-hours a day, 6 days per week;
- Delivery of materials – 7:00 a.m. to 8:00 p.m, Monday to Friday;
- Tunneling (e.g., use of a road header) required for the outlet works (e.g., construction of the HLOW and LLOW at the dam) – up to 24 hours per day, 6 days per week; and,
- Support production (e.g., concrete placement) – 24 hours per day, 6 days per week (Valley Water 2021b ~~2021d~~)

The number of workers on site would vary based on the phase of construction. A summary of the average and maximum number of workers associated with the Project by construction phase and year is provided in **Table 2-2**.

[8] Note that dry and wet season definitions can change in consultation with regulatory agencies based on predicted weather and precipitation conditions for each year.

Table 2-2. Seismic Retrofit Workers by Construction Phase

Construction Phase	Construction Year	Daily Number of Workers (Average/Maximum)
Site Mobilization	Year 1	75/115
Stage 1a Dam Excavation	Year 2	145/180
Stage 1b Dam Excavation	Year 3	155/200
Stage 2a Excavation and Fill	Year 4	135/200
Stage 2b Excavation and Fill	Year 4	190/240
Stage 3a Dam Fill	Year 5	170/230
Stage 3b Dam Fill	Year 6	165/235
Site Restoration	Year 7	55/100

Source: AECOM 2024

2.5.1.3 Typical Equipment

The types of equipment needed for construction and durations of use would vary widely based on the Project ~~project~~ component and phase of construction. Where appropriate, typical construction equipment is discussed throughout this section to provide the reader with a general understanding of the types of construction equipment that may be used. A detailed summary of typical construction equipment required for each construction phase is provided in **Table 2-3**.

1 **Table 2-3. Seismic Retrofit Construction Sequencing and Required Construction Equipment**

Project Component	Construction Phase	Construction Activity	Approximate Duration (months)	Equipment Type
Haul and Access Roads, Stockpile and Staging Area Preparation	Year 1	Construction of the haul roads and preparation of stockpile areas	8	Bulldozers, excavators, dump trucks, water truck, motor grader, track drills
Active Treatment System (described in Section 2.5.4.2)	Years 1 to 6	Installation and operation of the water treatment system	72	3,000 gpm treatment system
Cofferdam	Year 2	Construction of the cofferdam	2	Articulated dump trucks, bulldozers, loader, long-reach excavator, track drill, crane, vibratory sheet pile driver, welder, concrete trucks, concrete pump truck, concrete vibrators, generator (80 kW)
Bypass Pump System and Extension Pipe	Years 2 to 6	Construction of the diversion extension pipe and bypass flows to Stage 2 Diversion System	60	Articulated dump truck, excavator, crane, vibratory plate, tampers, welder, generator (80 kW)
Bypass Pump System	Years 2, 6	Installation of the pumps and pipes, bypass flows to the Stage 1 Diversion System in Year 2 and to HLOW intake in Year 6	13	Three 15 cfs capacity pumps (up to two operating and one as backup), site generator (2,000 kW), truck, and loader
Dam	Stages 1a, 1b, 2a Excavation (Years 2, 3, 4)	Excavation of the existing dam (includes work at stockpile areas and reservoir disposal area)	17	Large rigid-body dump trucks, articulated dump trucks, large and medium excavators, water trucks, motor graders, bulldozers, bulldozers w/discs, rock screen for oversize materials, pumps, generator (80 kW)

Project Component	Construction Phase	Construction Activity	Approximate Duration (months)	Equipment Type
Dam	Stages 2b, 3a, 3b Fill (Years 4, 5, 6)	Construction of replacement dam (includes work at stockpile areas)	18	Large rigid-body dump trucks, articulated dump trucks, highway dump trucks, large and medium excavators, loaders, water trucks, motor graders, bulldozers, bulldozers with discs, compactors, tampers, compressors, grade-all, generator (80 kW)
Import Filter and Drain Material	Stages 2b, 3a, 3b Fill (Years 4, 5, 6)	Hauling filter and drain material to the site and stockpiling in staging area 1E	29	Highway dump trucks, bulldozer, loader
LLOW	Years 1, 2, 4, 5	Excavation of upstream portal, downstream portal, trench, and outlet structure foundation	5	Large excavator, articulated dump trucks, track drills, compressor, bobcat, shotcrete batch plant, loader, manlift, pumps, generator (80 kW)
LLOW	Year 1, 2	Tunnel and shaft excavation	2.5	Articulated dump trucks, compressors, bobcat, shotcrete batch plant, loader, manlift, pumps, ventilation fan, road-header, robotic shotcrete machine, scoop trams, generator (80 kW)
LLOW	Years 1, 2, 3, 4, 5, 6	Tunnel and shaft lining	2	Compressor, loader, manlift, crane, pumps, ventilation fan, welder, concrete trucks, concrete pump truck, concrete vibrators, generator (80 kW)
LLOW	Years 5, 6	Construction of sloping intake structure, concrete encasement, pipe supports, and outlet structure	20	Large excavator, articulated dump trucks, track drills, compressors, bobcat, loader, manlift, crane, pumps, welder, concrete trucks, concrete pump truck, concrete vibrators, generator (80 kW)

Project Component	Construction Phase	Construction Activity	Approximate Duration (months)	Equipment Type
LLOW	Year 6	Pipe, mechanical and electrical installation	12	Crane, manlift, welder, loader, generator (80 kW)
HLOW	Year 2	HLOW and access adit tunnel portal excavation	6	Large excavator, articulated dump trucks, track drills, compressors, bobcat, shotcrete batch plant, loader, manlift, generator (80 kW)
HLOW	Year 2	HLOW tunnel and access adit tunnel excavation	6.5	Articulated dump trucks, compressors, bobcat, shotcrete batch plant, loader, manlift, pumps, ventilation fan, road-header, robotic shotcrete machine, scoop trams, generator (80 kW)
HLOW	Year 2	HLOW tunnel and access adit tunnel lining	5	Compressors, loader, manlift, crane, pumps, ventilation fan, welder, concrete trucks, concrete pump truck, concrete vibrators, generator (80 kW)
HLOW	Year 3	Gate shaft excavation	2	Crane, small excavator, articulated dump trucks, track drills, compressors, shotcrete batch plant, loader, manlift, pumps, ventilation fan, robotic shotcrete machine, welder, generator (80 kW)
HLOW	Year 3	Gate shaft lining	2.5	Crane, compressors, loader, manlift, pumps, ventilation fan, welder, concrete trucks, concrete pump truck, concrete vibrators, generator (80 kW)
HLOW	Year 3	Construction of intake structure	2	Large excavator, articulated dump trucks, compressor, bobcat, loader, manlift, crane, welder, concrete trucks, concrete pump truck, concrete vibrators, generator (80 kW)

Project Component	Construction Phase	Construction Activity	Approximate Duration (months)	Equipment Type
HLOW	Year 3	Pipe, mechanical and electrical installation	3	Crane, manlift, welder, loader, generator (80 kW)
Tie-back Wall at Cochrane Road	Year 3	Construction of the tie-back wall at Cochrane Road	2.5	Medium excavator, articulated dump trucks, track drill, compressor, shotcrete batch plant, loader, manlift, generator (80 kW)
Spillway	Years 2, 3	Demolition of existing spillway	10	Excavator-mounted hoe-rams, excavators, loader, highway legal dump trucks, water trucks, compressors, jackhammers, generator (80 kW)
Spillway	Years 3, 4	Excavation and foundation preparation	15	Large and medium excavators, articulated dump trucks, highway legal dump trucks, water truck, track drills, compressors, bobcat, shotcrete batch plant, loader, pumps, generator (80 kW)
Spillway	Years 3, 4, 5	Construction of spillway structure	21	Compressors, bobcat, loader, manlift, crane, pumps, welder, concrete trucks, concrete pump truck, concrete vibrators, generator (80 kW)
Develop BHBA	Years 4, 5, and/or 6	Preparation, excavation, blasting, and hauling of material	11	Large excavators, bulldozers with rippers, articulated dump trucks, track drills, explosives truck, blasting, compressor, shotcrete batch plant, loader, manlift, generator (80 kW)
Develop Packwood Gravel Borrow Pit	Year 5	Strip sediment, excavate test trenches, excavation of borrow pit, hauling of excavated materials, and moisture conditioning	1.5	Large and medium excavators, bulldozers, articulated dump trucks, bulldozers with discs

Project Component	Construction Phase	Construction Activity	Approximate Duration (months)	Equipment Type
Main Avenue Pipeline, Anderson Force Main	Year 5	Connection of the Main Avenue Pipeline and Anderson Force Main to the LLOW outlet structure	1.5	Excavators, dump trucks, compactors, vibratory plates, tampers, welder, pumps, generator (80 kW)
Permanent Access Roads	Year 7	Restoration of parking areas, construction of permanent access roads, and repaving Cochrane Road	9	Large and medium excavators, bulldozers, articulated dump trucks, highway legal dump tracks, water truck, track drills, compressor, shotcrete batch plant, loader, manlift, motor grader, compactors, asphalt paving machine, concrete trucks, concrete pump truck, concrete vibrators, generator (80 kW)
Restoration Enhancements	Years 7 to 8	Fine grading, tree planting, construction of recreational features (~~Serpentine Bridge,~~ interpretive trail, picnic facilities, fences), revegetation/landscaping, restoration of parking areas, restoration of leach field, and bathroom remodels	12	Bobcat, watering truck, small excavator, and grader

Source: AECOM 2022

Key: cfs = cubic feet per second; gpm = gallons per minute; HLOW = high-level outlet works; kW = kilowatt; LLOW = low-level outlet works

2.5.2 Seismic Retrofit Site Mobilization and Preparation

The first year of seismic retrofit construction would primarily include mobilization and site preparation of staging areas, stockpile areas, and access roads.

2.5.2.1 Staging Areas

Designated staging areas would be used for office and equipment trailers, equipment and materials storage, equipment maintenance facilities, fuel pumps and fuel storage tanks, shotcrete batching, vehicle parking, and laydown. Portions of Anderson Lake County Park, including the Live Oak Group Picnic Area, former Toyon Group Picnic Area,[9] and boat ramp parking lots, would be used for construction staging and stockpiling. All recreational park areas located within the Project Area would be partially or fully closed to public use throughout the duration of construction.

The Project includes six staging areas: Staging Area 1, located in the Live Oak Picnic Area; Staging Area 2, located on the east sides of Cochrane Road; Staging Area 3, located in the small parking area south of the existing dam crest; Staging Area 4, located at the toe of the existing dam; Staging Area 5, located at 2100 San Pedro Avenue (approximately 2.5 miles from the Project Area); and Staging Area 6, at the Holiday Lake Estates Boat Ramp (**Figure 2-4**). Each staging area has been described below in **Table 2-4**, including the location, access, and proposed use throughout Project construction.

Staging areas would be located in upland areas. To prepare the staging areas, the construction contractor would remove vegetative groundcover and debris, grade the sites to create a flat surface for the movement of construction vehicles and equipment, and place gravel or a separation fabric over the ground surface, depending on the type of usage. Trees that are located outside of the riparian corridor but are within the staging areas would be removed. However, existing mature trees within the riparian corridor of Coyote Creek would be preserved to the greatest extent feasible.

[9] The Toyon Group Picnic Area was permanently removed as part of the FOCP.

1 **Table 2-4. Overview of Staging Areas**

Staging Area	Location	Existing Land Use	Proposed Use of During Construction	Staging Area Access and Site Preparation	Approximate Area
SA 1 (SA-1; subdivided into SA-1W and SA-1E)	North side of Cochrane Road and Coyote Creek, approximately 0.25 miles west of the dam in Anderson Lake County Park. Sub-divided into two areas: SA-1W is located south of the South Channel; SA-1E is located north of the South Channel.	Live Oak Group Picnic Area	SA-1W would be the location for contractor and construction management offices and parking for contractor supervisory staff, office staff, and construction management staff. SA-1E would be used for the storage of moisture conditioning core materials excavated during Year 2, and for the temporary stockpiling of filter and drain materials imported during Years 4, 5, and 6. A total of 120,000 cy of construction materials would be stockpiled at SA 1.	Access from Cochrane Road. SA-1W. Trees removal may be required. Existing restroom facilities would be protected in place. Water fountains may be temporarily removed for placement of office facilities. SA-1E. Access from SA-1W would require a pile supported temporary bridge across the South Channel. Preparation would include tree removal of all except those along the bank of the channel. All above ground park facilities, including water fountains and benches, would be removed. The existing maintenance bridge that crosses the South Channel would be protected in place. Approximately 1,100 linear feet of earthen berm would be constructed along the northern limits of SA-1W and approximately 2,100 linear feet of earthen berm would be constructed along the perimeter SA-1E to minimize flooding during high flow events. The earthen berms would generally measure less than 5 feet in height.	11.7 acres (SA-1W 6.5 acres, SA-1E 5.2 acres)
SA-2	SA-2 is located east of Cochrane Road at its intersection with Coyote Road	Paved parking lot and surrounding annual grassland	Construction vehicle and/or equipment parking and laydown	Access from Cochrane Road.	2.7 acres

Staging Area	Location	Existing Land Use	Proposed Use of During Construction	Staging Area Access and Site Preparation	Approximate Area
SA-3	South side of Anderson Dam, above left dam embankment. Encompasses the smaller Anderson Reservoir boat launch parking lot.	Paved parking lot	Equipment parking or laydown area	Access from SA 4 and Coyote Road. Access from SA 4 would be from an existing access road constructed during FOCP to Coyote Road. Contractor may temporarily remove lighting, landscaping, and irrigation (if not already removed during FOCP).	0.8 acre
SA-4	North side of Cochrane Road and Coyote Creek, approximately 500 feet west of the dam in Anderson Lake County Park.	Former Toyon Group Picnic Area (Note: Picnic ar ea was removed as part of FOCP)	Laydown area	Access from SA 1 and Cochrane Road. Access from SA 1 to the downstream toe of the embankment would be over a temporary dike constructed across the North Channel and through SA 4.	2.5 acres
SA-5	2100 San Pedro Avenue (approximately 2.6 miles from the Project area)	Residence and partially undeveloped	Parking area for construction workers.	Access from Hill Road. Workers would be bused from the SA 5 to the Project area. Site preparation would include fencing and placing an aggregate base surface course.	4.2 acres
SA-6	Holiday Lake Estates Boat Ramp Parking Lot	Open space and undeveloped (park closed as part of FOCP)	Equipment staging, reservoir access, and stockpiling. <u>Delivery of construction materials and equipment at Staging Area 6 would be limited to daytime hours only.</u>	Access from Holiday Drive	2.6 acres
Total Staging Areas = 6					**24.5 acres**

Source: AECOM 2022
Key: cy = cubic yards; FOCP = FERC Order Compliance Project; SA- = Staging Area

2.5.2.2 Stockpile Areas

Stockpile areas, including their locations, existing land uses, dimensional and material volume characteristics, are presented in **Table 2-5**, and are shown on **Figure 2-4**.

Designated stockpile areas would be used for temporary storage and processing of embankment and fill materials throughout the duration of construction activities. Site preparation for stockpile areas located in upland areas (e.g., Stockpile Areas B and E) would be the same as described above for staging areas, and would include clearing of vegetation and minor grading. Stockpile Area E would also require the construction of a bridge over the North Channel for access, and construction of a drainage system that would collect and convey flows around the stockpile area that would come from the unlined spillway above Stockpile Area E.

Stockpile areas would be used to store material that is either removed or extracted from the dam embankment or borrow areas. Stockpile areas located within the reservoir (e.g., Stockpile Areas C, ~~D,~~ H, I, J, K, and L) may be saturated at the time of construction; therefore, these areas may require removal and side placement of the upper layers of soft sediment to provide a stable foundation for storage of materials.

Table 2-5. Stockpile Areas

Stockpile Area[1]	Location	Existing Land Use	Approximate Area (acres)	Estimated Volume of Materials Stockpiled (cy)
Stockpile Area B	South side of Anderson Dam, above left dam embankment. Encompasses the northern portion of larger Anderson Reservoir boat launch parking lot. Overlaps portions of the BHBA.	Parking lot and open space	8	657,000
Stockpile Area C	Northern reservoir area, west-facing slope of the reservoir; opposite Packwood Gravel Borrow Pit and downstream of Stockpile Area H.	Water storage (site is inundated during normal reservoir operations)	9	425,000
Stockpile Area E	Just north of the Serpentine Trail, on the north side of Coyote Creek, roughly 800 feet west of the spillway.	Undeveloped parkland (primarily existing channel)	4	270,000

Stockpile Area[1]	Location	Existing Land Use	Approximate Area (acres)	Estimated Volume of Materials Stockpiled (cy)
Stockpile Area H	Northern reservoir area, 7,000 feet upstream from Anderson Dam, north of Stockpile Area C.	Water storage (site is inundated during normal reservoir operations)	15	689,000
Stockpile/ Borrow Area I	Northern reservoir area, upstream from Anderson Dam, north of Stockpile Area H.	Water storage (site is inundated during normal reservoir operations)	2	39,100
Stockpile/ Borrow Area J	Northern reservoir area, upstream from Anderson Dam, north of Stockpile Area I.	Water storage (site is inundated during normal reservoir operations)	7	255,000
Stockpile Area K (North and South)	Southern reservoir area, upstream from Anderson Dam, south of Stockpile Area M and the Reservoir Disposal Area.	Water storage (site is inundated during normal reservoir operations)	29	1,266,400
Stockpile Area L	Within the northern area of the reservoir.	Water storage (site is inundated during normal reservoir operations)	21	800,000
Stockpile Area M	Within the southern area of the reservoir.	Water storage (site is inundated during normal reservoir operations)	45	1,628,000
Total =			**140**	**6,029,500**

Source: Valley Water 2021c ~~2021e~~

Notes:

[1] The ordering of stockpile areas is based on preliminary engineering design and some stockpile areas have been omitted due to Project design refinements (e.g., stockpile Areas A, F, and G).

Key: BHBA = Basalt Hill Borrow Area; cy = cubic yards

2.5.2.3 Access Roads

Temporary Access/Haul Roads

Primary access to the Project Area would be via US 101 and Cochrane Road. The Project Area is located east of US-101 on Cochrane Road. From Cochrane Road there would be four Project Area access points: (1) the western end of the Live Oak Picnic Area (Staging Area 1), (2) the current entrance to Toyon Park at the toe of the dam, (3) the entrance to Anderson Lake County Park (intersection of Coyote Road and Cochrane Road), and (4) North Access Point which would be from US 101 to Stockpile L as shown on **Figure 2-4**.

In order for Project personnel to access the site daily, and for the ongoing mobilization of equipment and importation of materials and supplies, the Project Area would be accessed from the western end of the Live Oak Picnic Area (Staging Area 1). Workers would park in Staging Area 5 and be bused the 2.5 miles to the Project Area (Staging Area 1) via Hill Road, East Main Avenue, and Cochrane Road. Access to Staging Area 5 for parking would be either via US 101, East Dunne Road, and Hill Road, or via US 101, Tennant Avenue, and Hill Road. The North Point Access would be from US- 101 to Metcalf Road to San Felipe Road to Las Animas Road to Stockpile L. Another alternative route to Stockpile L would be from US 101 to Silver Creek Valley to Farnswork Drive to San Felipe Road to Las Animas Road to Stockpile Area L.

Access roads and temporary bridges for construction (described further below) would be constructed within the Project Area to allow for the movement of heavy construction equipment between active work areas, staging areas, stockpile areas, borrow sites, and disposal sites. Some of the roads would be temporary and removed upon completion of construction, while others would be permanent or abandoned in-place.

Temporary access roads to be constructed would include:

- an approximately 1,100-foot-long access road along the upstream slope of the dam
- an approximately 1,200-foot-long access road on the downstream slope of the dam, connecting to an approximately 1,800-foot-long access road along the Anderson Dam Trail from the existing dam down into Staging Area 1 (Live Oak Picnic Area)
- an approximately 2,000-foot-long access road in the reservoir area to the Packwood Gravel Borrow Pit, which includes one stream crossing (riprap ford)
- an approximately 16,000-foot-long access road in the reservoir area to Stockpile Area L that would also be used to access Stockpile Area C, Stockpile Area H, Stockpile Area I, and Stockpile Area J, which includes one stream crossing (riprap ford)
- an approximately 12,000-foot-long access road in the reservoir area to Stockpile Area K that would also be used to access Stockpile Area M, which includes two stream crossings (one displacement fill with culverts and one riprap ford)

Temporary access roads for construction would be developed by the construction contractor. One-way access roads would be up to 30 feet wide with turnouts, and two-way access roads would be up to 60 feet wide with turnouts. Construction of the access roads would require minor vegetation removal and grading activities. These activities would be performed with a combination of bulldozers, excavators, dump trucks, water trucks, motor graders, track drills. Once Project construction is complete, temporary access roads located along the slope of the dam would be removed, and temporary access roads located within the reservoir area would be abandoned in-place. Temporary access roads on the downstream and upstream slope of the dam would be removed and the temporary access roads in the reservoir area connecting to the stockpile areas and Packwood Gravel Borrow Pit would be abandoned in-place.

Staging Area 1 Temporary Bridges

All temporary bridges would be constructed in a manner where all bridge abutments and supporting features are located outside of jurisdictional features, and no dredging of materials or placement of fill materials would occur within jurisdictional features including wetland or riparian habitats.

A contractor-designed, pile supported bridge, approximately 150-foot-long and 40-foot wide, would be constructed across the North Channel to provide access from the access road along the Anderson Dam Trail into Staging Area 1E. In addition, a contractor-designed, pile-supported bridge, approximately 100-feet long and 40-feet wide, would be constructed across the South Channel to provide access from Staging Area 1W to Staging Area 1E.

Cochrane Road Closure

The 0.8-mile (4,200 linear feet) section of Cochrane Road extending between Coyote Road and Malaguerra Avenue would be fully or partially closed to through traffic for varying durations throughout the construction period of 6 years. During times of roadway closure, secure access gates located at either end of the road closure would limit access to only construction-related vehicles and equipment, ~~and~~ local residents, <u>and City of Morgan Hill vehicles and emergency vehicles</u>. Barricades and/or signage would be placed at the northern terminus of St. Marks Avenue and San Rafael Street to block vehicular traffic from entering the closed area. At the southern terminus, a barricade and/or signage would be placed at Barnard Road to restrict vehicular traffic from proceeding north into the closed portion of the roadway. All vehicles, with the exception of those noted above, would be routed through a clearly marked detour using adjacent streets (Peet Road, Half Road, Elm Road, and East Main Road) to avoid the closed road. The detour would be demarcated using a combination of signage, fencing, barriers, lights, flagging, and/or guards.

The portion of Cochrane Road at the dam would require closure on three separate occasions during construction, as follows:

- An estimated 12-week period during the installation of the tie-back wall that would allow for excavation to the dam foundation level adjacent to Cochrane Road (Year 3)
- An estimated 2-week period during the tying-in of the Main Avenue Pipeline from Cochrane Road to the low-level outlet tunnel and outlet works system structure (Year 5 or Year 6)
- An estimated 4-week period during installation of communication lines from Anderson Dam to Peet Road (Year 5 or 6)
- An estimated four-week period during construction of the driveway entrance to the downstream toe of the new dam, which includes improvements to Cochrane Road on either side of the new driveway (Year 5 or Year 6)
- An estimated 10-week period for the repavement of Cochrane Road once the communication lines have been installed (Year 7).

As described above, following the completion of the construction of the Seismic Retrofit components (during Year 7), approximately 2 miles of Cochrane Road would be repaved from US 101 to the entrance to Anderson Lake County Park (intersection of Coyote Road and Cochrane Road).

2.5.2.4 Construction Materials and Sources

Materials required for the replacement of the dam embankments would originate from excavations for the original dam, the BHBA (an approximately 11.5-acre site located just south of the left dam embankment), and the Packwood Gravel Borrow Pit[10] (an approximately 14.5-acre site located on the eastern bank of the reservoir in an area that is normally inundated by the reservoir) (**Figure 2-4**). If additional materials are necessary, they would be obtained from commercial sources within the San Francisco Bay Area.

The existing embankment's core and shell materials are considered suitable for reuse; therefore, the embankment would serve as the primary source of materials for the replacement embankment. However, additional dam core and shell materials would be required. Imported materials would be used for the filter and drain zones. The transition zones are planned to be processed from existing shell materials. **Table 2-6** shows the required construction materials for the various embankment zones and cofferdam and their sources. **Table 2-7** shows the required annual number of haul trucks associated with seismic retrofit materials delivery and disposal off-haul by construction phase.

Shell and core zones of the replacement dam would be augmented with materials excavated from borrow sites. Preparation and site development activities for each borrow area are described in detail below.

Table 2-6. Summary of Seismic Retrofit Construction Materials and Sources

Material	Type	Source	Quantity Required (c y)
Upstream and Downstream Shells	Gravel with lesser amounts of sands and fines	Excavated existing shells and BHBA	2,589,300
Transition	Gravel with lesser amounts of sands and fines	Excavated existing shells	261,500
Dam core	Clay materials with gravel	Excavated existing shells and Packwood Gravel Borrow Pit	943,800
Filter and drain	Processed sand and gravel	Imported from commercial sources	456,900
Cofferdam (displaced foundation)	Unclassified excavation	Excavated diversion portal and diversion tunnel material stockpiled during FOCP and excavated in-reservoir haul road material	50,000

Source: Valley Water 2021c ~~2021e~~
Notes:
[1] Quantities are compacted in the replacement dam.
Key: BHBA = Basalt Hill Borrow Area; cy = cubic yards; FOCP = FERC Order Compliance Project

[10] If determined necessary, core materials may also originate from Stockpile/Borrow Areas I and J (refer to Section 2.5.2.).

Table 2-7. Summary of Seismic Retrofit Annual Haul Truck Trips by Construction Phase

Construction Phase	Construction Year	Rock/Aggregate/ Soil Delivery Trips[1]	Construction Materials/Supplies/ Equipment Trips[3]	Waste Disposal Off-Haul Trips[2]	Total Number of Haul Truck Trips[3]
Site Mobilization	Year 1	2,400	2,000 ~~1,400~~	100	4,500 ~~3,900~~
Stage 1a Dam Excavation	Year 2	550	2,600 ~~2,200~~	350	3,500 ~~3,100~~
Stage 1b Dam Excavation	Year 3	400	5,600 ~~5,200~~	1,500	7,500 ~~7,100~~
Stage 2a Excavation and Fill	Year 4	5,400	2,350 ~~2,100~~	100	7,850 ~~7,600~~
Stage 2b Excavation and Fill	Year 4	5,400	2,350 ~~2,100~~	100	7,850 ~~7,600~~
Stage 3a Dam Fill	Year 5	8,400	4,350 ~~3,950~~	250	13,000 ~~12,600~~
Stage 3b Dam Fill	Year 6	11,600	4,950 ~~4,550~~	350	16,900 ~~16,500~~
Site Restoration	Year 7	1,050	5,250 ~~4,650~~	200	6,500 ~~5,900~~

Source: AECOM 2022

Notes:

[1] Rock/Aggregate/Soil Delivery Trips are assumed to originate at the BHBA or Packwood Gravel Borrow Pit

[2] Off-hauling trips are assumed to go to the nearest appropriate landfill

[3] Construction Materials/Supplies/Equipment Trips (and consequently Total Haul Trips) increased as a result of further Project design refinement following release of the Draft EIR. Impacts related to these construction trip increases are reflected in this Final EIR, and no new or substantially more severe significant impacts are caused by these trip increases.

Basalt Hill Borrow Area

The BHBA, located southeast of the parking area at the left embankment of the dam(**Figure 2-4**), would provide the primary source of additional shell material for the Project. This area was previously used to construct the upstream shell of the dam in the early 1950s. The floor of the borrow area is currently occupied by a parking lot near the left abutment area of the dam.

Preparation of the BHBA would occur at the end of Year 4 and extend into Year 5, prior to the start of nesting bird season (January 15). Approximately 470,000 cubic yards (cy) of colluvium and highly weathered rock at the top of the BHBA that cannot be used for the dam embankment would be removed and disposed in the Reservoir Disposal Area (**Figure 2-4**). Topsoil (approximately 6 to 12 inches) on the west facing slope would be stripped and stockpiled in Stockpile Area B for reuse during the restoration of the Basalt Hill area. Unusable material would be excavated using a combination of bulldozers and excavators. Excavators would load off-highway haul trucks that would haul the materials to their destination. The finished slope would be faced with soil nails and shotcrete to minimize erosion.

Once usable material in the BHBA has been uncovered, the usable material would be excavated, minimally processed (to remove oversize materials[11]), and stockpiled in Stockpile Area B for use in the replacement dam (refer to Section 2.5.4) or for permanent access roads. Excavation of the BHBA would require drilling and blasting in benches to break up the rock for efficient excavation. Blasting procedures would be developed by a qualified blaster to control noise, air-overpressure, ground vibration, flyrock, and dust. Water would be used before, during, and after the blasting to minimize dust emissions.

Rock and shell material would be excavated using a combination of large excavators and bulldozers, loaded into articulated or large rigid body trucks, and hauled directly to the dam or to Stockpile Area B. Oversize rock material would be removed by bulldozers with rock rakes as the material is loaded and hauled to the dam. Oversize materials would be placed along the outer edges of the shell or disposed in the Reservoir Disposal Area. Rock bolts and shotcrete would be used to stabilize rock wedges exposed in the final slope.

Throughout the duration of Project construction, an estimated 1,677,000 ~~1,421,000~~ cy of material would be excavated from the BHBA. Of the excavated material, an estimated 1,207,000 ~~951,000~~ cy of material would be placed back in the replacement dam. The final grade would be elev. 696 (approximately 26 feet above the existing parking lot). At the final grade, the overall height of the cut slope in the BHBA would be approximately 270 feet.

Packwood Gravel Borrow Pit

The Packwood Gravel Borrow Pit would provide 160,000 ~~117,600~~ cy of additional core material for the dam, and is located within the Packwood Gravel foothills, east of Anderson Dam (**Figure 2-4).** Preparation of the Packwood Gravel Borrow Pit would begin in Year 5. Activities to prepare the site would involve the excavation of a series of test trenches using excavators. Following the test trenching, a 2- to 5-foot-thick layer of lake sediment that overlies the alluvial borrow materials (the site is within the reservoir and typically inundated) would be stripped

[11] Oversize materials in the shell are particles greater than 15 inches in size.

from the area using bulldozers. This material would be loaded into off-highway haul trucks using excavators, and then placed adjacent to the borrow area.

Once the site is ready for construction of the borrow pit area, bulldozers or excavators would begin removing material. No drilling or blasting activities would occur at this site. Excavated materials would be placed in off-highway haul trucks and spread in 1-foot-thick lifts in a stockpile adjacent to the borrow area. Each lift would be dried prior to the next lift being placed. This would involve using a bulldozer pulling a disc to a range of 2 percent below to 2 percent above the optimum moisture content. To further distribute the moisture content, the core materials would be excavated from the stockpile and hauled off-site for placement in the dam after a minimum of 30 days of curing. Materials placed in the stockpile would be used in the dam during the same dry season.

Table 2-8 provides a summary of Project borrow sites and total excavated materials.

Table 2-8. Borrow Sites

	Location	Existing Land Use	Approximate Area (acres)	Approximate Unusable Material (cy)	Approximate Usable material (cy)	Approximate Total Excavated Material (cy)
BHBA	South side of Anderson Dam, above left dam embankment. Encompasses the southern portion of larger Anderson Reservoir boat launch parking lot. Overlaps portions of the Stockpile Area B and Staging Area 2.	Parking Lot	13.6	470,000	1,207,000 ~~951,000~~	1,677,000 ~~1,421,000~~
Packwood Gravel Borrow Pit	West-facing slope of Anderson Reservoir, opposite Stockpile Area C. Site is inundated during normal reservoir operations.	Reservoir	9.0	45,000	160,000 ~~118,000~~	205,000 ~~163,000~~
Total			**26.0**	**515,000**	**1,367,000** **~~1,069,000~~**	**1,882,000** **~~1,584,000~~**

Source: Valley Water 2021c ~~2021e~~

Key: BHBA = Basalt Hill Borrow Area; cy = cubic yards

Note: Material volumes increased as a result of further Project design refinement following release of the Draft EIR. Impacts related to these material volume increases are reflected in this Final EIR, and no new or substantially more severe significant impacts are caused by these volume increases.

2.5.2.5 Reservoir Disposal Area

Materials excavated from the dam foundation, portals, tunnels, and structures, and overburden materials from borrow areas that cannot be reused onsite or at Ogier Ponds (or disposed within the borrow areas themselves) would be disposed of within the designated Reservoir Disposal Area (**Figure 2-4**). The approximately 23.4-acre disposal area is located within the reservoir on the west side of the downstream portion of the southern reservoir arm. This area supports an existing sediment layer that ranges between 10 and 15 feet in thickness (Valley Water 2021c ~~2021e~~). In the event the excavated material is not suitable for disposal in the reservoir disposal area, the material would be hauled to an appropriate landfill (such as Kirby Canyon Landfill).

Construction of the Reservoir Disposal Area would require the construction of an access road around the outer perimeter of the disposal by pushing disposal material over the existing sediment to displace it. The methodology for this construction is similar to that described for the construction of the in-reservoir cofferdam (refer to Section 2.5.4.). The first cell would be constructed during Year 2 and the second cell would be constructed during Year 3 (Valley Water 2021b ~~2021d~~). The access road, which would be constructed during Year 2, would have a crest width of approximately 60 feet and a crest of approximately elev. 470 feet, and would require approximately 270,000 cy of material for construction.

Once the perimeter road for each cell is completed, waste materials would be placed in approximately 60-foot wide strips as displacement fills along the northeast length of the access road, starting at the access road and working toward the west bank of the reservoir, to form a stable working platform across the disposal area. Any mud waves that are generated at the leading edge of each strip would be pulled back over the fill and blended in with subsequent lifts of waste fill.

Once the working platform is constructed, successive lifts of disposal material would be placed in 2-foot thicknesses across the entire area. Implementing this method, the 10 to 15 feet of lake sediment would consolidate evenly under the weight of the disposed material. The total volume of material that would be placed in Year 2 and Year 3 (this would include the materials to construct the perimeter road and would also include disposal material to complete the two cells) is estimated to be approximately 270,000 cy and 620,000 cy, respectively.

Additional disposal material excavated in Years 4, 5, and 6 would be placed evenly in 2-foot lifts across the entire Reservoir Disposal Area. Over the course of the entire Project, an estimated 1,490,000 cy of material would be placed in the disposal area. The top of the disposal area at completion of the Project would be approximately elev. 513, about 25 feet above the lowest intake port (elev. 488) and submerged during normal operations.

2.5.3 Reservoir Operations During Seismic Retrofit Construction

2.5.3.1 Anderson Reservoir Operations

Anderson Reservoir would be operated to maintain the water surface at the FERC-restricted level (i.e., deadpool until full reservoir dewatering elev. 450 feet occurs during Year 1 ~~2~~). As a part of the FOCP after the completion of the ADTP, the reservoir would be maintained at deadpool, or, if approved by FERC, a higher elevation that avoids or minimizes the risk of seismic failure of the dam and maintains the reservoir in a safe condition, while providing more water for supply and recharge.[12] If a higher elevation is approved by FERC upon completion of the ADTP, the reservoir would be brought down to deadpool elevation by the end of the year before Year 1 to allow the reservoir slopes to drain prior to the in-reservoir work activities. The operation of the reservoir at a higher elevation would also allow retention of a greater volume of imported and local water supply to facilitate groundwater recharge and emergency water storage and would allow for a deeper reservoir pool with colder temperatures, better facilitating flow releases to the FCWMZ at temperatures appropriate for steelhead.

During Project construction, and prior to the completion of the Stage 2 Diversion System, the existing 42-inch Anderson Reservoir outlet valve would be kept completely open during the wet season with a maximum flow capacity of 500 cfs (**Figure 2-6**). In addition to this, the Stage 1 Diversion ~~ADTP~~ would also be utilized, as needed, with a flow capacity up to 2,000 cfs.

The Stage 1 Diversion System would operate only until the reservoir was fully dewatered during the spring of Year 2 (**Figure 2-5**). The Stage 2 Diversion System would provide the additional flow capacity from the reservoir through the diversion system that will be required during dam removal and construction.

During the dry season of Stage 1, flows from the existing outlet structure would be between 1 to 65 ~~5~~ cfs depending on the releases from Coyote Reservoir. During the winter of Year 1 and into the wet spring season of Year 2, the reservoir levels would fluctuate depending on the releases from Coyote Reservoir and inflows from precipitation. Flows may also be released from the existing Stage 1 Diversion System to help maintain the reservoir at the restricted level. For the Stage 1 Diversion System, flows would range from as low as 1 cfs to as high as 2,500 cfs[13]. For the Stage 2 Diversion System, flows would range from 1 cfs to 65 cfs during the dry season, and up to 6,000 cfs during the wet season. These conditions would only occur in significant rain events. The Stage 2 Diversion System is designed to release a maximum of up to 6,000 cfs. For the Stage 2 Diversion System when the cofferdam is in place, flows are directed into the extension pipe during low flows throughout the construction season. During the precipitation season when high flows are likely, the extension pipe would be closed and the cofferdam overtopped so that flows would be released directly into the diversion intake structure.

The Stage 2 Diversion System is intended to operate only during embankment excavation and replacement (Year 2 through Year 6). During these years of Project construction, the Stage 2 diversion would be operable and fully open with 11-foot-diameter fixed-cone valves. Excavation of the existing dam would occur during construction seasons from Year 2 through Year 4 and replacement dam construction would occur during construction seasons from Year 4 through Year 6. The Stage 2 Diversion System would be decommissioned during Year 6; the last year of dam construction so that the LLOW can also be completed in Year 6. After the Stage 2 Diversion System is decommissioned, low flows would be pumped from upstream of the cofferdam to the HLOW, for the remainder of the Year 6 construction season. The LLOW would be used to control flows at the end of Year 6 and the remainder of Project construction.

Water resources would be managed during construction to provide groundwater recharge and incidental environmental in-stream flows throughout construction. This would allow Valley

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[12] FERC Order Letter dated May, 2, 2023 - Existing deadpool elevation levels have been updated to be at Elevation 490.

[13]The maximum combined release capacity (2,500 cfs) includes releases through both the existing outlet works (500 cfs) and the Stage 1 Diversion System (2,000 cfs) when the reservoir level is at a spillway crest elevation of 627.9.

Water to continue to meet water supply demands in a manner that also provides fisheries habitat suitable for steelhead within the FCWMZ of Coyote Creek while Anderson Reservoir is dewatered. The design of the Project includes the following protection measures for aquatic biological resources during construction operations:

- No operational changes for Coyote Reservoir flows between Coyote and Anderson Reservoirs. Coyote Creek would remain unaltered through this reach which would benefit native aquatic plants and animals.
- All flows would be bypassed through the diversion structure throughout the winter and spring, enabling Coyote Creek downstream of Anderson Dam to experience a more natural hydrograph.
- For groundwater dewatering, all flows would be treated through the Active Treatment System (ATS) prior to release into Coyote Creek to minimize sedimentation downstream of the dam.
- All base flows from Anderson Reservoir and supplemental releases from the CDL would be released to Coyote Creek. This would include up to 10 cfs of water from the CDL that would be chilled through the chillers and released into the creek to benefit steelhead in the FCWMZ, particularly during dry weather. These flows would allow groundwater recharge and the maintenance of flows, to the greatest extent feasible, through the FCWMZ while Anderson Reservoir is dewatered.
- Supplemental imported water would be delivered into Coyote Creek through the Cross Valley Pipeline Extension downstream of Ogier Ponds, at the end of the FCWMZ. This would enable the recharge of the Coyote Valley groundwater management area and in-stream flow connectivity to the Bay throughout the construction period, while reserving releases of cooler local water bypassed from Coyote and from the CDL to support groundwater recharge and habitat conditions more suitable for steelhead within the FCWMZ.

2.5.3.2 Coyote Creek North and South Channel Operations

As described in Chapter 1, *Introduction*, there are two channels downstream of the Anderson Dam outlets: the human-made South Channel, which currently receives flows from the existing outlet works; and the re-engineered and re-established, human-made North Channel re-established pursuant to FOCP, located north of the South Channel (**Figure 2-8**). The two channels converge approximately 2,200 feet downstream of where the current outlet works discharges into the South Channel. The distribution of flows from Anderson Reservoir through the South and North Channels throughout construction of the Project and during operations of the retrofitted dam would be achieved via weirs installed at the head of each channel as a part of FOCP (Valley Water, 2023f).

The weirs and flow splits were designed to minimize the potential for erosion of the South Channel, and to maintain spawning habitat that was restored in the South Channel as part of FOCP. The expanded capacity of the North Channel that was established during FOCP provides the capacity for larger releases of water from Anderson Reservoir to be transported through Coyote Creek.

More specifically, as part of FOCP, a labyrinth weir was constructed in the North Channel. The second weir was constructed at the head of the Southern Channel that is an 8-foot-wide ‘U’ shaped channel invert weir, with slots on which stop logs can be installed. The ability to install the stop logs creates a variable weir system so that installation of the stop logs on the south weir will cause the rock-lined North Channel to be activated at reservoir releases less than 230 cfs, if needed. The restored North Channel downstream of the labyrinth weir was graded to reconnect the channel to the Coyote Creek confluence with the South Channel downstream, and to remove deep holes and pools to reduce the potential for fish stranding when flows recede. The channel was also graded to include a gradual slope toward the center of the channel to guide flows toward the deepest portion of the channel.

During ADSRP construction, ~~As part of the Project, restoration of the North Channel through the historic creek alignment would continue. The North Channel constructed as a part of FOCP would be extended by grading additional channel through County Parks and private property, and would reconnect the channel to the Coyote Creek confluence with the South Channel downstream. High~~ high flows would be managed between the channels using the labyrinth weirs to direct flows of up to 230 cfs through the South Channel, and flows greater than 230 cfs through the restored and extended North Channel, limiting flows within the South Channel. If there is a need to activate the North channel at flows lower than 230 cfs, a system of stop logs could be installed on the South Weir. This would minimize the potential for erosion and support salmonid spawning within the South Channel, while minimizing fish stranding throughout the restored North Channel where deep holes would be graded out, and facilitate access for channel maintenance. The grading of the North Channel alignment would also eliminate the existing deep pools throughout this reach that otherwise may result in fish stranding as water recedes after high flow events.

2.5.4 Construction Details and Methods for Selected Project Components

2.5.4.1 Anderson Reservoir Dewatering

While water levels within Anderson Reservoir have been substantially reduced as part of the FOCP (presently maintained at deadpool elevation, the reservoir would require full dewatering for construction of the Project. Full dewatering of the reservoir to elev. 450 feet during Year 1 would occur through the existing Stage 1 Diversion System (previously built as part of the FOCP) and continue through the Stage 2 Diversion System.

Following the same reservoir dewatering in Year 2, inflows to the reservoir would continue to be released through the Stage 1 Diversion System until the cofferdam (described in Section 2.5.4), and temporary bypass pumping system are in place (described in Section 2.5.4). During this interim period (i.e., while temporary bypass pumping system is being installed), control valves in the Stage 1 diversion system outlet structure would be left fully open, allowing inflows to be passed as they are received in the reservoir. When the cofferdam and temporary bypass pumping system are in place, inflows would be pumped to the lowest intake of the existing outlet works while conversion of the Stage 1 Diversion System to the Stage 2 Diversion System is being completed. Once completed, low flows would pass directly into the extension pipe and the Stage 2 Diversion System. During high flows, the cofferdam would be overtopped and flows would be released directly into the diversion intake structure. At this time the existing outlet works would no longer be functional and would be demolished.

2.5.4.2 Conversion of Stage 1 to Stage 2 Water Diversion

The conversion of the Stage 1 Diversion System to Stage 2 Diversion System is necessary to increase the flow capacity past the dam during Project construction. This conversion of water diversion systems from Stage 1 to Stage 2 includes constructing a cofferdam, temporary bypass pumping system, ATS, shaft, tunneling at the upstream end to connect to the Stage 1 Diversion System with a larger pipe, a temporary diversion intake structure, an extension pipe from the intake structure to upstream of the cofferdam, and abandonment of the Stage 1 Diversion System upstream of the connection to Stage 2 (**Figure 2-5 and Figure 2-6**).

Cofferdam

A cofferdam would be constructed during Year 2, located immediately upstream of the active work area at the dam to prevent releases from Coyote Reservoir and other watershed inflows from wetting the work area (**Figure 2-6**). Storage created behind the cofferdam dam would initially serve as a forebay for a bypass pumping system that would convey bypass flows to the existing outlet works, while the extension pipe and the Stage 2 Diversion System were being constructed.

The cofferdam would be constructed using stockpiled materials stored within Stockpile Area B (materials previously excavated during construction of the FOCP and materials excavated during construction of the in-reservoir roads during Year 1). Materials would be loaded into off-highway trucks using loaders or excavators, hauled to the cofferdam location, and pushed onto the sediment using bulldozers starting from the left (southeast) end of the cofferdam and advancing northwest. The sediment would be displaced, forming mud waves as the materials are pushed forward. The mud waves would likely grow large enough to necessitate the use of long-reach excavators to dredge sediments from the front and the sides of the advancing fill.

The cofferdam would have a crest length of approximately 300 feet, a crest width of 80 feet, and a crest height of elev. 465 feet. Once the cofferdam has been placed, a sheet pile cutoff wall would be constructed along the upstream crest of the cofferdam using cranes and pile driving hammers. The tops of the sheets would generally be set at elev. 450 feet. The cofferdam crest downstream of the sheet pile cutoff wall and the downstream slope of the cofferdam would be covered with rip-rap to protect the cofferdam from erosion. The total storage behind the cofferdam would be approximately 500 AF. Approximately 50,000 cy of material would be used to construct the cofferdam.

A 10-foot diameter extension pipe would be constructed from upstream of the cofferdam to the Stage 2 Diversion System intake structure. A 10-foot gate would be installed at the downstream end. At the end of the dry season, the 10-foot gate would be partially shut to allow inflows to fill the cofferdam forebay and spill onto the riprap-lined channel while also releasing flows into Coyote Creek through the Stage 2 Diversion System. Releases over the cofferdam spillway would continue until the approximately 100 AF of storage between the cofferdam and the interim embankments have filled and inflows begin to pass through the top of the Stage 2 Diversion System intake structure. With the water surfaces equalized, the 10-foot gate would be fully closed and all winter flood flows would be released through the Stage 2 Diversion System. The length of time required to equalize the water levels will depend on inflows into the reservoir area.

Temporary Bypass Pumping System

A bypass pumping system would be constructed, consisting of pumps with a capacity of 30 cfs. Approximately 950 feet of 30-inch diameter pipe would be used to convey water from the pumps to the lowest intake of the existing outlet works. The pumps would begin operating as the construction of cofferdam nears completion. The temporary bypass pumping system would be used until completion of the Stage 2 Diversion System at the end of Year 2 at which time it would be removed. The temporary bypass pumping system will be needed two additional times; during Year 3 and during Year 6. In Year 3, the temporary bypass pumping system will be needed (pumping inflows to the diversion intake structure) towards the end of the construction season to allow a 300-foot-long portion of the extension pipe to be removed to complete dam foundation excavation and backfill below the pipe. The extension pipe would be restored prior to the end of the Year 3 construction season. The temporary bypass pumping system would also be reinstalled in Year 6 (pumping inflows up to the HLOW intake structure) when the Stage 2 Diversion System is decommissioned to complete the LLOW. The volume of all flows going through the bypass system would be too great to feasibly treat them with an ATS system; therefore the bypassed flows would be directly discharged in to Coyote Creek.

Active Treatment System

To reduce turbidity and water quality impacts, localized groundwater that is pumped from the dam footprint throughout construction would be pumped from the site and routed through an ATS. The ATS would remove sediment, reduce turbidity, and balance pH from these waters prior to release into Coyote Creek, downstream of the dam. The ATS would be designed by the construction contractor based on performance requirements for a treatment flow rate of 3,000 gallons per minute (gpm), which is equivalent to 6.4 cfs. The primary treatment process in an ATS is coagulation and/or flocculation. The ATS operates through the addition of coagulant to received water. The coagulant binds to suspended sediment, causing the sediment to gravitationally settle into the bottom of the settling tanks. This sediment would then be removed from the settling tanks and hauled off site to a landfill. All materials would be tested and disposed in accordance with local, state, and federal regulations and requirements.

2.5.4.3 Temporary Diversion System

The Project includes two stages of water diversion throughout construction activities. The Stage 1 Temporary Diversion System would be converted to the Stage 2 Diversion System to continue to bypass flows in Coyote Creek behind Anderson Reservoir around the Project Area, and return flows to lower Coyote Creek throughout Project construction. The Stage 1 Diversion System would consist of a lake tap pipe with trash rack, tunnel, and an outlet structure with two 102-inch-diameter fixed cone valves and a 24-inch-diameter sleeve valve (**Figure 2-5**). The Stage 2 Diversion System would largely consist of the Stage 1 Diversion System with the exception of a screened intake structure and tunnel that would replace the lake tap pipe and trash rack of the Stage 1 Diversion System.

To convert the Stage 1 Diversion System to the Stage 2 Diversion System, the Stage 1 Diversion System would be operated until the reservoir is completely dewatered, which is expected to occur in spring of Year 1 ~~2~~ of Project construction. Once the reservoir is dewatered, construction of the Stage 2 Diversion System would begin. This conversion is expected to begin in Year 1 of

Project construction, after the reservoir is completely dewatered, and would be completed by Year 2.

Construction of the water diversion system would generally involve: excavation of the upstream diversion intake portal, excavation and support for the diversion system horseshoe tunnels (upstream portion of the low-level outlet tunnel), construction of the tunnel linings, construction of the diversion intake structure, and construction of the diversion extension pipe, including a section at the right end of the cofferdam that would be encased in concrete to allow heavy truck traffic to cross the pipe. Once the temporary diversion system is in place, the temporary bypass pumping system (described above) would be shutoff and inflows would be directed into the diversion extension pipe and through the Stage 2 Diversion System. The 350-foot-long, 8-foot-diameter steel pipe at the upstream end of the Stage 1 Diversion System would be abandoned by filling with lightweight cellular concrete.

2.5.4.4 Vegetation Clearing and Disposal

As previously described, the entire vegetated Project Area, including the proposed construction staging areas, borrow areas, stockpile areas, disposal areas, parking areas, and “off-street” access/haul roads would be cleared and grubbed. Clearing consists of the felling, trimming, and cutting of trees and removal of varying amounts of brush and other vegetation. Grubbing consists of the removal of stumps and roots below ground. During the construction and post-construction phase, beneficial reuse of trees, shrubs, and chip materials may occur throughout the site for restoration, habitat restoration, and soil stabilization purposes. Vegetation that is not suitable for reuse would be disposed off-site. Cleared vegetation would be disposed of either onsite (left-in-place or used with construction activities) or off-site (transported for various forms of approved reuse or landfill). In addition to clearing and grubbing, topsoil from the staging areas, overburden from borrow areas, and sediments from stockpile areas would be stripped. For staging and borrow areas, stripped material would be reused where appropriate (e.g., regraded over the excavated borrow areas) or disposed of in the Reservoir Disposal Area. For stockpile areas, stripped material would be placed nearby (e.g., side casted). These activities would be performed with a combination of bulldozers, excavators, and dump trucks.

2.5.4.5 Dam Excavation, Reconstruction, and Crest Raising

During Year 1, approximately 33,000 cy of sediment would be dredged from the upstream toe of the existing dam, near the existing intake structure. Dredged sediments would be placed in the reservoir ~~an extension of the in-reservoir dredge disposal area used for dredging during ADTP construction~~.

The dam replacement process would begin in the dry season (April through November) of Year 2, after the reservoir is fully dewatered and Coyote Road has been removed from the top of the dam. Likewise, as discussed in Section 2.5.1, all earth-moving activities would occur during the dry season of each construction year, with extensions only as permitted with appropriate weather conditions and permit requirements.

All but a small portion of the existing clay core would be removed and replaced through Project implementation. Reusable embankment material would be hauled to designated stockpile areas during excavation where the materials would be moisture-conditioned and disced, if needed, prior to being hauled back to the dam site for placement as part of dam reconstruction. Existing embankment materials would be augmented with material from the BHBA and Packwood Gravel Borrow Pit. The filter (sand) and drain (gravel) materials may be imported from offsite sources. Specific stages of dam excavation and reconstruction, including raising the dam crest, would be constructed, as described below.

Stage 1 Dam Excavation

The first stage of dam excavation (Stage 1a) would occur in the beginning of the dry season of Year 2. Stage 1a would involve: (1) removal of the dam crest down to elev. 565 feet; and (2) removal of the outer portion of downstream shell down to elev. 500 feet. The Stage 1a interim dam would have a crest width of approximately 150 feet and a crest length of approximately 960 feet. Excavated materials would be hauled to various stockpile areas or the Reservoir Disposal Area using up to 70 cy dump trucks.

Core materials would be wet enough that they would require drying. After excavation, core materials intended to be used later as fill would be either dried in the stockpile area prior to being covered with additional material or temporarily moved to various staging areas, where materials would be dried. The drying process would include spreading the material (with an approximated 1-foot lift) and repeatedly passing a disc pulled by a bulldozer for approximately 1 to 2 days. Materials dried in various staging areas would then be loaded onto haul trucks and relocated to stockpile areas. The total volume of material in Stage 1a Excavation is estimated to be 1,210,000 cy.

The second stage of dam excavation (Stage 1b Excavation) would occur in the dry season of Year 3. Stage 1b Excavation would involve: (1) removal of the outer portion of the upstream shell and underlying alluvium down to the valley bottom; (2) bringing the interim dam crest down to elev. 546 feet; and (3) removal of the outer portion of the downstream shell and underlying alluvium down to the valley bottom[14]. The Stage 1b interim dam would have a crest width of approximately 40 feet and a crest length of approximately 970 feet. Excavated materials would be hauled to various stockpile areas or the Reservoir Disposal Area using up to 70-cy dump trucks. Excavated alluvium would be placed in the Reservoir Disposal Area. Just prior to the wet season, a sheet pile wall would be placed across the interim dam crest to provide 10 feet of freeboard, bringing the Stage 1b interim dam crest level to elev. 556 feet. The total volume of material in Stage 1b Excavation is estimated to be 1,574,000 cy.

To complete Stage 1 Excavation, a temporary tie-back wall would be installed along a 400-foot-long segment of Cochrane Road at the toe of the dam. The tieback wall would support Cochrane Road for approximately 2 years until completion of Stage 3a Fill. The temporary tieback wall would be a soil nail and shotcrete wall, approximately 400 feet long, and 50 feet in height above the Stage 1b Excavation grade. Instrumentation, including survey monuments (physical markers), and an inclinometer, would be installed along the tieback wall alignment prior to construction for the purposes of stability monitoring. The tieback wall would be constructed in lifts, where each lift would involve excavation of a bench 2 to 4 feet below the next row of soil nails, and shotcrete the exposed excavation face. Shotcrete would be applied using a high-powered spray technique where concrete is applied from a hose to the receiving surface where

[14] The bottom of the excavation on the downstream side will be at about El. 380, 30 feet below the current valley bottom. The bottom of the excavation on the upstream side will be at about El. 400, 50-60 feet below the current valley bottom.

the material dries to form a hard surface. Tieback wall construction would require an excavator and track drills (for drilling and installing the row of soil nails) using track drills.

Stage 2 Excavation and Fill

Stage 2 includes the third, and final, stage of dam excavation (Stage 2a Excavation), to occur in the first half of the dry season of Year 4. Stage 2a Excavation would involve removal of all remaining shell material, underlying alluvium, and core down to a remnant core. The top of the remnant core would have a width of 10 feet at elev. 455 feet and a length of about 500 feet. A geomembrane would be temporarily placed and secured over the remnant core to protect it until new core material is placed against it. Excavated material would be hauled to various stockpile areas or the Reservoir Disposal Area using up to 70 cy dump trucks. Excavated alluvium would be placed in the Reservoir Disposal Area. The total volume of Stage 2a Excavation is estimated to be 899,000 cy.

Once excavation is complete, the dam fill portion of Stage 2 (Stage 2b Fill) would commence in Year 4. The inner portions of the upstream and downstream rocky earthfill shells, filter, drain, and transition materials, and the dam core, would be replaced. At the end of the construction season, the dam would have an interim elev. of 556 feet. The total volume of material in Stage 2b Fill is estimated to be 1,120,000 cy.

Stage 3 Dam Fill

The final stages of dam fill (Stages 3a Dam Fill and 3b Dam Fill) would occur over Years 5 and 6. The dam fill activities would involve placement of the remaining portions of the upstream and downstream rocky earthfill shells; the filter, drain, and transition materials; and the dam core. Shell and transition materials would come from in-reservoir stockpiles, augmented with BHBA materials. Core materials would come from in-reservoir stockpiles, materials stockpiled below the dam during Stage 1a Excavation in Year 2, and from Packwood Gravel Borrow Pit materials. The filter (sand) and drain (gravel) materials would be imported from offsite sources. At the end of Stage 3a Dam Fill, the interim dam would remain at elev. 565 feet. At the end of Stage 3b Dam Fill, and the full dam reconstruction, the dam crest would be completed at its final design of elev. 656 feet. The total volume of material in Stage 3a and Stage 3b Dam Fill is estimated to be 1,436,000 cy and 1,532,000 cy, respectively.

2.5.4.6 Interim Dam Winterization

During excavation of the existing dam and construction of the replacement dam, there would be four wet seasons when the existing spillway would not be available and reservoir inflows would be conveyed past the dam site through the Stage 2 Diversion System. Inflows that exceed the capacity of the Stage 2 Diversion System would form temporary reservoirs behind the interim dams that would be in place at the end of Stage 1a, Stage 1b, Stage 2b, and Stage 3a. The varying crests of the interim dams would be overtopped when inflows during large infrequent storm events are large enough that the Stage 2 Diversion System capacity plus interim reservoir storage capacity are exceeded. Without proactive winterization measures, overtopping could result in the potential loss of the interim dam and subsequent downstream flooding depending on the amount and duration of overtopping. To prevent loss of interim dams, an articulated concrete block-lined (ACB) spillway would be constructed on the downstream slope of the interim dams to convey safely some volume of overtopping flow past the interim dams as a winterization measure (Valley Water 2022b). Sheet pile guide walls installed along the interim dam crests would guide flows into the ACB-lined spillways. Flows from the bottom of the ACB-lined spillways would be conveyed to Coyote Creek through a gabion-lined discharge channel.

ACB-Lined Spillway Installation

The interim dam ACB-lined spillway would vary in invert width by interim dam stage with invert widths of 136 feet for Stage 1a and Stage 3a and 200 feet for Stage 1b and Stage 2b. The total lengths, including the gabion-lined discharge channel range from 900 to 930 feet. Construction of the ACB-lined spillway would occur concurrently with other earthwork on the interim dam but would not be able to be completed until the other earthwork is completed. Installation of the ACB-lined spillway would include subgrade preparation, geotextile installation, placement of a stone-filled confinement layer, installation of a geogrid layer and concrete blocks (9-inch-thick, 8-foot by 20-foot), grouting, construction of gabion mattresses and walls, and installation of sheet pile guide walls.

Access to install the ACB-lined spillway and discharge channel would be from the left abutment via temporary haul roads from Stage Area 2 and from Staging Area 1 over a dike crossing the north channel and through Staging Area 4.

At the end of each winter season, the ACB-lined spillway installed during the previous stage would be removed in reverse order so that the embankment is ready for the following construction stage. The ACBs, drainage stone, gabion stone, and sheet-pile would be salvaged during removal and placed in Staging Area 2 for reuse the following winter, to the extent possible.

2.5.4.7 Construction of Outlet Works

High-Level Outlet Works

Construction of the HLOW would occur in Years 2, 3, and 4 of construction, commencing in Year 2 only after: (1) excavation and hauling of 100,000 cy of core material to Staging Area-1E has been completed, and (2) the on-site access road between the dam and Staging Area-1E is no longer needed for dam excavation (**Figure 2-7**).

Construction of the HLOW system would consist primarily of: the downstream high-level outlet tunnel portal excavation (approximately 25,000 cy); the upstream high-level outlet tunnel and access adit tunnel (AAT) portal excavation (approximately 31,100 cy); installation of infrastructure support, including soil anchors and shotcrete of the upstream and downstream portals; construction of the high-level outlet tunnel (9,600 cy) and AAT (1,100 cy); installation of the high-level outlet tunnel and AAT linings; and construction of the HLOW intake structure.

Bulkheads would be installed at the upstream end of the high-level outlet tunnel (invert elev. 528) and the AAT (invert elev. 563) to prevent water from entering the tunnels if the reservoir level was to ever rise above the invert levels during construction. Excavation (1,300 cy), support, and installation of the final lining of the HLOW gate shaft would occur following demolition of the left training wall of the existing spillway (Section 2.5.4.). Construction would include all mechanical, electrical, and testing/commissioning work to make the HLOW operational. Excavated materials would be hauled to the Reservoir Disposal Area.

Low-Level Outlet Works

Construction of the LLOW would occur in Years 1 through 6. Construction would include the following: trench excavation to uncover the downstream end of the LLOW tunnel and to expose the outlet structure foundation (37,000 cy); removal of the existing bulkhead at the downstream end of the low-level outlet tunnel; construction of the reinforced concrete tunnel; construction of the mass concrete thrust block and low-level outlet structure foundation; construction of the low-level outlet structure; and construction of the tie-ins to the Main Avenue Pipeline and Anderson Force Main Pipeline. Construction would also include excavation of the sloping intake structure foundation (10,700 cy), construction of the sloping intake structure, construction of pipe saddles and installation of the 78-inch pipeline and 33-inch pipeline within the low-level outlet tunnel, and all mechanical, electrical, and testing/commissioning work to make the LLOW operational. Excavated materials would be hauled to the Reservoir Disposal Area.

2.5.4.8 Spillway Replacement

Spillway replacement would commence at the beginning of Year 3 and continue through Years 4 and 5. A small portion of the spillway at the downstream end of the currently unlined chute would be completed in Year 7. Initial work would involve demolition of approximately 12,500 cy of steel reinforced concrete that comprises the existing spillway structure using excavators with hoe rams or hydraulic shears. The broken-up concrete would be loaded into highway legal haul trucks and hauled to a concrete recycling facility, the nearest of which is located in San José, approximately 16 miles away. Drill and blast methods to break up concrete in the existing spillway are not proposed. Demolition of the spillway would start with removal of the left training wall structure to provide access to the top of the high-level outlet gate shaft. Demolition would generally occur from upstream to downstream, starting with the left training wall, followed by the right training wall, ogee crest structure, and spillway chute.

Once the existing spillway has been demolished, foundation excavation for the 4-foot-thick invert slab of the new spillway would commence. Excavation would again start at the upstream end and proceed towards the downstream end. Foundation excavation would include an estimated 42,000 cy to deepen the currently unlined channel. Foundation excavation would also include excavation of trenches for the drainage system under the spillway invert slab, and drilling and grouting of rock anchors. The approved excavated surface would be cleaned of all loose materials and covered with a layer of shotcrete to protect the excavated surface from degrading and help facilitate cleaning prior to concrete placement.

Following foundation preparation, the concrete replacement spillway would be constructed. Construction would commence with building a gravity wall, acting as the left training wall for the spillway, and the right abutment of the top 40 feet of the dam. Due to the limited staging area downstream of the dam, it is likely that concrete would have to be imported from commercial sources. The estimated volume of concrete that would be placed in the replacement spillway, including lining of the currently unlined channel, would be 62,000 cy. Placement of reinforcement and setting the concrete forms would be performed during daylight hours. Concrete placements are likely to occur during daylight and nighttime hours.

Spillway construction would occur starting from the upstream end and end at the downstream end. The spillway construction would be constructed in the order of building the right training wall, the ogee crest structure, and the right and left chute wall. The right and left chute wall would extend through the bend into the current unlined channel and sloped concrete paving. Improvements in the currently unlined channel would also include a 120-foot-long reinforced concrete wall at the downstream end of the left bank (immediately upstream of “the falls”) to replace the temporary repairs that were made to the breach in the downstream left bank levee that occurred during the January 1997 spill event. Construction of the wall would include building the original channel foundation at the downstream left end back up, using approximately 25 feet of mass concrete[15].

Once the spillway walls and the sloped paving are completed, the access road from Staging Area 1E along the Anderson Dam Trail to the dam would be available for the hauling of materials between Staging Area 1E and Stockpile Area E and the dam embankment. At this point, vehicular traffic offsite related to material-hauling would be reduced, and construction equipment and vehicles would utilize the access road.

2.5.4.9 Pipeline Realignments

Realigned sections of the Anderson Force Main and the Main Avenue Pipeline would be installed underground within Staging Area 4 near the downstream base of the dam using the typical cut-and-cover construction method. This method involves clearing and grading the ground surface along the alignment, excavating a trench, installing the pipe sections, welding the pipeline, and backfilling the trench with the excavated material.

2.5.4.10 Installation of Dam Controls and Instrumentation

By Year 6 of the Project, the dam would have instrumentation and controls for operation of the reservoir as well as instrumentation for monitoring dam safety specifications and reservoir levels. Controls for the LLOW sloped intake structure and HLOW gate structure would be housed in a control building located on the spillway gravity wall. The control building would be 14 feet wide, 30 feet long, and 12 feet high. Controls for the LLOW outlet structure would be located within the outlet structure. Controls for the HLOW outlet structure would be located in a control building constructed during FOCP near the HLOW outlet structure. All the controls would be interconnected to allow operation from any of the three on-site controls locations. Operational instrumentation and controls would also allow facility operators to monitor reservoir releases and levels and operate the controls remotely.

Valley Water would use the dam safety instrumentation to monitor settlement and lateral movement, reservoir elevations, pore-water pressure, and seismic response. The types and purpose of instrumentation proposed at Anderson Dam are summarized in **Table 2-9**.

[15] A portion of the wall and the mass concrete would be constructed in Year 7 after core materials have been removed from Stockpile Area E.

Table 2-9. Instrumentation for Anderson Dam

Instrument	Purpose
Piezometers	Measure pore pressure
Survey monuments	Monitor three-dimensional surface deformation
Seepage weirs	Measure seepage from the blanket drain under the dam and from the low-level outlet tunnel
Accelerographs	Measure earthquake acceleration time history
Inclinometer	Monitor deflections in the downstream dam surfaces
Automated data acquisition system	Record reservoir elevations, piezometric pore pressures, seepage flows, and inclinometer deflections

Source: AECOM 2022

Communication Lines beyond Dam Excavation

During Year 6 of the Project, communication lines from Anderson Dam to Peet Road would be replaced. This Project activity would consist of installing fiber optic lines to replace existing copper telemetry cables. The fiber optic lines are necessary to provide communication network connectivity to Anderson Dam, hydroelectric facility, and the Coyote Pumping warehouse. Construction activities for this work would include trenching, excavation, and installation of pull boxes. The fiber optic cables would be installed in an approximately 5,000 linear foot trench. This trench would be constructed using the cut-and-cover construction method. Excavation depths would be up to 15 feet. To prevent the potential for the trench to collapse, the trenches would be shored. The shoring efforts would consist of installing braces or structures to retain the walls of the trench. Pull boxes to support the wiring of the communication lines would be installed along the conduit. Equipment used for this work would include excavators, trench rollers, and compactors. Any roadway impacts would be repaved with an asphalt machine. Once the communication lines have been installed, Cochrane Road from US 101 to Anderson Dam would be repaved.

2.5.4.11 Permanent Roadway Modifications

Coyote Road up to the Boat Ramp Parking Area

As part of the Project, Coyote Road from the intersection with Cochrane Road up to the Boat Ramp Parking Area would be permanently modified to provide access to the dam crest and to the marina. The intersection of Coyote Road with Cochrane Road would be widened and relocated approximately 350 feet south to provide a safer park entrance. The park entrance would include two lanes that would divide into three boat inspection lanes and one pass through lane to reduce the potential for vehicles waiting on Cochrane Road to enter the park. Grading for the boat inspection lanes would include an up to 16-foot-high retaining wall. A new park kiosk would be constructed at the boat inspection lanes. The old entrance would also be widened and improved for use as the park exit and to provide entrance access for trucks or emergency vehicles.

Portions of Coyote Road, from the old entrance kiosk to the dam crest (approximately 1,850 lineal feet), would be widened and slightly realigned from an approximately 13-foot-wide[16] one-way road, to a 30-foot-wide, two-way road. The roadway would be slightly raised and steepened to meet the crest of the replacement dam that is 9 feet higher than the existing dam. The roadway would be widened by both cutting and filling. An approximately 550-foot-long soil nail and shotcrete retaining wall would support a portion of the cut slopes located in the approximate middle third of the road. Approximately 13,600 cy of material would be excavated from the roadway alignment, and approximately 11,400 cy of compacted fill for the road would be produced from approximately 9,000 cy of excavated material from the BHBA. The road would be paved and include concrete curbs and gutters. The existing storm drainage and sanitary sewer pipelines beneath the existing road would also be raised during construction of the new road.

Coyote Road across the Dam Crest

Once dam construction is complete, Coyote Road would be replaced with a two-lane roadway, similar to the existing road alignment. The purpose of this permanent roadway modification is to allow for Valley Water maintenance activities, restrict public vehicle access across the dam due to safety concerns, and provide pedestrian access to the Serpentine Trail via the roadway. The new permanent, paved two-lane Coyote Road to be constructed along the dam crest would be approximately 1,150 feet long and 24 feet wide. Along the segment that extends from the left (south) end of the dam to the gravity wall at the right (north) end of the dam, the road would be equipped with guard rails on either side. The new roadway would no longer be a one-way loop that crosses the dam crest. The new roadway would extend on the dam crest and with a western terminus near the spillway; the portion of the roadway along the south side of the spillway would no longer be open to public vehicles. A security gate would be located at the left side (south end) to prevent public vehicular access to the dam crest.

Coyote Road along the Spillway

Coyote Road, along the spillway, would be permanently modified to provide an access road for only maintenance activities. This 1,200-foot-long segment of Coyote Road, located along the south side of the spillway, would be a one- to two-lane, 14-to 24-foot-wide paved roadway. This road segment would start at the dam crest and end at a 104-foot-diameter paved turnaround, located approximately 200 feet downstream of the end of the concrete lined spillway chute. The west end of the turnaround would connect to an unimproved access road along the south bank of the currently unlined spillway chute.

Access from Cochrane Road to Anderson Dam Toe

Permanent roadway modification would be constructed from Cochrane Road to the toe of Anderson Dam. This permanent roadway modification would be constructed to allow maintenance access to the LLOW outlet structure and HLOW outlet structure from the lower level parking lot. Access from Cochrane Road to the Anderson Dam toe would be relocated approximately 220 feet west, to improve sight distance. The access would include a paved, two-lane, 30-foot-wide driveway used to access the low-level outlet structure parking area. A 325-

[16] Some segments of the existing road are up to 24 feet wide.

foot-long, one-lane, 20-foot-wide paved access from the west end of the parking area would be used to access the high-level outlet structure access pad. A security gate would be located at the left side (south end) to prevent public vehicular access.

In addition, the shoulder width would be widened by up to 5 feet along a 740-foot-long segment of the westbound lane of Cochrane Road, from the start of the curve (northbound) to about 300 feet west of the new driveway into the Anderson Dam toe.

Access from Coyote Road to High Level Outlet Tunnel

A new access road off Coyote Road would extend across the downstream slope of the new dam to the right abutment and downstream 350 feet to a hammerhead turnout. A 20-foot wide, gravel surfaced road provides access to the high-level outlet tunnel and drop shaft. A security gate would be located at the left side (south end) to prevent public vehicular access.

Access from Cochrane Road to Left Bank of North Channel

Cochrane Road, from the left bank of the North Channel, would be permanently modified to construct a maintenance road. The maintenance road would be used to access the North and South Channel weirs, Coyote Creek, the outlet channels, and the north channel habitat enhancement features. A 950-foot-long, 14-foot-wide paved driveway, located on the north (westbound) side of Cochrane Road would be used for maintenance access to the left bank of the North Channel. This driveway would include a crossing (bridge) of the South Channel. A security gate would be located at the left side (south end) to prevent public vehicular access.

Repaving of Cochrane Road (US 101 to Anderson Dam)

As described in the section above, Cochrane Road would be repaved from US 101 to the Anderson Dam entrance at Coyote Road. The repaving of Cochrane Road from US 101 to Anderson Dam would occur once installation of the communication lines has completed in Year 7. The purpose of the repaving of Cochrane Road is to restore the road conditions and repair damage sustained during construction. Roadway paving work would begin at the southbound exit of US 101 and continue to the dam site for a total distance of approximately 2 miles. Construction activities would include milling and hauling the existing asphalt surface, removing a layer of the aggregate base, placing new aggregate base and asphalt concrete pavement, and striping the new pavement. The work would be completed using standard roadway paving equipment, including highway-legal dump trucks, bulldozers, motor graders, compactors, milling machines, asphalt paving machines, and striping machines. The paving equipment would be transported by flatbed trailers and would be staged at designated staging areas on the dam site when not in use.

The required removal depth of the existing asphalt pavement and aggregate base would be approximately 16 inches, with 12 inches of new aggregate base and 4 inches of asphalt concrete being placed thereafter. The approximate surface area for the asphalt pavement along this segment of Cochrane Road is 560,000 square feet, requiring an aggregate base and asphalt concrete volume of approximately 20,740 cy and 6,915 cy, respectively. Assuming each dump truck can carry 10 cy of material per load, approximately 5,600 truckloads would be required to haul away the existing material and haul in the new material. This work would be completed by two crews of eight workers over a period of about 2 months. The work would be phased to minimize roadway closures by closing one side of Cochrane Road at a time and completing paving within major intersections, such as Mission View Drive and Peet Road, in accordance with the Project traffic control plan.

2.5.4.12 Temporary and Permanent Modifications to Recreational Facilities

As part of the Project, several of the recreation areas and facilities within Anderson Lake County Park would be temporarily or permanently closed. A few of these closures would be an extension of areas already closed for the current DSOD restrictions and for implementation of the FOCP. The 2017 DSOD reservoir requirements restricted water-related activities at Anderson Reservoir, which limited boating and fishing in dry years due to low water levels. As part of the FOCP, FERC required Valley Water to lower reservoir levels to deadpool. The lowered reservoir conditions would continue throughout Project construction, including the lowering of the reservoir to 450 feet throughout Construction Years 2 through 5. Although a number of temporary and permanent closures would occur within Anderson County Lake Park throughout the construction of the Project, less than a mile to the west of the Live Oak Picnic Area, the Anderson Lake County Park Visitor Center would remain open throughout Project construction. This entrance would continue to provide access to Anderson Lake County Park and local trails, including the Coyote Creek Parkway, throughout construction of the Project.

As part of the FOCP, the Anderson Dam Boat Ramp and Parking Areas, Toyon Park, Basalt Hill, parking and access to Holiday Lake Estates, and trails that lead to the dam and are located on the dam have been closed since October 2020 (Valley Water, 2020h ~~2020j~~), in addition to the existing restriction on water-related activities within the reservoir discussed above. These restrictions and closures would continue during Project construction. Additional temporary and permanent closures that would occur during Project construction are discussed below. As previously mentioned, the Anderson Lake County Park Visitor Center would remain open throughout Project construction and would continue to provide access to Anderson Lake County Park and local trails, including the Coyote Creek Parkway (**Figures 3.18a-d**).

Woodchopper's Flat Picnic Area

As part of FOCP, the Woodchopper's Flat Picnic Area and trail access to the Anderson Reservoir was closed for ADTP construction, and closure would continue throughout Project construction to ensure public safety throughout the time when the reservoir levels are below FERC restricted levels. The restricted water levels within the reservoir would expose extensive reservoir rim areas that are normally covered in water; these areas may be unstable and may result in harm if utilized by the public. Therefore, closure of the Woodchopper's Picnic Area would extend to Year 7 ~~8~~, when the reservoir would be allowed to refill; the reservoir banks would be stabilized as the reservoir rim areas exposed throughout construction would be covered in water and returned to conditions that occurred prior to the FERC water level restrictions.

Temporary Trail Closures ~~Dam Crest Trail, Cochrane Trail, Lake View Trail, Rancho Laguna Seca Trail, and Serpentine Trail~~

Throughout FOCP implementation and extending throughout the construction of the Project, ~~all~~ certain trails and public access to Anderson Dam and Reservoir would be closed for all or portions of Seismic Retrofit construction to provide public safety. Closures would include the Dam Crest Trail, Cochrane Trail, Lakeview ~~View~~ Trail, Rancho Laguna Seca Trail, Gray Pine Trail, Rosendin Trail, and the Serpentine Trail within Anderson Lake County Park. The Dam Crest Trail would be temporarily closed throughout Project construction, during which the trail would be removed and replaced. The Serpentine Trail, which connects the Live Oak Picnic Area to the dam crest, has also been closed by the FOCP and would remain closed throughout Project construction. The Cochrane Trail, Lakeview ~~View~~ Trail, and Rancho Laguna Seca Trail would also be fully closed for 3 to 4 months during the initial blasting phase of Seismic Retrofit Components construction which would occur sometime during Year 4, 5, or 6 of Project construction. Aside from the trail closures within the Project boundaries of the BHBA (Lakeview Trail), there would be no planned closures of the Rosendin Park Area before Year 4 or after Year 6 of Project construction. Cochrane Trail and Rancho Laguna Seca Trail would partially reopen after the initial blasting phase is completed. Lakeview Trail, Gray Pine Trail, and Rosendin trail and portions of Rancho Laguna Seca and Cochrane Trails would remain closed for the duration of blasting in Years 4, 5, and/or 6. ~~Project construction, and would be reopened following Project construction to connect the boat launch parking lot to the Rosendin Park Area of Anderson County Lake Park.~~

Park closure and construction activities associated with the Project would involve the installation of construction fencing around the perimeter of Rosendin Park for public safety. During closure of the park in Years 4, 5, and/or 6, there would be staff hired by the construction contractor onsite 24/7 to open all gates within the park in the event of an emergency.

Live Oak Picnic Area

The Live Oak Picnic Area has been partially closed throughout FOCP implementation to provide public safety as the ADTP is constructed nearby. Throughout the construction of the Project, the entire picnic area would be closed through~~out~~ Year 7 ~~8~~. During this time, extensive tree removal would be required to allow construction access, construction implementation, and materials storage. Park features would also be removed and/or impacted by nearby construction activities. Following Project construction, all impacted park features would be replaced on-site and in-kind (40 picnic tables, eight BBQ grills, a fee station, a pay phone, a pet waste station, a pedestrian bridge, a quarter mile walking loop, 78 regular parking spaces, five Americans with Disability Act (ADA) parking spaces, restrooms, and a group picnic area with eight tables, a large BBQ, and a food preparation table). Post-construction restoration of the Live Oak Picnic Area would also include park enhancements in the areas of the park adjacent to Coyote Creek. These would include an improved walking loop (e.g., repaved, distance markings, and signage), ~~a bridge over the North Channel providing views of the creek and connection to the Serpentine Trail,~~ an interpretive trail along Coyote Creek, relocation of the group picnic area closer to restroom and parking areas, and tree replacement planting.

Serpentine Trail

Restoration of the Live Oak Picnic Area would include the reestablishment of the Serpentine Trail, a publicly accessible recreational trail connecting the picnic area with the dam crest. The trail would essentially follow its current alignment from the Live Oak Picnic Area to the top of Anderson Dam~~, including the new span bridge crossing over the North Channel. The bridge would be approximately 140 feet long and 12 feet wide~~.

Anderson Dam Boat Ramp and Parking Area

Throughout FOCP implementation and continuing through Project Construction Year 7 ~~8~~, the Anderson Lake Boat Ramp and Parking Areas would be temporarily closed. The existing boat ramp and parking lot would be replaced and improved, in coordination with County Parks, at the end of Project construction, as these areas would be used for accessing the reservoir during construction. The boat ramp parking entrance would be improved by constructing a second entrance off of Cochrane Road, dedicated inspection area, and an electric vehicle charging area. Project construction would also remove 61 parking spaces from the crest of the dam. Depending on the volume of materials excavated at the BHBA, a restored parking area would be constructed up to 30 feet above the existing parking area, requiring the construction of ramps to access and depart from this additional parking. The reconfigured design would accommodate a greater number of longer trailer parking. A barrier, such as K-rail with fence, would be constructed up to 50 feet away from the base of the excavated slope at the perimeter of the restored parking area to provide space for rock that may fall from the slope during strong seismic shaking. Restoration of the boat ramp parking area would include grading, replacement of curb and gutter, repaving, restriping, reinstallation of lighting, planters, irrigation, revegetation, and the replacement or refurbishment of the park bathroom facility.

2.5.4.13 Decommissioning of the Hydroelectric Facility

The hydroelectric facility would be decommissioned to reduce post-construction dam operating costs. Decommissioning of the hydroelectric facility would occur in Year 1 of the Seismic Retrofit components construction. Decommissioning work would occur within the existing footprint of the hydroelectric facility (0.5 acre), including staging of equipment and worker vehicle parking. Access would be achieved via a driveway that abuts Cochrane Road.

Decommissioning construction activities would include the disassembly and removal of mechanical and electrical equipment from the site, including a transformer, a switchboard, two turbines, two generators, a hydraulic power pack, hydraulic lines, electric controls, specialty valves, large diameter pipes and fittings, meters, actuators, conduits, panels, and cabinets. The equipment removal work would be completed with the utilization of a bucket truck, boom truck, and telescopic handler. The transporting of the equipment would be done using flatbed trailers. All removed equipment would be donated, recycled, or disposed at waste facilities within a 75-mile radius of the hydroelectric facility. Decommissioning the facility would require up to 20 truck trips from the hydroelectric facility site to the reuse, recycling, and/or disposal location. No excavation, trenching, or grading would be required. Decommissioning work would be completed during typical hours (described in Section 2.5.1.) and would require a daily crew of four to six workers for a duration of 6 weeks.

2.5.5 Seismic Retrofit Construction Utilities and Services

2.5.5.1 Construction Water Supply and Stormwater Drainage

Approximately 1 cfs of water from Coyote Creek upstream of the dam would be used for construction activities, including dust control and wetting of stockpiled materials. During Year 1, the water would be obtained by pumping from the Anderson Reservoir deadpool. For most of the construction period, this water would be obtained by pumping from upstream of the cofferdam. Water during Year 7, and a backup source of water for Years 1 through 6 would be obtained from the CDL and Main Avenue Pipeline. Construction water from the CDL would be provided via an approximately 300-foot-long, 6-inch-diameter water line that would be constructed from a 30-inch polyjet vault adjacent to the hydroelectric facility to Staging Area 1E. The water line would be installed using the cut-and-cover construction method, with trenching up to a depth of 5 feet. Construction would be performed with a combination of excavators, trench rollers, and compactors. Any roadway impacts would be repaved with an asphalt paver machine. Separately, construction water from the Main Avenue pipeline would be provided via modification of an existing air relief valve located in Staging Area 2.

Stormwater accumulating in the area upstream of the dam during the rainy season would be routed into the water diversion system and released directly into Coyote Creek. Stormwater accumulating in the downstream excavation area of the dam, at spillway and outlet works construction, and at the BHBA would be collected and pumped to an ATS prior to release into Coyote Creek (Section 2.5.4.2) or used for dust control. In staging areas and stockpile areas without access to existing infrastructure, stormwater would be managed using Valley Water's BMPs, as listed in Section 2.11 and included in Appendix A, *Best Management Practices and Santa Clara Valley Habitat Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures* ~~*Incorporated in the Project*~~, and also would be managed in accordance with the Stormwater Pollution Prevention Plan (SWPPP) prepared to comply with the Construction General Permit.

2.5.5.2 Construction Power Supply

During construction, electrical power would be supplied to all of the Project facilities (except facilities at the boat ramp parking area) by Pacific Gas and Electric Company (PG&E) through an existing overhead 12.47 kilovolt (kV) power distribution line along Coyote Road via a distribution line that crosses Coyote Creek with medium-voltage power cables to a pole and distribution transformer that would be constructed by PG&E during the FOCP. As part of the Project, towards the end of the Project construction duration, the distribution line and power cables over Coyote Creek, pole, and distribution transformer would be removed by PG&E after PG&E constructs new underground power cables to a new distribution transformer at a permanent location that is closer to the LLOW outlet structure. Construction loads are estimated to be 2,300 kilovolt-amps (kVA), which would be supplied via a main service entrance rated at 277/480 Volt for a three-phase, four-wire distribution system. While this proposed electrical connection should be sufficient for Project construction power supply needs, one potential exception would be power needed for the temporary bypass pumping system in Year 2, Year 3, and Year 6, where diesel powered generators would be placed to support required pumping.

For those facilities located at the boat ramp parking area, electrical power would also be supplied by PG&E through overhead lines that connect to an existing overhead 12.47 kV power distribution line along Coyote Road. These overhead lines, however, terminate at pole mounted transformers and pad mounted service equipment located at the left end of the existing dam. During the Project, the overhead lines would be disconnected so the pole, transformers, and service equipment could be demolished for dam excavation and construction. Following completion of the dam, PG&E would install a new pole, service lines, and transformers at the left end of the dam.

In the event of a major PG&E power outage, an emergency diesel generator and associated components, including an automatic transfer switch, installed during the FOCP near the diversion outlet structure, could be operated for emergency power supply. The generator, rated at 277/480 volts for a three-phase, four-wire distribution system, was sized at 500 kVA and would be able to be continuously operated. During Project construction, the generator would be relocated to a location near the LLOW.

2.5.6 Site Restoration

As construction is completed in Years 6 and 7, temporary facilities would be removed, and all temporarily disturbed areas would be restored to their pre-construction conditions, where practicable. Initial restoration would focus on those areas that would be inundated by the reservoir during reservoir refilling, or that could be impacted during spilling of the reservoir. These areas include the reservoir stockpile areas[17], the Packwood Gravel Borrow Pit, diversion extension pipe, and Stockpile Area E. Following initial restoration, efforts would shift to the BHBA, Staging Areas 1 through 4, the access road along the former Anderson Dam Trail to Staging Area 1, restoration and enlargement of the Anderson Dam Boat Ramp parking facilities, and construction of the Serpentine Trail~~ from the Live Oak Picnic Area to the dam crest~~. Restoration would generally include revegetating areas with native species (consistent with Valley Water BMPs REVEG-1 and REVEG-2, described below) where vegetation had been removed, and repaving damaged roadways.

Site-specific restoration activities, by location, are provided below in **Table 2-10**.

Table 2-10. Site Restoration

Location	Site Restoration Activities
Stockpile Areas C, H, K, L, M, and the Reservoir Disposal Area	Grading areas for drainage. Remediation and stabilization would not be required as they would be naturally submerged overtime as the reservoir refills. For the stockpiles located outside of the reservoir, areas would be compacted and hydroseeded with a native seed mix to stabilize these areas following the completion of work.
Packwood Gravel Borrow Pit	Grading areas for drainage.
Northern Stream Crossing of South Access Road to Stockpile Areas M and K	Excavation of the central portion of the stream crossing fill and removal of culverts. Excavated material would be cast on the upstream side of the portion of the stream crossing fill to remain. The central portion of the stream crossing fill to remain would have an elevation that is 460 feet or less (28 feet or more below the lowest intake structure [elev. 492]).
Cofferdam and Diversion Extension Pipe	Removal of the cofferdam, sheet pile cutoff wall, and Diversion Extension pipe where not concrete encased. The Diversion Extension pipe trench would be backfilled and compacted. The portion of the pipe that is concrete encased would be backfilled with concrete. Sheet piles would be removed. Cofferdam fill to remain would have an elev. of 450 feet.
Stockpile Area B	Restoration of parking areas, lighting, planters, and irrigation.

[17] The access roads constructed to reach the in-reservoir stockpile areas would not be restored prior to refilling of the reservoir

Location	Site Restoration Activities
Stockpile Area E	Cleaning of core material from the rock foundation and removal of the drainage system underlying the stockpile.
BHBA	Placement of 1 to 2 feet of loose material on the benches and hydroseeding with grasses and shrubs.
Staging Area 1	Removal of the temporary bridges over the North and South Channels, removal of contractor and construction manager offices, repaving of parking areas, re-installation of County Parks facilities (e.g., water fountains, irrigation, and benches), and revegetation restoration.
Staging Area 2E	Removal of fencing, reconstruction of an entry kiosk, removal of aggregate base used for parking, regrading for drainage, repaving of the portion of Coyote Road passing through the staging area, and revegetation.
Staging Area 3	Replacement of curb and gutter, repaving, restriping, reinstallation of lighting and irrigation (if removed during construction), and revegetation.
Staging Area 4	Regrading and revegetation.
Access Road to Staging Area 1 (restoration on the right abutment to Staging Area 1)	Regrading and revegetation.
North Channel Reach ~~Restoration~~	~~Regrading and revegetation~~ Revegetation and grading as needed to maintain flows within the channel.

Source: AECOM 2021

Key: BHBA = Basalt Hill Borrow Area

2.6 Conservation Measures Construction

2.6.1 Ogier Ponds CM

The Ogier Ponds CM would consist of separating Coyote Creek from Ogier Ponds. This Conservation Measure component would provide ecological enhancements to the channel and floodplain, improve water temperature impacts of the ponds, enhance fish migration, ~~and~~ reduce fish entrainment, and integrate public access and interpretation of natural resources and historical features (interpretive signs) within and along a portion of Coyote Creek on County Parks property.

The Ogier Ponds CM would consist of reconstructing the pre-1997 creek channel to create a geomorphically stable creek with a connected floodplain, adding habitat and biological features to the creek and floodplain. The Ogier Ponds CM would include filling Pond 1 and constructing ~~two berms to create~~ a new section of creek channel and floodplain in the area of the pre-1997 creek channel. The new section of creek channel would start at Pond 1 and connect to the pre-1997 channel alignment located west of Ponds 2, 3, 4, and 5. The length of the reconstructed channel would be approximately 6,500 linear feet of the pre-1997 channel. The Ogier Ponds CM would completely fill and remove Ponds 1 and 5 ~~Pond 1~~ and partially fill Ponds 2 and 4 ~~2 and 5~~, and construct earthen berms to separate the unfilled portions of Pond 2 ~~Ponds 2 and 5~~ from the restored channel. No changes are proposed at Ponds 3 and 6. The restored channel would include a concrete spillway that would allow high flows to flow into Pond 2 (flows above 2,000 cfs). The overflows into Pond 2 would be temporarily detained in Ponds 2, 3, and 4, which are interconnected, before being released from Pond 4 back into Coyote Creek. A drainage structure equipped with fish screens would be constructed to release flows from Pond 4 to the creek downstream of the restoration reach. ~~A fish screen culvert would be installed to spill into Coyote Creek at Pond 4.~~ The new Coyote Creek channel alignment would reconnect with the existing Coyote Creek channel west ~~downstream~~ of Pond 4. The complete filling of Ponds 1 and 5 ~~Pond 1~~ and partial filling of Ponds 2 and 4 ~~5,~~ would allow restoration of flow to the pre-1997 channel with a connected floodplain. A wetland would also be created in the onsite borrow area~~,~~ between Pond 3 and the restored channel's eastern bank ~~proposed levee, in order to fill Pond 1~~. The borrow site would be excavated to a depth that will allow groundwater to surface, creating a 4.5-acre freshwater marsh adjacent to Pond 3. The restored channel and connected floodplain would have a total width ranging from 125 to 700 feet and would be able to convey 1,485 cfs, which is the maximum Anderson Dam Tunnel release capacity.

The total width of the floodplain along the new channel would be up to 700 ~~600~~ feet. The footprint of the re-established channel and connected floodplain would total approximately 45 acres, consisting of 25 acres within the pre-1997 creek channel area and 19 acres of existing open water in Ponds 1, 2, and 5 which would be converted to low-flow creek channel and connected floodplain. The new channel would include in-stream aquatic habitat enhancements and a floodplain to promote geomorphic stability and provide high-quality aquatic and riparian habitat. Native vegetation would be planted in areas along the floodplain to create riparian habitat. Higher flows would occur only in the unlikely event that Anderson Reservoir spills. Flows of Coyote Creek exceeding the channel conveyance capacity would spill over a concrete spillway into Pond 2, be temporarily detained in Ponds 2, 3, and 4 and then drain from Pond 4 to Coyote Creek through one or more culverts equipped with fish screens. The fish screens would prevent non-native and native fish from entering Coyote Creek.

The overall footprint of the channel alignment would be approximately 60 acres, composed of 45 acres of low-flow channel and connected floodplain with 15 acres of berms, maintenance roads on the berm crest, a spillway into Pond 2, and a screened structure draining Pond 4. The Ogier Ponds CM would impact ~~convert~~ approximately 43.73 ~~19~~ acres of existing open water, ~~and~~ wetlands, and riparian habitat at Ponds 1, 2, 4, and 5 to creek channel and connected floodplain habitat. ~~About 25 acres of existing~~ Existing uplands would also be converted to channel and floodplain habitat, resulting in a net increase of approximately 12.9 ~~25~~ acres of ~~in~~ aquatic, wetland, and riparian habitat.

To provide geomorphic stability and suitable fish passage and rearing conditions, the Ogier Ponds CM would include a low-flow channel designed to convey flows of approximately 30-50 cfs, which is a flow range that would occur very often post construction ~~which is the expected typical dry season flows of Coyote Creek~~ downstream of Anderson Dam after the seismic retrofit construction is complete. This 30-50 cfs flow would support managed aquifer recharge at the downstream Coyote Percolation Pond and instream recharge at downstream portions of Coyote Creek.

The low-flow channel substrate would consist of a mixture of sands, gravels, and boulders. In areas where the existing pre-1997 channel would be restored, grading would occur to create a geomorphically stable channel with natural creek gradients. The reconstructed channel would be designed to provide water depths and velocities suitable for fish passage. Large woody debris structures and boulders would be included within the channel and floodplain to create a diversity of fish habitat and high-flow refugia, while maintaining design flow capacity. To prevent an increased risk of flooding onto adjacent properties, a concrete overflow weir would be constructed near the upstream terminus of the restored channel. For this Conservation Measure component, the spillway would flow into Pond 2 because Pond 1 would be filled and eliminated. As part of the Ogier Ponds CM, the existing at-grade road crossing the pre-1997 channel at Ogier Avenue would be removed, and the existing washed-out culvert crossing at Barnhart Avenue ~~Road~~ would not be replaced. These two road crossings are fish passage impediments and would be removed to improve fish passage conditions.

The channel and floodplain separated from the ponds would be largely located on County-owned property. However, a few areas within the pre-1997 channel are privately owned, which would require acquisition of those properties through the payment of fees or the acquisition of property in fee or an easement to construct and maintain the restored channel alignment. The Ogier Ponds CM would affect seven ~~three~~ privately owned parcels and permanent property rights would be needed for portion of these parcels: Assessor's Parcel Numbers (APN) 725-05-005, 725-05-006, 725-05-011, 725-05-014, 725-05-015, ~~and~~ 725-05-016, and 725-06-004. In addition to the permanent land rights, acquisition of a temporary construction easement or lease would be needed for the privately owned Barnhart Avenue Stockpiling Area in APN 725-05-013. ~~The total area of private property requiring permanent property right acquisition to construct the CM is the Barnhart Road staging area in APN 725-05-013.~~

The Ogier Ponds CM would not directly affect ~~result in temporary impacts to~~ the Coyote Creek Trail but would result in indirect impacts (emissions of light, noise, and dust) during the expected 3-year construction period~~, due to construction activities and material hauling across the trail, resulting in temporary closures and trail detours~~. The vast majority of construction traffic would access the Conservation Measure construction area from Monterey Highway, avoiding the need to cross the Coyote Creek Trail. ~~The Ogier Ponds CM would include installation of temporary detours and/or traffic controls for trail segments within the construction area or access routes to the work area to ensure safety of trail users and facilitate continued safe use of the trail. Trail detours would be located either along Monterey Road or east of the reclamation ponds.~~ Once the Ogier Ponds CM has been constructed, public access for pedestrian and bicycle use would be established along the top of the right bank of the levee road. The public access along the levee road would reconnect to the Coyote Creek trail, just upstream of the existing pedestrian bridge.

2.6.1.1 Construction Process and Phasing

Schedule

Construction of the Ogier Ponds CM would occur over a 3-year period, primarily during the dry season (i.e., June ~~May~~ through October). Timing for the start ~~Start~~ of construction at Ogier Ponds would rely on the acquisition of property rights and land use agreements with landowners, and would also not begin until most of ~~mostly~~ the seismic retrofit is complete due to the potential for unattenuated Coyote Creek flows during Year 1 to Year 5 of ADSRP construction. Stockpiling of fill material that would be used to construct the conservation measure may occur at the Barnhart Avenue Stockpiling Area prior to the start of this Conservation Measure construction. Construction activities for this conservation measure are expected to begin in the summer of Year 6 and end in Year 8 of the seismic retrofit construction.

In addition to the 60-acre CM footprint, staging areas that would be used to store construction equipment, supplies, and materials include the Borrow Hill Staging Area and Barnhart Avenue Stockpiling ~~Staging~~ Area. The Borrow Hill area is a 7-acre area located between Pond 3 and the pre-1997 channel. The Barnhart Avenue Stockpiling ~~Staging~~ Area is a 12-acre area located at the northeast corner of Barnhart Avenue and Monterey Road that would be used solely to stockpile fill materials. Construction of this Conservation Measure component would require dewatering of the pond ~~areas~~, diversion of creek flow around the work area, and control of groundwater to minimize expected seepage into the work areas. These activities would be implemented annually during the dry season. Upland construction activities and habitat restoration planting and seeding could ~~would~~ occur during either ~~outside of~~ the dry or wet season. Fish rescue and relocation during dewatering would be conducted, as necessary, in accordance with the Fish Rescue and Relocation Plan.

The construction schedule for activities at the Ogier Ponds CM area is outlined below by calendar year.

Year 6: Mobilize equipment to work site; install upstream and downstream cofferdams on Coyote Creek and diversion pipe to convey creek flow around construction area; install shallow wells to control groundwater seepage; install potable diesel generators to power pumps; dewater Pond 1; demolition, clearing, and grubbing of channel area; import fill from BHBA and Holiday Bench; place fill in Pond 1; and remove cofferdams at end of dry season.

Year 7: Install upstream and downstream cofferdams on Coyote Creek and diversion pipe to convey creek flow around construction area; install sheet piles to isolate fill areas in Ponds 2 and 4;~~import fill material from Holiday Lakes Estate bench,~~ place fill in Ponds 2, 4, and 5; excavate and grade channel area; construct earthen berms; ~~and~~ start construction of Pond 2 spillway, construct drainage structure ~~discharge structure,~~ and fish screens ~~culvert~~; and remove cofferdams at end of dry season.

Year 8: Complete construction of the Pond 2 spillway and~~,~~ Pond 4 drainage ~~discharge~~ structure with ~~and~~ fish screens ~~culvert~~; hydroseed/~~or~~ plant disturbed areas; ~~restoration planting~~ and construct maintenance road/~~seeding; establish~~ public access along the top of the berm on the east ~~right~~ bank of the restored channel ~~levee road~~.

Work Hours and Crew Size

Construction activities (equipment maintenance, materials delivery and off-hauling) would be conducted during a single 10- ~~12~~ hour shift per day, between the hours of 7:00 a.m. and 5:00 p.m. ~~6:00 a.m. and 6:00 p.m.~~, Monday through Friday. Equipment maintenance may occur on Saturdays, between the hours 8:00 a.m. and 5:00 p.m. No work or equipment maintenance would occur on Sundays, except for operation of pumps and electric generators to control groundwater seepage which may operate at any time on any day of the week.

An average of approximately 30 workers would be required during on-site construction activities. The maximum number of workers engaged in on-site construction activities at any one time is estimated to be 50.

Typical Equipment

The types of equipment needed for construction activities at Ogier Ponds, and the durations of the use of the required equipment, would vary based on the various construction activities. A detailed summary of typical construction equipment required for each construction activity is provided in **Table 2-11**.

Table 2-11. Ogier Ponds Construction Sequencing and Required Construction Equipment

Construction Year	Construction Activity	Approximate Duration (months)	Equipment Type
Year 6	Site mobilization	7	Excavator, loader, light trucks
Year 6	Construction of the haul roads and preparation of stockpile areas	3	Bulldozer, excavator, loader, motor grader, track drill rig, light trucks, haul trucks, water trucks and pumps for water trucks
Year 6	Construct creek bypass system	1	Loader, long-reach excavator, haul truck, light trucks, water trucks, water pump for water trucks, generator(s)
Year 6	Dewater Ponds 1, 2, and 5	3	Loader, long-reach excavator, light trucks, pumps, generator(s), Giken silent pile drivers
Year 6	Clear and grub	2	Bulldozer, long-reach excavator, loader, haul trucks, light trucks, water truck, water pump for water truck
Year 6	Fill Pond~~s~~ 1 ~~and portions of Ponds 2 and 5~~	4	Bulldozer, long-reach excavator, loader, dump trucks, light trucks, water truck, water pump for water truck, conveyor(s), soil shakers and sifters
Year 7	Excavate and sort creek materials from Holiday Lakes Estates bench excavation	4	Bulldozer, long-reach excavator, loader, haul trucks, light trucks, water truck, water pump for water truck
Year 7	Bypass channel	5	Bulldozer, motor grader, scrapers, long-reach excavator, tamping foot roller, dump trucks, light trucks, water truck, water pump for water truck

Construction Year	Construction Activity	Approximate Duration (months)	Equipment Type
Year 7	Berms including filling Pond 5, and partially filling Ponds 2 and 4	5	Bulldozer, motor grader, long-reach excavator, tamping foot roller, dump trucks, light trucks, water truck, water pump for water truck
Year 7	Spillway	2	Concrete pump truck, compressor, bobcat, loader, manlift, crane (150 ton), pump, welder, concrete vibrator, light trucks, generator
Year 7	Outlet culverts	2	Concrete pump truck, compressor, bobcat, loader, manlift, crane (150 ton), pump, welder, concrete vibrator, light trucks, generator
Year 8	Spillway	1	Concrete pump truck, compressor, bobcat, loader, manlift, crane (150 ton), pump, welder, concrete vibrator, light trucks, generator
Year 8	Outlet culverts	1	Concrete pump truck, compressor, bobcat, loader, manlift, crane (150 ton), pump, welder, concrete vibrator, light trucks, generator
Year 8	Restoration planting	5	Bobcat, loader, light trucks
Year 8	Miscellaneous activities and demobilization	8	Excavator, loader, light trucks

Source: AECOM 2022

2.6.1.2 Site Mobilization and Site Preparation

During the first few months of Year 6, construction activities at Ogier Ponds would include mobilization of equipment, supplies, and materials to the staging areas and preparation of the staging area, stockpile areas, and access roads. Construction of this Conservation Measure components would require clearing of vegetation from up to 60 acres within the channel footprint and an additional 7 acres and 12 ~~19~~ acres at the Borrow Hill Staging Area and Barnhart Avenue Stockpiling Areas, respectively ~~Road Staging Area.~~ Temporary access roads would be located along areas near the rerouted channel, expanded floodplain, berms, spillway and drainage structure. Primary construction ~~Construction~~ access would be from the west via Monterey Highway, Barnhart Avenue ~~Road~~, and Ogier Avenue. It is possible a small number of construction vehicles would access the site ~~or~~ from the east via US 101, Coyote Creek Golf Course Road and unnamed roads within the County Parkland, but this route would be secondary and would receive only minimal use throughout the construction of the Conservation Measure.

Staging Areas

As mentioned above, implementation of the Ogier Ponds CM would require one ~~two~~ staging and one stockpiling area. Construction ~~areas. The two~~ staging would occur at ~~areas are~~ the 7-acre Borrow Hill Staging Area and stockpiling of fill materials would occur at the Barnhart Avenue Stockpiling ~~Staging~~ Area (~~**Figure 2-4**~~ **Figure 2-11**). The staging area~~s~~ would be used for offices and equipment trailers, equipment and materials storage, equipment maintenance facilities, fuel pumps and fuel storage tanks, construction vehicle parking, and Project ~~project~~ laydown. The Borrow Hill Staging Area is located ~~a 7-acre area~~ between the pre-1997 creek and Pond 3. This area is located in the upland areas outside the ponds and pre-1997 creek channel. The area was previously disturbed by mining use and is currently covered with sparse grasses and forbs ~~grassy vegetation~~. The Barnhart Avenue Stockpiling ~~Staging~~ Area is a 12-acre area located at the northeast corner of Barnhart Avenue and Monterey Road. The existing condition of this staging area is a fallow agricultural field. Similar to the Borrow Hill Staging Area, the Barnhart Avenue Stockpiling ~~Staging~~ Area is currently sparsely vegetated with grasses and forbs.

To prepare the two staging areas, the construction contractor would remove vegetative groundcover and debris, grade the site, as needed, to create a flat surface for the movement of construction vehicles and equipment, and place gravel or a separation fabric over portions of the ground surface, depending on usage. Following construction, the ~~The two~~ staging area and stockpiling sites would be restored to pre-Project ~~project~~ conditions.

Access

Construction equipment and vehicles, worker’s vehicles, and supply trucks would access the construction staging area and construction site via a series of existing paved and unpaved public roadways and access routes. The construction site and staging area are accessible from Monterey Highway, which runs north-south approximately 1,000 feet west of Ogier Ponds. Monterey Highway is a divided paved road with two traffic lanes in each direction. Ogier Road and Barnhart Avenue (two-lane paved roads) each provide access from Monterey Highway to Ogier Ponds. Monterey Highway, Ogier Road, and Barnhart Avenue are public roads maintained by the Santa Clara County Department of Airports and Roads. Although primary construction-period access ~~Access~~ would be from the west via Monterey Highway, a small number of construction vehicles may access the construction area from the east via ~~also occur from~~ US 101, a divided limit access freeway, Coyote Creek Golf Course Drive, a paved two-lane public road, and unnamed internal roads within the Coyote Creek Parkway which are surfaced with aggregate and have limited access due to locked gates. A network of rural roads surfaced with crushed rock would be installed at the staging and construction areas to allow internal vehicle and equipment movement throughout the Ogier Ponds area. Material hauling from BHBA would be from Cochrane Road to Monterey Road, and from Monterey Road to Barnhart Avenue. These roadways would provide access to the construction staging area from the paved public roads.

Construction Materials and Sources

Materials required for the Ogier Ponds CM would originate from excavations at the BHBA adjacent to Anderson Dam (**Figure 2-4**), on-site borrow areas, and commercial sources within the San Francisco Bay Area. **Table 2-12** shows the annual number of haul trucks associated with Ogier Ponds materials delivery and disposal off-haul by construction phase. For fill placement, the CM would require approximately 135,700 ~~210,000~~ cy ~~cubic yards (CY)~~ to be excavated onsite and 494,300 ~~420,000~~ cy ~~CY~~ to imported on-site. Total on-site excavation would be about 135,700 ~~210,000~~ cy ~~CY~~. Approximately 494,300 ~~420,000~~ cy ~~CY~~ of fill would also be trucked in from the BHBA, Borrow Hill, and/or Barnhart Avenue Stockpiling Area ~~Holiday Lakes Estates Bench~~ for use in berm creation, completely filling Ponds 1 and 5, and partially filling Ponds 2 and 4. A total of approximately 630,000 cy ~~CY~~ of material would be used to fill the ponds and construct a separation berm.

2.6.1.3 Construction Methods

The proposed channel alignment and floodplain would require clearing and grubbing prior to the start of construction activities. This would include the removal of vegetation, debris, and soils to allow for a clear construction area. Clearing and grubbing would be performed with a crew using chainsaws and a bulldozer. This material would be hauled away and disposed of at a nearby offsite landfill with adequate capacity (e.g., Kirby landfill), or chipped and reused onsite or offsite for mulch. Depending on soil testing, approximately 28 acres of surface area and approximately 135,700 ~~207,000~~ cy of material would be cut and reused on site if determined to be suitable. Adequately sized tree trunks and root wads that would maintain their composition while in creek flows (e.g., oaks, redwoods) would be retained and used for large woody debris structures in the reestablished creek channel.

The Ogier Ponds CM would include the complete filling of Ponds 1 and 5, partial filling of Ponds 2 and 4 ~~5~~, construction of earthen berms, construction of an overflow weir and drainage structure, and implementation of restoration plantings. The overflow weir would allow high creek flows to overflow into Pond 2. The drainage structure would consist of one or more culverts equipped with ~~planting. A~~ fish screens ~~screen culvert would be~~ installed at Pond 4 to allow high flows to re-enter the creek after being temporarily detained in Ponds 2, 3 and 4. No changes are being proposed at Ponds 3 and 6 for this Conservation Measures component. As mentioned above ~~in the site preparation section~~, construction of the Conservation Measures would require site preparation of approximately 60-acres of land for the planned creek reroute and creation of connected floodplain and berms. Construction activities such as clearing and grubbing, excavation, grading, hauling, dewatering, pouring concrete, installation of fish screens, and vegetation plantings would be conducted to construct the Ogier Ponds CM. Dewatering would consist of using cofferdams and/or sheet piles to hydraulically isolate the portion of ponds and or creek reach from upstream and downstream wetted areas. A series of pumps would be installed to remove water from the isolated area and discharge the water to the downstream creek. If required by high groundwater in the area causing seepage into the work area, shallow groundwater wells may be installed and operated to lower the local groundwater table. Additionally, one or more temporary pipes would be installed to convey Coyote Creek flows around the construction area and maintain flow in Coyote Creek downstream of the construction area.

Dewatering Methods

Dewatering of the Coyote Creek channel and ~~adjoining~~ portions of Ogier Ponds where construction would occur would be necessary during the dry season construction period. As mentioned above, Pond 1 and 5 would be completely filled and removed and Ponds 2 and 4 partially dewatered to enable the Conservation Measure construction. Dewatering activities would also divert creek flows around the construction area and discharge the diverted flows back to Coyote Creek to maintain flow in downstream creek reaches. ~~As mentioned above,~~

~~Ponds 1, 2, and 5 would be completely dewatered. Dewatering activities would occur in short reaches upstream and downstream of construction locations along the new channel. Temporary dewatering would be implemented sequentially from the upstream 30 construction boundary to the downstream boundary for up to 200 linear feet at each dewatering location.~~

Construction ~~Temporary methods to dewater the creek channel and portions~~ of the dewatering system ~~ponds during construction~~ would include the use of cofferdams, sheet piles, sump pumps, and/or groundwater extraction wells. Earthen cofferdams would be constructed at the upstream and downstream boundaries of the new creek channel section that would be under construction. Water would be bypassed from a location upstream of the upper cofferdam to either Pond 2 (which drains to Coyote Creek through Pond 4) ~~a location in the nearest pond,~~ or directly~~, if closer,~~ to the ~~a location~~ downstream creek channel ~~of the lower cofferdam~~ via pumps and a temporary dewatering pipe that would be placed on the surface at top of bank. The cofferdams would be constructed of on-site excavated material that is covered with a waterproof liner. Dewatering pumps and a diversion pipe would be placed to draw water from within the creek, then run along top of bank areas to an in-water release location ~~below the lower cofferdam~~ to dewater the channel and maintain dry conditions for the duration of construction ~~within each 200-foot section~~. Surface water would be piped back into the creek channel below the lower cofferdam (if downstream of the work areas), or into the nearby ponds and discharged back into the creek channel at the existing Pond 4 outlet ~~at the~~ downstream ~~terminus~~ of the construction area. Once the construction of ~~or~~ the restored ~~dewatered~~ channel is complete, the cofferdams would be removed. Construction activities would also require hauling activities to bring equipment and materials on-site and off-site. Clean materials would be hauled to the site and solid waste material would be hauled offsite. ~~Construction would require large amounts of earth movement and fill placement.~~

The construction of the Ogier Ponds CM requires the operations of approximately five diesel-powered generators and five 6-inch pumps to support dewatering and construction activities. Ponds 1 and 5 ~~, 2, and 5~~ would be completely dewatered to facilitate placement of fill and portions of Ponds 2 and 4 would be isolated using sheet piles and the isolated area dewatered. ~~This would~~ Dewatering activities would require the installation of ~~sheet piles and~~ cofferdams and possibly sheet piles to isolate Ponds 1, 2, 4, and 5 ~~the ponds~~ from Coyote Creek and the construction area, placement of water intakes in the ponds attached to pumps powered by diesel generators, and installation of shallow groundwater wells attached to pumps. The pumps would operate continuously throughout the construction period to remove existing water ~~nuisance waters~~ from the ponds and ~~would also~~ control groundwater seepage into the dewatered area. All water~~s~~ pumped from the site would be released downstream of the work area into Coyote Creek. Ongoing water quality monitoring would ensure that dewatering releases into the creek would not violate Basin Plan water quality parameters. This would provide a dry working environment for the construction of the berms and infrastructure. Once the work area is dewatered, fill material would be placed in Ponds 1, 2, 4, and 5 ~~the ponds~~, a ~~screened~~ concrete overflow structure would be constructed discharging into ~~in~~ Pond 2, and a screened concrete drainage structure would be constructed to release water from ~~in~~ Pond 4 back to Coyote Creek. Fish relocation and rescue would be conducted in areas to be dewatered prior to draining them. To install the overflow structures and fish screens, concrete setting and pouring activities would be required. Restoration planting efforts would entail soil preparation, native species planting, vegetation establishment activities, installation of bio-engineered slope protection, and placement of root wads and channel materials. Demobilization and removal of equipment and excess materials would be conducted once construction activities are completed.

Table 2-12. Summary of Ogier Ponds Annual Haul Truck Trips by Construction Activity

Construction Year	Construction Activity	Rock/Aggregate/ Soil Delivery	Waste Disposal Off Haul Trips	Total Number of One-Way Haul Truck Trips (based on 16 ~~10~~ cy truck capacity)
Year 6	Site mobilization	N/A	0	100
	Control of water	N/A	0	100
	Demolition and clear and grub	N/A	100	0
	Pond 1 Fill - Borrow Hill excavation	101,400 cy of imported soil	0	12,675 ~~20,280~~
	Pond 1 Fill Import - Basalt Hill excavation	252,200 cy of imported soil	0	31,526 ~~50,440~~
	Import and sort Creek Materials from Holiday Lakes Estates Bench Excavation	140,700 cy of imported soil	0	17,588
Year 7	~~Import and sort Creek Materials from Holiday Lakes Estates Bench Excavation~~	~~140,700 cy of imported soil~~	~~0~~	~~14,070~~
	Bypass channel	N/A	0	0
	Berms	N/A	0	0
	Spillway	N/A	0	0
	Outlet culverts	N/A	0	0
Year 8	Spillway	N/A	0	0
	Outlet culverts	N/A	0	0
	Restoration Planting	N/A	0	0

All trips represent one-way trips to the Ogier Ponds site.
Key: cy = cubic yards

Earth Movement

Ogier Ponds CM activities would require excavating about 135,700 ~~210,000~~ cy of soil from the existing ground along the restored pre-1997 channel alignment for reuse in the partial filling of ponds and construction of berms separating the creek channel from the remaining ponds. Total excavation would be about 135,700 ~~210,000~~ cy. Approximately 494,300 ~~420,000~~ cy of fill would also be trucked in from the BHBA, Quarries, and/or Holiday Lakes Estate Bench for use in filling Pond 1.

2.6.2 Maintenance of the North Channel Reach ~~Extension~~

During FOCP implementation, weirs were constructed at the division of the North and South Channels of Coyote Creek downstream of the existing Anderson Dam outlet structure. As part of the FOCP ~~Project~~, the historic North Channel of Coyote Creek was ~~would be~~ restored so that ADTP flows can be split between the North and South Channels. The weirs were designed so that low flows would be split between the channels in a manner that would provide environmental benefits to each channel by supporting continuous flows through each channel, to the greatest extent practicable, and would not increase the existing potential for fish strandings as the historic North Channel, as part of the FOCP, is being ~~would be~~ graded to extend further downstream to a confluence with South Channel to avoid the potential for a backwater to develop, and to remove existing holes and pools that may strand fish when waters recede. High flows would be split to minimize the potential for erosion of the South Channel that would be enhanced by FOCP implementation with woody debris and gravel benches to support salmonid spawning and rearing habitat and would also provide refugia for salmonids.

As part of the Project, the North Channel Reach would be maintained. Maintenance activities would include maintaining the constructed wetland bench, maintaining design flow capacity through the North Channel, and replacing restoration plantings, as needed. Some additional restoration and revegetation of the North Channel may be needed during the Project due to impacts from ongoing construction, such as construction-related high flow reservoir release. Native trees and vegetation would be planted as necessary during the Project along the banks of the channel to support effective revegetation of the channel. There are no recreational amenities planned for the North Channel area; all recreation features are planned for the banks of the South Channel (e.g., picnic areas, benches, interpretative areas, trails).

~~As part of the Project, the North Channel would be graded so that it extends through County Parks and private property to connect with the confluence of the North and South Channels of Coyote Creeks, where the existing North Channel currently forms a backwater. Currently the North Channel does not support topography that supports flows through this area. With positive drainage from the North Channel to the confluence, the restored North Channel would be designed to facilitate drainage. Grading would also channel flows towards the center of the North Channel so that flows would continue to the greatest extent feasible during low-flow times. This change in grading and flows would reduce fish stranding and stabilize both banks to protect Santa Clara County property. The north channel weir design includes a labyrinth weir that would activate the rock-lined north channel when releases from the reservoir exceed approximately 230 cfs. The weir at the head of the southern channel will include a 5-ft-wide 'U' shaped channel invert weir, with slots on which stop logs can be installed. The ability to install the stop logs would create a variable weir system so that when they are installed on the south weir, the north channel would be activated when reservoir releases exceed 100 cfs, rather than 230 cfs. The north channel downstream of the north weir would be graded to reduce fish stranding when flows recede. This would include a slight slope towards the center of the channel and a slight, approximately 1% slope towards ADTP project limits (towards Coyote Creek). Upstream of the north weir, within a perennial backwater, a wetland bench would be~~

~~installed to create suitable habitat for wetland vegetation. Riparian planting along some margins of the northern channel would be installed.~~

~~Through the restoration of the North Channel, trees and vegetation would be removed from the perimeter of the channel. Following the restoration of the North Channel, native trees and vegetation would be planted along the banks of the channel to support revegetation along the channel. There are no recreational amenities planned for the North Channel area; all recreation features are planned for the banks of the South Channel (e.g., picnic areas, benches, interpretative areas, trails). During Year 8 of the project, a new pedestrian bridge would be constructed across the North Channel. The pedestrian bridge would be constructed over the North Channel to reconnect the Serpentine Trail Equipment used to construct the new pedestrian bridge include loaders, excavators, cranes, compactors, dump trucks, and water trucks.~~

~~*2.6.2.1 Construction Process and Phasing*~~

~~Schedule~~

~~Construction activities associated with the North Channel Extension would occur during the dry season of Construction Year 1. In order to implement the North Channel work, a cofferdam would be built at the lower limit of the backwater to ensure that the backwater does not enter the work area. Additional pumps would also be placed throughout the work area to pump out nuisance waters as the groundwater levels are near the surface within the work area. The grading of the North Channel would be implemented during one dry season, and the work would occur over the course of approximately four months. Additional native vegetation would be planted during Year 7 to enhance the restored North Channel as restoration of the Project Area undertaken. A pedestrian bridge would be constructed over the North Channel during Year 8.~~

~~Work Hours and Crew Size~~

~~Generally, construction activities would be conducted during a single 12-hour shift per day, between 6:00 a.m. and 6:00 p.m., Monday through Friday. Equipment maintenance would occur on Saturdays, and no work would occur on Sundays.~~

~~An average of approximately 10 workers would be required during on-site construction activities. The maximum number of workers engaged in on-site construction activities at any one time is estimated at 20. For construction of the pedestrian bridge, work would require a daily crew of 20 to 40 workers for a duration of 3 months.~~

~~Typical Equipment~~

~~The types of equipment needed for construction and durations of use would vary based on the construction activity. A detailed summary of typical construction equipment required for each construction activity is provided in **Table 2-13**.~~

~~Table 2-13. Types of Construction Equipment – North Channel Extension~~

~~Construction Year~~	~~Construction Activity~~	~~Approximate Duration (months)~~	~~Equipment Type~~
~~Year 1~~	~~Grading~~	~~2~~	~~Bulldozer, motor grader, excavator, loader, dump trucks, light trucks, water truck, water pump for water truck~~
~~Year 7~~	~~Habitat Enhancements~~	~~2~~	~~Bobcat, loader, light trucks, water truck, water pump for water truck~~
~~Year 8~~	~~Pedestrian Bridge~~	~~3~~	~~loaders, excavators, cranes, compactors, dump trucks, and water trucks~~

~~Source: AECOM 2022~~

~~*2.6.2.2 Site Mobilization and Preparation*~~

~~Staging Areas and Access~~

~~The equipment and materials that would be required to access and for the construction of the North Channel extension would be located within Staging Area 1, the Live Oak Picnic Area.~~

~~Construction Materials and Sources~~

~~This activity would involve grading using existing materials. No additional sources would be needed.~~

~~*2.6.2.3 Construction Methods*~~

~~Construction would include clearing/grubbing; channel excavation and grading, operation of diesel-powered generators and pumps; planting of native species and vegetation establishment activities; and demobilization and removal of equipment and excess materials after construction is complete.~~

~~Dewatering~~

~~While the North Channel area is likely to be dry during the dry season work window, it is possible that a small backwater area at the downstream end of the historic North Channel of Coyote Creek may require dewatering to grade the extension of the North Channel. This would include the construction of a cofferdam, the use of pumps to dewater the work area, and groundwater extraction wells to remove nuisance waters from the work area. The cofferdam would be constructed from large gravel bags (super sacks) that are covered with waterproof liners. Dewatering pumps would be placed within the backwater to dewater the work area and maintain dry conditions for the duration of construction. Once the construction of the extended North Channel is complete, the cofferdam would be removed, and the North Channel would be reconnected along the historic alignment.~~

~~**Clearing and Grubbing**~~

~~The North Channel and access areas would require clearing and grubbing prior to construction, which includes the removal of vegetation, debris, and soils to allow for a clear construction site. Clearing and grubbing would be performed with a crew using chainsaws and a bulldozer. This material would be hauled away and disposed of, or chipped and reused onsite for mulch. Adequately sized trees that would maintain their composition while in creek flows (e.g., oak trees, redwood trees) would be retained on site and used for large woody debris structures in the reestablished creek channel. All vegetated areas would be restored to a vegetated condition in Year 7.~~

2.6.3 Sediment Augmentation Program

Sediment augmentation activities would improve geomorphic processes that create and maintain steelhead habitat (sediments and spawning gravels) and reduce channel incision that is typical in Lower Coyote Creek downstream of the dam. ~~This program would consist of removing and stockpiling approximately 55,000 cy of suitable sediment from the exposed reservoir bottom between the Dunne Avenue Bridge and the Holiday Estates boat launch (Staging Area 6, **Figure 2-4**) throughout the duration of Project construction. Sediment used from an onsite source would be washed and sorted prior to placing it in Coyote Creek. Short-term material stockpiling would occur at the creek injection site within Staging Area 1, Staging Area 6, or within an Ogier Ponds Staging Area (**Figure 2-4**).~~

Valley Water would develop a Sediment Augmentation Program no later than two years prior to Valley Water's planned completion of ADSRP construction, in consultation with the TWG. Valley Water would place sediment materials in Coyote Creek in the Live Oak Restoration Reach and/or the Ogier Ponds Restoration Reach, beginning with the Live Oak Restoration Reach, in collaboration with the TWG and using available monitoring data from the Live Oak Restoration Reach Project gravel augmentation program. At a minimum, Valley Water would ensure the Sediment Augmentation Program initially includes approximately 500 cy of sediment (composition to be determined with the TWG) placed within the Live Oak Restoration Reach following completion of ADSRP construction, including the Ogier Ponds CM and initiation of Anderson Dam post-construction operations. Annual sediment deposition and transport monitoring and long term habitat assessment monitoring would be conducted as a part of this Conservation Measure, and sediment in this reach would be replaced in an amount up to 500 cy as necessary to replenish sediment at least every 5 years. If high flow events mobilize all the injected sediment within the Live Oak Restoration Reach, additional sediment would be added during the 5 year period to replenish the volume of sediment placed. All additional sediment augmentation would occur within the Live Oak Restoration Reach and within the Ogier Ponds CM Restoration Reach.

Sediment augmentation would continue pursuant to the Project and FAHCE Adaptive Management Program on at least a 5-year replenishment schedule for up to 20 years. The sediment volume, placement location, schedule for placement, and duration of the program may be increased or decreased and may change during adaptive management in consultation with the AMT. Sediment loads for initial placement and replenishment would be delivered by trucks, and/or transported on conveyer belts, and placed using standard construction equipment. Each sediment augmentation site would utilize existing roads and trails to the extent feasible, but establishment of access roads may be necessary to deliver sediment to the channels, which may require some minor grading and/or vegetation removal. Sediment would not be placed directly in the channel except for the toe of the sediment pile, the rest would be placed adjacent to the channel or on benches above the channel so there would be minimal impact from introducing sediment to the channel at the time of placement.

~~Sediment materials would be placed in Coyote Creek at multiple locations between the Anderson Dam and Ogier Ponds. Sediment loads would be delivered by trucks, transported on conveyer belts, and placed using standard construction equipment. Initially, the trucks would off-load approximately 500 cy of sediment downstream of the dam, near the confluence of the North and South Channels within the Live Oak Restoration Reach or Ogier Ponds. If high flow events during construction mobilize all the injected sediment within the Live Oak Restoration Reach, additional sediment would be added. Each sediment augmentation site would require the establishment of access roads (or use of existing roads and trails) and a means to deliver sediment to the channels, which may require some minor grading and/or vegetation removal.~~

Over the long term, Valley Water would maintain and adaptively manage implementation of the Sediment Augmentation Program to address and offset sediment supply and transport effects of construction and operation of Anderson Dam, and support elements of steelhead critical habitat that are maintained by sediment and geomorphic processes, including spawning gravel quality and availability and rearing habitat. Valley Water would collect the data and conduct analysis from the sediment deposition monitoring, sediment transport modeling, and long-term spawning habitat assessment monitoring. Valley Water would share this data and information and work in coordination with the regulatory agencies composing the ~~Adaptive Management Team (~~ AMT ~~)~~ to determine ~~agree, based upon such data and analysis, upon~~ appropriate injection locations, sediment volume, composition, ~~and~~ frequency of sediment augmentation, and duration of the program as required to meet the overall restoration objective of the Project and FAHCE AMP. In this way, the Sediment Augmentation Program would ~~required to~~ benefit over the long-term spawning gravel habitat and geomorphic conditions within the CWMZ without increasing flood risk or damage to infrastructure. Valley Water would conduct annual monitoring to determine the degree suitable steelhead spawning and rearing habitat remains within the CWMZ. At least every five years, Valley Water would replenish mobilized ~~spawning gravels within the Live Oak Restoration Reach by placing up to the 500 CY of~~ sediment (composition to be determined) in an amount up to 500 cy within the Live Oak Restoration Reach or Ogier Ponds CM Restoration Reach ~~within the reach~~ using the methods similar to the construction activities described for the initial placement of sediment under the Sediment Augmentation Program ~~program in Years 2 through 10, and up to Year 15~~ below, but conducted on a smaller scale suitable for replenishment. In addition, every five years Valley Water would also determine based on annual monitoring data and in coordination with the AMT whether additional sediment augmentation should ~~will~~ be conducted using similar methods to assure long-term spawning and migration habitat suitability within the Ogier Ponds CM.

The long-term, post-construction adaptive management of the Sediment Augmentation Program would be implemented pursuant to ~~in~~ the Project and ~~same manner pursuant the framework established by the~~ FAHCE AMP, which includes ~~Program, including~~ ongoing coordination of adaptive management with the regulatory agencies composing the AMT, as described in that program and in Section 2.10.

2.6.3.1 Construction Process and Phasing

Schedule

Construction activities associated with the Sediment Augmentation Program would begin following completion of ADSRP construction, including the Ogier Ponds CM and initiation of Anderson Dam post-construction operations, and would continue throughout the Project and FAHCE AMP on at least a 5-year replenishment schedule for up to 20 years ~~would occur from Year 2 through 10, and up to Year 15 as part of the Project, and continue throughout the FAHCE AMP~~.

Work Hours and Crew Size

Generally, construction activities related to injection of sediment would be conducted during a single 12-hour shift per day, between 6:00 a.m. and 6:00 p.m., Monday through Friday. ~~Equipment maintenance would occur on Saturdays, and no work would occur on Sundays.~~

An average of approximately seven workers would be required during on-site construction activities. The maximum number of workers engaged in on-site construction activities at any one time is estimated to be 15.

Typical Equipment

The types of equipment needed for construction and durations of use would vary based on the construction activity. A detailed summary of typical construction equipment required for each construction activity is provided in **Table 2-14** ~~**Table 2-15**~~.

Table 2-14 ~~2-15~~. Types of Construction Equipment – Sediment Augmentation Program

Construction Year	Construction Activity	Approximate Duration (days ~~months~~)	Equipment Type
~~Year 2~~	~~Site Mobilization~~	~~0.5~~	~~Medium bulldozer, medium excavator, motor grader, vehicle trucks, articulated dump trucks, water trucks, pumps for water trucks, and loader~~
~~Year 2~~	~~Harvest, sort, and wash in-reservoir sediments. Haul sediments to Live Oak Restoration Reach.~~	~~9~~	~~Medium bulldozer, medium excavator, motor grader, vehicle trucks, articulated dump trucks, water trucks, pumps for water trucks, and loader~~

Construction Year	Construction Activity	Approximate Duration (days ~~months~~)	Equipment Type
Post-ADSRP Construction (Initial Placement) ~~Years 2-10~~	Import sediment and place approximately 500 cy in or near the channel in the Live Oak Restoration Reach. ~~Continue to harvest, sort, and wash in-reservoir sediments. Store materials at Staging Area 6 (Holiday Lake Estates), Live Oak Restoration Reach, Ogier Ponds Staging Areas, or place directly in Coyote Creek.~~	1-2 ~~96~~	Medium bulldozer, medium excavator, motor grader, vehicle trucks, articulated dump trucks, water trucks, pumps for water trucks, and loader
Post-ADSRP Construction (Longer-term Additional Placements) ~~Years 10-15*~~	Monitor sites and continue to refresh sediment augmentation sites by placing additional sediment into Coyote Creek in the Live Oak Restoration Reach or Ogier Ponds Restoration Reach over time, as determined by monitoring.	Varies, depending on need ~~60~~	Medium bulldozer, medium excavator, motor grader, vehicle trucks, articulated dump trucks, water trucks, pumps for water trucks, and loader

Source: Valley Water 2024 ~~Biological Evaluation 2023~~

~~**Beyond Year 10 the Sediment Augmentation Program would continue through the adaptive management program*~~

~~*2.6.3.2 Site Mobilization and Preparation*~~

~~Staging Areas and Access~~

~~Sediment would be gathered from the dry lakebed of Anderson Reservoir, using the Holiday Lake Boat Ramp and Staging Area 6 (**Figure 2-4**). Access to the area would occur via Holiday Lake Drive and through the in-reservoir haul roads. Materials would then be transported to the Live Oak Restoration Reach or Ogier Ponds reach, using in-reservoir access roads or public roads (Cochrane Road, Monterey Road, Barnhart Avenue). If adequate material is not available in the reservoir, the sediment would be obtained by an offsite source.~~

~~Construction Materials and Sources~~

~~All materials would be sourced from the dry Anderson Reservoir lakebed. If adequate material is not available in the reservoir, the sediment would be obtained by an offsite source.~~

2.6.3.2 ~~Construction~~ Methods

Adequate sediment, in accordance with the Sediment Augmentation Plan, would be obtained from an offsite source and then placed in Coyote Creek within the Live Oak Restoration Reach (initial placement), or within the Live Oak or Ogier Ponds restoration reaches (longer-term additional placements). ~~The sediment would be washed and sorted on-site if sourced from the reservoir, and then placed in Coyote Creek in locations between Anderson Dam within the Live Oak Restoration Reach or Ogier Ponds.~~ Sediment loads would be delivered from offsite sources by trucks, transported by conveyer belt, and deposited with standard construction equipment.

2.6.4 Phase 2 Coyote Percolation Dam Fish Passage Enhancements

As part of the FOCP, the Coyote Percolation Dam was replaced with an inflatable bladder dam, to accommodate releases from ADTP (known as Phase 1 Coyote Percolation Dam) and to allow the more nimble operation of the dam as compared to the flashboard dam to accommodate fish migration. The Phase 2 Coyote Percolation Dam Fish Passage Enhancement CM (Phase 2 Coyote Percolation Dam CM) implemented pursuant to the Project would consist of certain fish ladder, radial gate, and concrete baffle and attractant pool adjustments to the facility as well as constructing downstream channel modifications to install a roughened ramp downstream of and approaching the dam facilitating ~~facilitate~~ upstream and downstream fish passage over the deflated bladder dam over a range of flow conditions.[18] The Phase 2 Coyote Percolation Dam CM area is located along Coyote Creek, approximately 10.5 miles downstream of Anderson Dam. The objective of this effort is to improve fish passage conditions at Coyote Creek downstream of the Coyote Percolation Dam in accordance with design and operations criteria set forth in NMFS and CDFW technical guidance. The Phase 2 Coyote Percolation Dam CM would include construction of a roughened channel (approximately 500-feet long by 110-feet wide) using some combination of grouted boulders and cobble where hardened surfaces are necessary for structural integrity and un-grouted engineered streambed materials composed primarily of natural materials (e.g., boulders, cobble, gravel, and sand) placed in such a way as to mimic the configuration of a natural streambed. The roughness elements in the reconstructed creek channel would slow water velocities and result in upstream waters to back up and increase in depth. As a result, water depths would increase and hydraulic drops would decrease in size, ultimately improving fish passage conditions within Coyote Creek at the Coyote Percolation Dam area. The fish passage improvements would be designed, ~~and~~ constructed, and operated in a manner consistent with the NMFS *Anadromous Salmonid Passage Facility Design Manual* (NMFS 2023 ~~2011~~) guidelines for "nature-like fishways" and CDFW *California Salmonid Stream Habitat Restoration Manual Part XII* (Love and Bates, 2009 ~~Flosi et al. 2010~~) guidelines for roughened channels) to provide safe fish passage conditions whether the dam is ~~in~~ inflated or deflated. Further refinements to the Phase 2 design and the Coyote Percolation Facility Operations Plan would be developed during the construction phase in consultation with the TWG.

In addition to the passage improvements associated with the Phase 2 Coyote Percolation Dam, studies on juvenile fish passage and predation risk through the pond complex would be

[18] NMFS *Anadromous Salmonid Passage Facility Design Manual* (NMFS 2023 ~~2011~~) recommends a design flow range for fishways as the mean daily average streamflow that is exceeded 95 percent (low end) to 5 percent (high end) of the time during periods when migrating fish are normally present at the site.

conducted post-enhancements to assess if changes are necessary following implementation of the facility to improve juvenile out-migration and provide a research-based assessment to make ecologically responsible decisions regarding ongoing operations and adaptive management of the facility. In coordination with the AMT, Valley Water would conduct studies to assess conditions for juvenile outmigration during operation of the Phase 2 Coyote Percolation Facility. A full study plan would be finalized in consultation with the TWG in the final year of Phase 2 construction, so implementation of the studies can occur once the Project is completed and post-construction Anderson Dam facilities operations are implemented.

2.6.4.1 Construction Process and Phasing

Schedule

Mobilization ~~Construction~~ activities associated with the Phase 2 Coyote Percolation Dam CM would begin in Year 1, and construction activities would occur during ~~the summer and fall of~~ Years 1 ~~4~~ and 2 ~~5~~ and would include site mobilization, control of flows in Coyote Creek (dewatering), demolition, vegetation clearing, and grubbing, creek material placement and enhancement, roughened ramp construction, and revegetation seeding and planting.

Work Hours and Crew Size

Generally, construction activities would be conducted during a single 12-hour shift per day, between 6:00 a.m. and 6:00 p.m., Monday through Friday. Equipment maintenance may occur on Saturdays. No construction work would occur on Saturdays and Sundays.

An average of approximately 10 workers would be required during on-site construction activities. The maximum number of workers engaged in on-site construction activities at any one time is estimated to be 20.

Typical Equipment

The types of equipment needed for each phase of construction and the durations of use of that equipment would vary based on the construction activity. A detailed summary of typical construction equipment required for each construction activity is provided in **Table 2-15** ~~**Table 2-16**~~.

Table 2-15 ~~2-16~~. Phase 2 Coyote Percolation Dam Fish Passage Enhancements Construction Sequencing and Required Construction Equipment

Construction Year	Construction Activity	Approximate Duration (months)	Equipment Type
Year 1 4	Site mobilization	3 ~~5~~	Excavator, loader, light trucks
Year 1 4	Construction of the haul roads and preparation of stockpile areas	1 0.5	Bulldozer, excavator, loader, motor grader, backhoe, haul truck, track drill rig, light trucks, dump trucks, water trucks, water pump for water trucks
Year 1 4	Clear and grub	1 ~~0.5~~	Bulldozer, loader, long-reach excavator, haul trucks, dump truck, light trucks, water truck, water pump for water truck
Year 1 4	Construct creek bypass system	1 ~~0.5~~	Loader, long-reach excavator, backhoe, haul truck, light trucks, pumps, generator (80 kW)
Year 1 4	Dewater	1	Loader, long-reach excavator, backhoe, haul truck, light truck, pumps, generator (80 kW)
Years 1 – 2 ~~Year 5~~	Facility modifications and roughened ~~Roughened~~ ramp construction	9 5	Bulldozer, long-reach excavator, backhoe, haul truck, loader, bobcat, dump trucks, light trucks, water truck, water pump for water trucks
Years 1 – 2 ~~Year 5~~	Revegetation seeding and planting	2 ~~5~~	Bobcat, loader, light trucks

Key: kW = kilowatt

2.6.4.2 Site Mobilization and Preparation

Staging Areas

Staging of construction equipment, supplies, and materials would occur at a 0.8-acres parking area, located approximately 2,200 feet southeast of the Coyote Percolation Dam (**Figure 2-3b**). The parking area is an upland site located outside of the Coyote Creek channel that is unvegetated and surfaced with crushed rock. It is located adjacent to the existing road that provides access to the Coyote Percolation Dam from Metcalf Road, a distance of approximately 5,500 feet.

The staging area would be used for equipment trailers, equipment and materials storage, equipment maintenance facilities, fuel pumps, fuel storage tanks, construction vehicle parking, and materials laydown.

Access

The Coyote Percolation Dam is accessible via Monterey Highway, a four-lane paved public road, Metcalf Road, a two-lane paved public road, and internal roads at the Coyote Percolation Dam site. The internal roads are surfaced with crushed stone, and are closed to the public for use. From the dam site, an existing concrete ramp adjacent to the north abutment of the dam provides vehicle access to the Coyote Creek channel, downstream of the dam where the roughened channel work would be constructed.

Construction Materials and Sources

Materials required for the Phase 2 Coyote Percolation Dam Fish Passage Enhancements CM would originate from commercial sources within the San Francisco Bay Area. Existing channel bed materials will be used to reshape and configure the channel bed to reduce the import of fill dirt. Existing suitable gravels and cobbles within the channel will be stockpiled and reused during construction to the extent possible. Construction of the roughened ramp will require boulders, cobbles, ~~and~~ gravels<u>, and concrete</u> totaling approximately <u>18,000</u> ~~9,000~~ cy to be hauled to the site, resulting in approximately <u>2,994</u> ~~1,110~~ <u>one-way</u> truck trips.

Table 2-18 shows the required annual number of haul trucks associated with materials delivery and offsite disposal quantities that would be hauled from the site by each construction activity.

2.6.4.3 Construction Methods

Dewatering of the CM area would be implemented through the construction of upstream and downstream cofferdams that would be constructed with a bypass feature (pipes) to allow flows to bypass the work area and maintain flows in Coyote Creek throughout Project implementation. These diverted flows would be discharged back into Coyote Creek downstream of the work area. Installation of pumps and/or temporary dewatering wells would also be necessary within the dewatered work area to control groundwater seepage and nuisance waters throughout Project implementation.

When the work area has been fully dewatered, the area would be graded and the channel contoured and enhanced. To construct the roughened channel, the creek bed would be excavated to a depth of approximately 6 feet. The volume of cut material would be approximately 9,650 ~~3,200~~ cy. The roughened channel would be composed of large (approximately 4-feet diameter) angular rocks placed intermittently within the ~~spanning the~~ bed of the creek ~~at about 40-foot intervals~~ from the downstream limit of work to the concrete slab at the dam. The volume of large rock material would be approximately 2,205 ~~2,400~~ cy. Additionally, about 9,987 ~~6,400~~ cy of engineered fill, including reused native material, would be placed within the modified area downstream of the dam ~~roughened channel~~. Through this process the existing grouted rock slope protection would be removed and replaced using heavy equipment (e.g., excavators, haul trucks, concrete trucks and pumps). A detailed summary of construction equipment that would be used for Project implementation, materials that would be required, and total haul trip required for each construction activity is provided in **Table 2-16** ~~**Table 2-17**~~.

Measures to minimize impacts to anadromous salmonids and habitat throughout dewatering activities would include biological monitoring, fish relocation, and invasive species management, during the drawdown of Coyote Creek within the work area. This work would be done in accordance with the Project Fish Rescue and Relocation Plan. In addition, all diversion pump inlets and outlets would be screened to prevent fish from being injured by any pumps used to dewater the Project Area. Water quality monitoring would also be undertaken throughout Project implementation, as discussed in Section 2.7, *Construction Phase Monitoring*. ~~in accordance with the San Francisco Bay Basin Plan Water Quality objectives (RWQCB 2022). In accordance with the San Francisco Bay Basin Plan, p~~Parameters for water quality monitoring would include temperature, total dissolved solids, and turbidity.

Table 2-16 ~~2-17~~. Summary of Phase 2 Coyote Percolation Dam Haul Truck Trips by Construction Activity

Construction Activity	Rock/Aggregate /Soil Delivery (cy)	Construction Materials/Supplies/Equipment	Total Number of Haul Truck Trips (one-way)
Site Mobilization	980 ~~0~~	Medium bulldozer, medium excavator, motor grader, track drill rig, vehicle trucks, articulated dump truck, water trucks, pumps for water trucks, and loader	21 ~~0~~
Control of Water	600 ~~0~~	Long-reach excavator, generator (80 kW), vehicle truck, articulated dump truck, water truck, pumps for water trucks, pumps for dewatering, and loader	60 ~~0~~
Demolition and Clear and Grub	0	Bulldozer, long-reach excavator, loader, vehicle trucks, and articulated dump truck	20 ~~0~~
Facility Modifications and Roughened Ramp Construction	18,066 ~~6,400 cy~~	Long-reach excavator, loader, bobcat, vehicle trucks, articulated dump truck, water truck, and pumps for water trucks	2,994 ~~1,280~~

Construction Activity	Rock/Aggregate /Soil Delivery <u>(cy)</u>	Construction Materials/Supplies/Equipment	Total Number of Haul Truck Trips <u>(one-way)</u>
Restoration Planting	<u>270</u> ~~160 cy~~	Bobcats, loaders, and vehicle trucks	<u>34</u> ~~32~~

All trips represent one-way trips to the Coyote Percolation Dam site.

Key: kW = kilowatt

<u>Note: Haul Trips increased as a result of further Project design refinement following release of the Draft EIR. Impacts related to these construction trip increases are reflected in this Final EIR, and no new or substantially more severe significant impacts are caused by these trip increases.</u>

2.6.5 Maintenance Activities at the Live Oak Restoration Reach

As part of the FOCP's HMMP, Valley Water would implement spawning gravel and rearing habitat improvements in the Live Oak Restoration Reach within the south channel of Coyote Creek, directly downstream of Anderson Dam. The implementation of restoration activities within the Live Oak Restoration Reach would enhance and restore fluvial processes, and improve habitat conditions for steelhead spawning and rearing, enhance riparian conditions, and enhance channel complexity through the placement of large woody debris and coarse sediment. These improvements would offset the potential effects of reservoir dewatering and sediment deposition on spawning and rearing habitat in Coyote Creek from the FOCP and Project by restoring over 2,800 ft of channel and creating over 20,000 square feet spawning habitat, over 65,000 feet of suitable juvenile rearing habitat, and over 20,000 square feet of shallow water habitat for fry rearing an inundated margin habitat at typical spring and summer flows (approximately <u>30-50 cfs</u> ~~30cfs~~). This effort also includes the placement of gravels and woody debris, in accordance with the HMMP, throughout the Live Oak Restoration Reach. Spawning habitat would be created through these improvements with the placement of gravel benches where steelhead eggs may be deposited and fertilized. The improvements to the Live Oak Reach would also result in the creation of spawning habitat, and rearing habitat where juvenile fish may take up residence and use the area for feeding, shelter, and growth.

During Project construction, the Live Oak Restoration Reach habitat would be monitored, and maintained to assure continuing fisheries benefits. At a minimum, Valley Water will determine, based on annual monitoring, the degree to which habitat degradation is occurring. At least every five years, Valley Water will replenish spawning gravels within the Live Oak Restoration Reach<u>. To maintain steelhead habitats, the extent of spawning gravels to replenish would be assessed during visual observations and following monitoring surveys. Inferential and calculated volumes for spawning gravel volumes would be used to evaluate the need for replenishment of spawning gravel volumes. Stockpiled spawning gravel would be added in small increments to maintain steelhead adult spawning habitat. Gravels washed thoroughly of fine sediment would be placed using silt curtains and a belting conveyor to minimize impacts to aquatic habitat</u> ~~by placing up to 500 CY of sediment (composition to be determined) within the reach using the methods similar to the construction activities described for the Sediment Augmentation Program in Years 2 through Year 10, and potentially up to Year 15, but conducted on a smaller scale suitable for replenishment~~. Additional ongoing maintenance activities that may be required in order to meet restoration goals would include the placement of additional woody debris <u>structures, boulders,</u> and gravels.

The long-term, post-construction adaptive management of the Live Oak Restoration Reach will occur in accordance with the Project and FAHCE AMP ~~the Sediment Augmentation Program and will be implemented in the same manner pursuant the framework established by the FAHCE Program, as described in that program and in Section 2.10~~.

2.7 Construction Phase Monitoring

2.7.1 Water Quality Monitoring: Water Temperature, Dissolved Oxygen, Turbidity, and pH

~~*2.7.1.1 Water Temperature and DO Monitoring*~~

Water temperature~~s, and~~ dissolved oxygen (DO), turbidity, and pH have been monitored during FOCP as part of the Condition 2 Plan and will continue to be monitored throughout construction of the Project. The water quality monitoring procedures would be documented in a Water Quality Sampling Plan.

Water Temperatures and DO monitoring would be conducted in Anderson Reservoir during the Seismic Retrofit construction (including the remaining pool, when at deadpool) to assess trends in surface temperature that will be the source of outflow to Coyote Creek until the Project is completed. An additional logger would be deployed within Coyote Creek at the upstream end of Anderson Reservoir to monitor temperature of inflow into the Anderson Reservoir. This monitoring would be used in models to help predict temperatures within Coyote Creek downstream of Anderson Reservoir. While Anderson Dam is being retrofitted, Valley Water would have limited operational flexibility associated with local flow release rates or locations of release of imported water, other than the CDL and Cross Valley Pipeline Extension. Some temperature changes may be possible within the FCWMZ via adjustments to imported water discharges from the CDL via the chillers, depending on water year/seasonal conditions.

Water temperature and ~~dissolved oxygen (~~DO~~)~~ would also be evaluated in Coyote Creek within the FCWMZ to determine if conditions are suitable for rearing of *O. mykiss* and for use in models to predict when temperatures and/or DO in the Creek may become unsuitable for steelhead. This will help determine if fish rescue is necessary and provide water temperature monitoring close to the Cross Valley Pipeline Extension, as well as gather stream temperature data for the Stream Flow and Water Temperature Forecast Model. To minimize the potential for temperature related effects to steelhead, a forecasted maximum weekly average temperature (MWAT) of 75°F (24°C) within the reach from Anderson Dam to Ogier Ponds would be assumed to represent poor conditions for steelhead rearing and would trigger the discussion with regulatory agencies about the potential need for fish rescue and relocation. Fish rescues will be conducted in coordination with the regulatory agencies at an instantaneous water temperature of 70 degrees F (21 degrees C). DO levels less than 7 mgl/L will also be considered in determining the need for fish rescue.

Continuous water temperature loggers are currently deployed at ten permanent monitoring locations on Coyote Creek downstream of Anderson Dam and, will continue to be deployed at 5 additional critical locations monitored pursuant to FOCP requirements: above and below the new imported water turnout of the Cross Valley Pipeline Extension, upstream of the Coyote

Percolation Pond, and in the North Channel. DO data will be collected at three of these stations that also have loggers for that constituent of concern.

These loggers were deployed before and as a part of the FOCP and would continue to collect data through Project construction. Daily average, maximum, and minimum temperature and MWAT, at each station, and average, maximum, and minimum DO at three stations, would continue to be reported as directed in the Temperature and Fisheries Monitoring Plan (Valley Water 2020i ~~2020e~~).

Besides water temperature and DO, Valley Water would collect other water quality data, including pH and turbidity data as part of the Water Quality Sampling Plan. Valley Water would also collect sediment data under the Sediment Deposition Plan (see Section 2.7.2) and turbidity and total suspended solids data under the Sediment Monitoring Plan (see Section 2.7.2.1). As further described in Sections 2.7.2 and 2.7.21 below, turbidity, total suspended sediment, and sediment deposition associated with releases of sediment resulting from in-reservoir construction activities, including primarily reservoir dewatering, will be monitored pursuant to the Sediment Monitoring Plan and the Sediment Deposition Monitoring Plan.

In addition, data would be collected for stormwater and runoff discharges from construction areas outside of the reservoir pursuant to a SWPPP developed in accordance with requirements set forth in the statewide Construction General Permit. The SWPPP, including construction discharge turbidity and pH monitoring that complies with the Construction General Permit, would be prepared and implemented to address construction stormwater discharges associated with out-of-reservoir seismic retrofit improvement construction activities. Should Valley Water observe water quality exceedances of the numeric actions levels specified for turbidity and pH in the Construction General Permit that are proximately caused by releases of pollutants discharged from ADSRP construction activities outside of the reservoir, then Valley Water and its contractors would comply with SWPPP conditions that implement Construction General Permit requirements. Further, the SWPPP would include water quality monitoring procedures and practices; erosion, sediment and pH control BMPs; and BMP and out-of-reservoir construction area inspection procedures to address sediment and pH. SWPPP implementation would be sufficient to address controllable turbidity and pH factors in compliance with the Construction General Permit standard and requirements. Specifically, the water quality monitoring provisions of the SWPPP would describe the turbidity and pH monitoring methods and water quality data reporting (e.g., regulatory agency reporting and frequency) as required by the Construction General Permit, including applicable requirements for analyses of exceedances; specification of sample collection and methods; procedures for sample storage, handling, and transport; and details pertaining to laboratory coordination, data management, analytical methods, and quality control.

~~Besides water temperature and DO, Valley Water may collect other water quality data (e.g., pH and turbidity). As described above, water quality data would be collected frequently, allowing for immediate review and continual tracking. Should Valley Water observe water quality exceedances based on the San Francisco Bay Region Basin Plan, Valley Water and its contractors would be responsible for inspecting the implemented BMPs to determine whether the exceedance is due to a controllable factor within the construction footprint. A water quality monitoring plan would be prepared that would outline requirements for water quality data reporting (e.g., regulatory agency reporting and frequency), including the requirements for analyses of exceedances; specify sample collection and methods; outline sample storage,~~

~~handling, and transport procedures; and include details pertaining to laboratory coordination, data management, analytical methods, and quality control.~~

This construction phase water quality monitoring and data supplements other sediment monitoring to affirm mobilization and anticipated effects of in-reservoir sediments and guide post-construction restoration as described in Section 2.7.2. It also supplements other temperature and water quality constituent monitoring conducted pursuant to FAHCE in Coyote Creek from Anderson Dam to the intertidal zone.

~~This water quality monitoring data supplements other temperature and water quality constituent monitoring conducted pursuant to FAHCE in Coyote Creek from Anderson dam to the intertidal zone.~~

2.7.2 Sediment Deposition Monitoring

Valley Water prepared a Sediment Deposition Monitoring Plan in Coyote Creek Downstream of Anderson Dam (Valley Water 2020j ~~2020i~~) for the FOCP, which Valley Water would continue to implement through construction of the Project. Sediment deposition monitoring would evaluate available habitat conditions for steelhead (spawning gravel, and monitoring sites for spawning gravel quality, egg incubation, juvenile rearing, and fish migration) using the Habitat Criteria Mapping (HCM) approach (Stillwater Sciences 2021~~a~~) within the Coyote Creek FCWMZ. Sediment deposition monitoring data would be used in conjunction with suspended sediment monitoring data collected under the Sediment Monitoring Plan (Horizon 2022) to assess and confirm anticipated ~~the~~ impacts from sediment released during FOCP and Project construction on spawning habitat quantity and quality and guide the implementation of CMs, including the Maintenance of the Live Oak Restoration Reach, Ogier Ponds, and Sediment Augmentation Program CMs, to offset those effects.

Field approaches to monitor sediment deposition in the FCWMZ would include: (1) monitoring spawning gravel quantity and quality at 31 HCM study sites, and (2) monitoring deposition effects to spawning gravel quality, egg incubation, juvenile rearing, and fish migration at transects (five transects each at three locations in the FCWMZ).

The following field methods that would be conducted at each of the habitat units sites would include use of aerial images of each habitat unit to map suitable spawning and BMI habitat area, assess impacts to spawning gravel quality, conduct surveys during typical spawning flows of around 40 to 100 cfs, and capture photographs at each habitat unit to document spawning gravel and BMI conditions.

In addition to monitoring HCM habitat units, 5 transects within each of 3 locations within the FCWMZ would be monitored annually in the spring. Results would be used to detect effects on spawning gravel quality, egg incubation, juvenile rearing and fish migration to confirm impacts of fine sediments released during and the FOCP drawdown and seismic retrofit activities, and to guide post-construction restoration and implementation of the CMs that offset these effects.

2.7.2.1 Suspended Sediment Monitoring

Valley Water's *Sediment Monitoring Plan* (Horizon 2022) prepared for the FOCP would continue to be implemented throughout construction of the Project. The plan's focus is to continuously monitor suspended sediment discharges from Anderson Reservoir to evaluate the effect of the discharges on Coyote Creek fisheries habitat downstream of the dam. The monitoring data would also be used to help evaluate the effect of the discharges on Coyote Creek baylands habitat downstream of the dam. Continuous turbidity monitoring (15-minute intervals), suspended sediment concentration (daily intervals), and suspended load (daily intervals) would be collected in Coyote Creek, including in the FCWMZ.

~~Valley Water would implement a Sediment Monitoring Plan to continuously monitor suspended sediment discharges from Anderson Reservoir through completion of Project construction activities, and to monitor the effect of the discharges on Coyote Creek downstream of the dam. Continuous turbidity monitoring equipment (15-minute intervals) was installed in the FCWMZ as part of the FOCP. Valley Water would use collected data, in combination with sediment deposition data collected as part of sediment deposition monitoring (described below) to develop a sediment rating curve at several locations on Coyote Creek.~~

Valley Water contracted with United States Geological Survey (USGS) to collect continuous turbidity and suspended sediment monitoring data at four locations:

- **Madrone Gage (USGS 11170000)**: This site is in Morgan Hill downstream of the confluence of the historic northern channel and existing southern channel and is within the primary steelhead rearing habitat within the FCWMZ.
- **Coyote Ranch Road Gage (USGS 11170450):** This site is in Coyote upstream of the Coyote Percolation Pond where Coyote Ranch Road crosses Coyote Creek (wet conditions data).
- **Edenvale Gage (USGS 11171500):** This site is in San Jose in the Edenvale neighborhood, adjacent to Fonick Drive (wet conditions data).
- **Highway 237 Gage (USGS 11172175)**: This site is in Milpitas on the upstream side of Highway 237.

~~Monitoring locations used to collect continuous turbidity data and periodic sediment grab samples include the following:~~

- ~~**Serpentine Trail Pedestrian Bridge**: grab samples for suspended sediment characterization, temporary/baseline turbidity monitoring, conductivity/ total dissolved solids measurements during grab sampling. Samples already collected, on 1/4/21 and 1/27/21 were not measurable due to the relatively dry conditions.~~
- ~~**Valley Water Gage Station #5082**: continuous turbidity probe (15-minute intervals). This site is located downstream of the confluence of the historic northern channel and existing southern channel and of planned ADTP construction areas and is within the primary steelhead rearing habitat within the FCWMZ. Telemetry will be used at this site to provide real-time data.~~
- ~~Downstream end of dam release chute: visual monitoring for accumulation or larger sediment grain sizes.~~

In addition, supplemental turbidity and total suspended sediment concentration data would be collected by Valley Water near the Anderson Outlet during and/or following storm events. This suspended sediment monitoring data would be used together with the data collected under the Sediment Deposition Monitoring Plan to assess and confirm the anticipated the impacts from sediment released during FOCP and Project construction on spawning habitat quantity and quality and guide the implementation of CMs, including the Maintenance of the Live Oak Restoration Reach, Ogier Ponds, and Sediment Augmentation Program CMs, to offset those effects.

2.7.3 Groundwater Monitoring

2.7.3.1 Wetland and Habitat Riparian Dryback Plan

Valley Water's *Wetland and Habitat Riparian Dryback Plan* (Valley Water 2020b ~~2020f~~) and *Groundwater Management Plan* (Valley Water 2021g ~~2023e~~) would continue to be implemented; this includes groundwater monitoring, monitoring of groundwater-dependent habitat types (e.g., riparian and wetland habitat), and monitoring of groundwater recharge from the CDL downstream to Coyote Creek streamflow gauge #5058 ~~(Edenvale gauge, **Figure 3-1**)~~.

2.7.3.2 Groundwater Management Plan

As part of the Groundwater Management Plan, regional groundwater monitoring would provide real-time assessments for how the Project is impacting groundwater recharge and existing water basin sustainability goals, and include programs to monitor groundwater levels, land subsidence, groundwater quality, and surface water. For this effort, Valley Water would use their existing network of water level and water quality monitoring wells, including wells installed by Valley Water, existing wells Valley Water has obtained, and privately-owned wells for which Valley Water has secured monitoring access, and supplemental data collected by water retailers to facilitate a comprehensive understanding of groundwater conditions. Project monitoring activities would comply with Valley Water's existing Groundwater Management Plan, which establishes the agency's monitoring network, provides guidance on frequency, monitoring parameters, monitoring protocols, and sampling methodologies. Groundwater conditions are reported in Valley Water's annual groundwater report and SGMA water year report. Based on the results of the monitoring, Valley Water would seek to adjust the imported water releases and/or pursue water use reduction measures to alleviate or correct any identified deficiencies or negative trends in groundwater storage.

2.7.4 Vegetation Monitoring

2.7.4.1 Phytophthora Pathogen Management and Monitoring

Phytophthora is a taxonomic group of microscopic oomycetes (also known as water molds) that cause plant diseases such as root rots, stem cankers, and fruit and leaf blights. *Phytophthora* is transmitted through the movement of contaminated soil, water, and plant material, although some species are known to be airborne.

Based on the *Phytophthora Pathogen Management Plan* (Valley Water 2020c ~~2020g~~) and *Post-Project Phytophthora Monitoring Plan* (Valley Water 2021d ~~2021h~~), Valley Water would implement plans to prevent, avoid, and/or minimize the spread of *Phytophthora* infestations as a result of construction and Project ~~project~~-related activities. Management and planning would involve the evaluation of site conditions prior to Project construction (i.e., existing contaminated sites), identification of sensitive plant species and communities, identification of Project activities that have the potential to spread *Phytophthora*, and the implementation of Project

~~project~~-specific measures (e.g., hygiene and sanitation, access and movement, vegetation disposal, soil transport, and revegetation) to prevent the spread of *Phytophthora* by the Project.

2.7.4.2 Wetland and Riparian Habitat Dryback Monitoring

Valley Water's Wetland and Riparian Habitat Dryback Monitoring Plan prepared for the FOCP (Valley Water, 2020b ~~2020f~~) would continue to be implemented throughout Project construction. The plan's focus is to monitor and manage groundwater recharge and avoid or minimize dryback conditions and impacts to wetlands and riparian habitats within Coyote Valley due to a reduced flow in Coyote Creek and a reduction in shallow groundwater levels in Coyote Valley during and after FOCP and during Project construction.

The conditions of habitats would be monitored along Coyote Creek and within a portion of Coyote Valley to determine if there is a reduction in the surface area of wetlands and/or riparian habitats due to Project construction-related dryback. Aerial imagery, site visits, and photo documentation would be utilized to collect baseline (post-FOCP), interim, and after Project completion vegetation information. If early signs of dryback are observed during monitoring, Valley Water would determine whether different management of imported water releases during the construction and reservoir drawdown period could be used to reduce the impacts (i.e., increasing release rates of imported water).

2.7.4.3 Milkweed Monitoring

Valley Water would continue to implement the Milkweed *Survey* ~~Monitoring~~ Plan that was developed for the FOCP (Valley Water, 2020d) through the completion of Project construction, or until the monarch butterfly is added to the VHP as a covered species. Milkweed are known to be present at scatter locations along Coyote Creek downstream from Anderson Dam. Valley Water would conduct surveys for milkweed prior to the start of any ground disturbance or vegetation removal activities. A qualified biologist would survey the footprint of all potential impact areas, plus a 25-foot buffer around each impact area, for milkweed plants. If any milkweed is found, it would be avoided, if feasible. If avoidance is infeasible, the milkweed would be inspected for monarch eggs or larvae, and if any of these are found, Valley Water would consult with USFWS to discuss recommendations and approach to minimize impacts. If and when the monarch butterfly is added to the VHP as a covered species, as proposed in an amendment currently being prepared, Valley Water's compliance with all monarch-related VHP conditions would supersede continued implementation of the *Milkweed Survey Plan*.

2.7.5 Fisheries Monitoring

Fisheries monitoring identified for the Project is described in the following sections.

~~Fisheries monitoring identified for the FOCP, including the *Water Temperature and Fisheries Monitoring Plan* (Valley Water 2020e) will be implemented until completion of Project construction. Similarly, fisheries monitoring described in the *Fish Rescue and Relocation Plan* (Valley Water, 2020c), and *the Fyke Trapping and Passive Integrative Transponder (PIT) Tag Monitoring Plan* (Valley Water 2021c).~~

2.7.5.1 Migration Flow Monitoring

Flows within the FCWMZ will be monitored for potential migration flows through Project completion. Following dewatering in October 2020, Anderson Reservoir can no longer be managed for storage. Without Anderson Reservoir storage, natural precipitation events are the primary source for migration flows within the FCWMZ, and they are anticipated to be sufficient to support migration of *O. mykiss* downstream and out of the FCWMZ.

2.7.5.2 Juvenile Rearing Studies

Based on the success of previous *O. mykiss* sampling efforts in the Coyote Creek Watershed, multi-pass depletion backpack electrofishing would be implemented. Juvenile rearing sampling would occur in the early summer and fall of each year as defined by Valley Water's Section 10(a)1(A) recovery permit (between June 15 and November 30) between Anderson Dam outlet and Ogier Ponds. Data collection in the fall would allow temperature requirements associated with the permit to be met and would provide information on whether summer rearing occurred based on presence of *O. mykiss*. It would also help reveal if successful reproduction occurred if young-of-the-year sized fish are present. Sampling in early summer (after June 15) would allow for better estimates of juvenile production, growth, and survival during the summer months if temperature conditions allow for sampling (Valley Water 2023a ~~2023b~~).

2.7.5.3 Migration Study

During the juvenile rearing monitoring, Juvenile *O. mykiss* would be tagged with PIT tags if they have not already been tagged. Valley Water can currently tag up to 100 individuals within Coyote Creek in accordance with the Section 10(a)1(A) recovery permit. PIT tag numbers and associated biological data for all recaptures and fish tagged by Valley Water in Santa Clara County would be recorded and kept in an online database at Valley Water. All PIT tagging would be conducted in accordance with the PIT Tag *Marking Procedures Manual* (Columbia Basin Fish and Wildlife Authority [CBFWA] 2014 ~~1999~~) by staff trained in the procedure. Stationary antennas located throughout Coyote Creek would allow for movement to be tracked to develop a better understanding of migration timing and the proportion of the population that is out-migrating.

2.7.5.4 Growth Comparative Study

This juvenile rearing monitoring will allow Valley Water to compare fish lengths and change in length distribution for juvenile steelhead across years. Length distribution within cohorts will be compared to pre-FOCP data using an appropriate statistical test to determine changes in size distribution since the initiation of the FOCP. The analysis of relative growth will indicate the percent increase in fish size between sampling efforts, standardized for time at large (Stillwater Sciences, 2007).

2.7.5.5 Environmental DNA Monitoring

Environmental DNA (eDNA) monitoring is described in both the *Fish Rescue and Relocation Plan* (Valley Water 2020e ~~2020c~~) and the *Water Temperature and Fisheries Monitoring Plan* (Valley Water 2020i ~~2020e~~). To increase the probability of detection and limit the handling of threatened CCC steelhead, eDNA sampling would be conducted through construction of the Project to monitor for the presence of *O. mykiss* in the FCWMZ.

Water samples would be collected from eight spatially distributed locations throughout the FCWMZ, as well as from Upper Penitencia Creek and Anderson Reservoir to serve as positive controls for eDNA detection. Samples would be collected every 2 weeks from May through September, when temperature conditions may be nearing stressful levels for *O. mykiss* in the FCWMZ.

~~2.7.5.6 Fyke Trap Monitoring~~

~~When conditions allow, a fyke trap would be installed downstream of the Anderson Reservoir outlet to sample fish passing through the release location and intercept non-native fish. In 2021, the *Fyke Trapping and PIT Monitoring Plan* implementation began as part FOCP as ordered by FERC, and the fyke trapping at the outlet of the reservoir was extended (Valley Water 2021c). A fyke net is a fish trap consisting of cylindrical or cone-shaped netting bags mounted on rings or other rigid structures. The fyke net would be located within a suitable location downstream of the South Channel canal where the net would be able to capture the flow from the Anderson outlet. The fyke net would be constructed from quarter-inch mesh and fixed on the bottom by anchors, ballasts, or stakes. The trap is susceptible to being rendered inoperable due to high flows and debris clogging the wings and trap.~~

~~The trap would be operated up to 5 days per week and checked at least daily. All terrestrial and amphibian species captured would be returned to Coyote Creek downstream of the fyke. All captured fish would be held in aerated containers or the trap prior to being identified, enumerated, and measured prior to release. All resident *O. mykiss* and other native species would be released in the main body of Anderson Reservoir. Permits were obtained in 2022 to dispatch non-native amphibian and reptile species (American bullfrog [*Lithobates catesbeianus*] and red-eared sliders [*Trachemys scripta*]) as well as non-native predatory fish.~~

2.7.5.6 VAKI Riverwatcher Adult Escapement Monitoring

VAKI adult escapement monitoring, to evaluate the escapement of adult steelhead into the CWMZ of Coyote Creek, is described in the *Water Temperature and Fisheries Monitoring Plan* (Valley Water 2020i ~~2020e~~). This monitoring would be conducted until the Project is completed to help determine if adult steelhead effectively migrate through the lower reaches of Coyote Creek and are potentially spawning within the FCWMZ. This would help determine if fish are using the reach and would inform fish rescue planning.

VAKI is a computer-based fish counter. The VAKI system is designed to track adult migratory fish (greater than 1.6 inches body depth) with a clear migratory path (i.e., anadromous fish). The system does not provide the ability to estimate the number of fish using the habitat that the system is installed in, nor does it track juvenile movement patterns. It employs scanner plates and a digital camera to capture videos and silhouette images of fish as they pass between the plates. The speed, direction, body depth, date and time are all captured for each event.

The VAKI unit on Coyote Creek would be installed at the Coyote Percolation Dam facility within the fish ladder. The percolation dam fish ladder is located approximately 31 miles upstream of the South San Francisco Bay on Coyote Creek between Metcalf Road and US 101, just downstream of Coyote Percolation Ponds. Video images and silhouettes would be used to identify fish to species when possible. Detailed methods are included in the *Water Temperature and Fisheries Monitoring Plan* (Valley Water 2020i ~~2020e~~).

2.7.5.7 Fish Rescue and Relocation

If monitoring of water temperature and DO indicates that conditions for rearing steelhead would become unsuitable within the Coyote Creek FCWMZ as a result of construction activities, a steelhead rescue and relocation effort would be conducted per the *Fish Rescue and Relocation Plan* prepared by Valley Water in consultation with, and approved by, NMFS, USFWS, and CDFW (Valley Water 2020e ~~2020c~~). Capture methods would include backpack electrofishing and seine nets. All *O. mykiss* captured during Coyote Creek rescue and relocation efforts would be relocated to appropriate locations elsewhere in the watershed in consultation with NMFS, USFWS, and CDFW, such as Lower Coyote Creek near the confluence of Upper Penitencia Creek or Upper Penitencia Creek within Alum Rock Park.

Backpack electrofishing would be used to capture fish during rescue efforts. Battery operated backpack electrofishers would be used at all sites with a minimum of two netters per electrofisher. Prior to each electrofishing session, stream conductivity and temperature measurements would be taken and the electrofisher unit settings would be adjusted accordingly to minimize damage or mortality to fish encountered. Stunned fish would be placed in an aerated holding tank and be allowed to recover from electrofishing effects. Electrofishing would be conducted in an upstream manner at each site. Seine netting may be used to capture fish where electrofishing is not feasible. Nets up to 30 feet in length with quarter-inch delta mesh would be used. Rescue efforts would be conducted early in the day as feasible to reduce exposure to high water temperatures and would occur when temperatures are less than 21°C.

In addition to the *Fish Rescue and Relocation Plan* for Seismic Retrofit construction, other localized dewatering activities occurring in wetted habitats would require that the construction contractor prepare and submit a separate detailed dewatering and aquatic species rescue and relocation plan for review and approval by NMFS and CDFW 30 calendar days prior to initiation of activities associated with localized dewatering in Coyote Creek (e.g., prior to placement of a cofferdam, dike, stream bypass, dewatering pump). Details of the measures required to protect native aquatic species and dispatch non-native aquatic species during the localized dewatering occurrences would depend on the approach taken by the construction contractor to manage water at these locations, but would generally incorporate relevant elements of the requirements for aquatic species relocation and dewatering activities included in the NMFS (2016) Programmatic Biological Opinion for restoration projects in the National Oceanic and Atmospheric Administration (NOAA) Restoration Center’s Central Coast region.

2.7.5.8 Spawning Surveys

The purpose of the spawning surveys is to evaluate adult steelhead spawning distribution in the CWMZ of Coyote Creek. This monitoring would help determine if adult steelhead successfully constructed salmonids egg deposits (redds) and provide insight on the location of spawning activity. Spawning surveys would also inform fish rescue planning and if there is need for additional information studies.

Spawning surveys would be performed from December to April, if adult steelhead (greater than 13.8 inches) are detected at the VAKI and stream conditions allow for surveys to be performed (adequate visibility and wadable flow conditions). If outages occur, conditions reduce data quality, or if the quantity of data collected by the VAKI cannot be reviewed in 1 week, spawning surveys would be implemented, within a week of identifying the issue. Surveys would also be conducted monthly from January to April in each year of the FOCP if connectivity to San Francisco Bay occurs. Surveys would be conducted from downstream to upstream, covering spawnable reaches between Metcalf Road and Anderson Dam. Spawning surveys would be conducted downstream of the Coyote Percolation Dam fish ladder if repeat detections of up and downstream movement on the VAKI occurs, appearing to be the result of impassability (Valley Water 2021e ~~2021c~~).

2.7.6 Reptile Monitoring

2.7.6.1 Western Pond Turtle Monitoring

A *Western Pond Turtle*[19] *Monitoring Plan* (Valley Water, 2020f ~~2020h~~) was prepared for the FOCP. Similar monitoring efforts, defined through consultation with CDFW, USFWS, and the SCVHA, would continue through Project construction. In coordination with these agencies, Valley Water would continue to implement western pond turtle (*Emys marmorata pallida*) monitoring efforts in suitable habitat in the FCWMZ. The purpose of the monitoring would be to determine if a significant reduction in western pond turtle populations has occurred from Project construction. Monitoring efforts would include surveys and reporting for western pond turtle in Coyote Creek. Surveys would be conducted on sunny days from mid-morning to late afternoon to standardize conditions among surveys.

2.7.6.2 Invasive Species Monitoring

Valley Water prepared an *Invasive Species Monitoring and Control Plan* (Valley Water 2020g ~~2020k~~) for the FOCP that would continue to be implemented through construction of the Project. The species targeted by the plan include non-native fish, crayfish (*Cambaridae*), American bullfrog (*Lithobates catesbeianus*), and red-eared sliders (*Trachemys scripta*), as well as opportunistic removal of other non-native species. The non-native fish species that pose the most significant risk to native fish and wildlife are the predatory largemouth bass (*Micropterus salmoides*), spotted bass (*Micropterus punctulatus*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*), crappie (*Poxomis* spp.) and catfish (*Ictalurus* and *Ameiurus* spp.) species. Because these target species are widespread and the Project Area is not a closed system, complete eradication or control is not anticipated.

Proposed control methods would include the following:

- Decontamination protocols to prevent the spread of chytrid (Bd), ranavirus, other pathogens, and non-native invasive species
- Measures to capture and dispatch non-native aquatic species would include humane euthanasia and removal of carcasses. Methods may include multi-pass depletion electrofishing, seine nets, dipnets, and hand capture

[19] On October 3, 2023, USFWS proposed to list this species as threatened and adopt an ESA section 4(d) rule to prohibit its take. Pursuant to the proposed rule, this species is now referred to in Northern California as the Northwestern Pond Turtle. See proposed rule at https://www.regulations.gov/document/FWS-R8-ES-2023-0092-16388.

- Any non-native species incidentally collected during fisheries monitoring efforts for the Project would be humanely euthanized and carcasses disposed
- Preventative controls at various locations may include signage discouraging release of unwanted pets.

2.7.7 Terrestrial Animal Monitoring

Valley Water would continue to conduct surveys for several terrestrial animal species that occur during the FOCP. Annual surveys for nesting bald and golden eagles, which include ground-based and helicopter surveys within 1 mile of all Project areas at Anderson Dam, 1 mile of the Anderson Reservoir shoreline, and 2 miles of blasting areas at Basalt Hill, would be conducted throughout Seismic Retrofit construction during the eagle breeding season. Annual surveys for pallid bats roosting in the Cochrane Road barn, which include a survey on a warm June evening to count the number of adult females exiting the maternity roost, would continue to be conducted throughout Seismic Retrofit construction. During the FOCP, Valley Water is implementing the CDFW-approved FOCP Crotch's Bumble Bee Avoidance Plan (Valley Water 2024), which includes measures to survey for Crotch's bumble bees and their nests, avoid active nests and individuals if they are detected, and minimize impacts on the species' floral resources. Valley Water would continue to implement this Plan during Project construction, as long as the species is legally protected or unless and until the Crotch's bumble bee is added to the VHP as a covered species. If and when the Crotch's bumble bee is added to the VHP as a covered species, as proposed in an amendment currently being prepared, Valley Water's compliance with all VHP conditions related to this species would supersede continued implementation of the Crotch's Bumble Bee Avoidance Plan.

2.8 Post-Construction Anderson Dam Facilities Operations and Maintenance

Following the completion of Seismic Retrofit components, post-construction operations of Anderson Reservoir would begin. Anderson Reservoir would be restored to its existing (unrestricted) capacity and allowed to withstand a normal operational range of water levels in the reservoir. Storage of water would resume, and water releases to Coyote Creek would resume from the reservoir using water originating from rainfall in the watershed, inflows from the Coyote Reservoir upstream of Anderson Reservoir (which would continue to be operated as it was prior to the issuance of the FERC Order), and imported water from the U.S. Bureau of Reclamation's San Felipe Division of the CVP (either delivered into Anderson Reservoir and released from there, or released from the Coyote Discharge Line directly to Coyote Creek). Operations and maintenance activities associated with the Project would not result in growth inducing impacts as all activities would be performed by existing Valley Water staff, County Parks, and/or other entities.

The following sections describe how the Anderson Reservoir would be operated following the new operational flexibility afforded by the seismic retrofit improvements and Valley Water's implementation of the FAHCE rule curves.

2.8.1 Reservoir Refilling and Inflow

During Year 6 of Project construction, with the approval of applicable dam safety regulatory agencies, the reservoir would be allowed to start filling to an unrestricted maximum of crest level (elev. 627.8 feet) to prepare for post-construction operations. Inflow into Anderson Reservoir would come from three sources:

(1) Uncontrolled natural inflow from the tributaries surrounding Anderson Reservoir (such as Packwood Creek and Las Animas Creek), excluding flows from Coyote Reservoir

(2) Flows from Coyote Reservoir (controlled releases pursuant to normal baseline operations from the dam outlet and uncontrolled flow when the Coyote Reservoir is spilling)

(3) Depending on availability, imported water that could be transferred into Anderson Reservoir via the Cross Valley Pipeline and Anderson Force Main through the conveyance pipeline within the LLOW

Natural inflows into Anderson Reservoir vary greatly, depending on weather and rainfall patterns. In normal water years, monthly uncontrolled natural inflow to Anderson Reservoir ranges from 8 AF in the late summer (September) to 2,489 AF in the winter (February). In wet water years, monthly natural inflow ranges from 129 AF in the late summer to 11,070 AF in the winter. In dry water years, monthly inflow ranges from 0 AF in the early fall to 215 AF in the early spring (April).

Inflows to Anderson Reservoir from Coyote Reservoir also vary, depending on water losses from the reach of the creek that spans the two reservoirs. The losses consist mainly of evapotranspiration, which average a reduction in 1-2 cfs of inflow depending on the season.[20]

Restoring reservoir operations would depend on how quickly the reservoir can refill. This may occur in a single wet season depending on watershed inflows. Once the reservoir is refilled to operable levels, FAHCE operational rule curves would be implemented, as described in Section 2.8.3.

After the constructed dam is deemed safe and the reservoir has filled, the reservoir surface area would be approximately 1,250 acres at the spillway crest level (El. 627.8 feet), with a maximum storage capacity of approximately 88,800 AF.

2.8.2 Reservoir Outflow

Following completion of the seismic retrofit construction, outflows from Anderson Reservoir would occur in four ways: (1) normal releases, up to 170 cfs to Coyote Creek via the 33-inch bypass pipeline (part of the LLOW); (2) releases up to 1,315 cfs to Coyote Creek through the 78-inch ~~through the 78-inch~~ conveyance pipeline (also part of the LLOW, and is the pipeline that facilitates bi-directional transfers of water between Anderson Reservoir the raw water

[20] Evapotranspiration is the process by which water is transferred from the land to the atmosphere by evaporation from the soil and other surfaces and by transpiration from plants. Evaporation in Anderson Reservoir depends on the fluctuations in water temperature, whether it is a dry, median or wet year, and other factors including wind speed, water surface area, and ambient air temperature. Anderson Reservoir evaporation occurs at an average rate of approximately 3.3 inches per month. Transpiration by plants is considered minor relative to evaporation.

distribution system); (3) releases up to 5,300 cfs from the HLOW; and (4) uncontrolled releases from the spillway. These four methods of outflow are summarized in **Table 2-17** ~~Table 2-18~~.

Releases to Coyote Creek during normal dry season operations of Anderson Reservoir would range from 2 to 90 cfs through the bypass pipeline, which would flow to the South Channel of Coyote Creek. During normal wet season operations, the LLOW could release up to 1,485 cfs when the reservoir is full in order to follow the 1982 flood risk reduction rule curve (see Section 2.8.3 for a description of the Post-Construction Operational Rule Curves). During higher releases, flows may be split between the North and South Channels due to a system of weirs that were installed as a part of the ADTP to avoid erosive flows in the South Channel. When flows exceed approximately 230 cfs, the north weir would be overtopped and the North Channel would be activated; the two channels would converge approximately 1,000 feet downstream where the capacity of the Coyote Creek channel is increased.[21]

The HLOW would not be operated during normal operating conditions. Instead, it would be used in the event of an emergency to make controlled emergency releases up to 5,300 cfs.[22] In an event when an emergency drawdown is warranted, as directed by DSOD, the LLOW and/or the HLOW could be used to rapidly draw down the reservoir.[23] During wet years, the reservoir may fill faster than the LLOW can release water, causing the reservoir to overtop the spillway and result in uncontrolled releases to Coyote Creek. Historically, Anderson Reservoir fills and spills about every 10 years, which has resulted in releases of approximately 7,400 cfs. Reservoir spills are expected to occur less frequently after completion of the Project; however, uncontrolled releases from the spillway would likely continue in wet years, approximately every 20-25 years.

[21] After the dam was built in 1950, the South Channel was created to connect the Anderson Dam outlet system to Coyote Creek and the previous creek alignment (now referred to as the North Channel) was diked. The South Channel capacity was shaped by releases from the dam (historically did not exceed approximately 450 cfs), while the channel downstream of the North and South Channel confluence was influenced by the periodic spillway releases which created a higher capacity channel.

[22] An emergency is a condition that presents a risk to public safety.

[23] DSOD guidelines require these outlets to be sized to lower the top 10 percent of the reservoir within 7 days, which requires average releases of 1,660 cfs. Over a 7-day period, the average LLOW releases are estimated to be 1,100 cfs and the HLOW would be used to supplement LLOW releases to reach the drawdown target within 7 days, which would require in an additional 560 cfs being released from the HLOW for the same 7-day period.

Table 2-17~~2-18~~. Summary of Post-Construction Outflows from Anderson Reservoir

Project Component	Operation Summary
LLOW – Conveyance Pipeline	78-inch outlet pipe with its own 3 intake ports at different elevations approximately elevations 488 ~~490~~ ft., 528 ft, and elev. 563 ft); screened to prevent fish from passing downstream. 54-inch fixed cone valve flows that range from up to 1,130 cfs, ~~and~~ a 42-inch sleeve valve with a flow range of 2 to 540 cfs, and a 30-inch bypass sleeve valve with a flow range of 2 to 170 cfs. With inputs from the bypass pipeline and with a full reservoir, in total the LLOW could release up 1,485 cfs (reflects system design and does not equal the sum of individual valve capacities) Releases may be made to: (i) Coyote Creek, (ii) the Raw Water Distribution System via the Anderson Force Main, and/or (iii) the Main Avenue Pipeline Imported water can be transferred to/from Anderson Reservoir via the Anderson Force Main
LLOW- Bypass Pipeline	Sloping 33-inch outlet pipe with its own 3 intake ports (as described above) 30-inch sleeve valve with flow range of 2 to 170 cfs Releases to Coyote Creek only Can be operated independently of the LLOW conveyance pipeline, which allows flows to move to/from the Raw Water Distribution System while maintaining environmental releases to Coyote Creek
HLOW	13-foot concrete pipe with independent intake port at elev. 528 feet Empty during normal operations Releases only in the event of an emergency, with a maximum discharge of 5,300 cfs 24-inch sleeve valve with maximum discharge of 250 cfs; recommend 60 cfs (20 fps through valve) Releases to Coyote Creek only
Spillway	Uncontrolled releases occur over the spillway when the reservoir is spilling at elev. 627 feet. Designed to pass extreme events, including the PMF

Source: Valley Water 2023b ~~2023a~~

Key: cfs = cubic feet per second; elev. = elevation; HLOW = high-level outlet works; LLOW = low-level outlet works; PMF = probable maximum flood

2.8.3 Post-Construction Operational Rule Curves

Post-construction Anderson Reservoir operations would be governed by the FAHCE *Settlement Agreement* rule curves[24] and the Delta Reform Act of 2009 limiting use of Delta imported water supplies primarily to enhance instream habitats in other regions. Operations pursuant to the FAHCE rule curves achieve specific criteria or purposes (e.g., groundwater recharge, incidental beneficial impacts for fisheries populations, sufficient water supply, incidental flood control management).

The FAHCE rule curves are intended to provide suitable spawning and rearing habitat within the Coyote Creek Watershed, providing adequate passage for adult steelhead and salmon to reach suitable spawning and rearing habitat, and for the out-migration of juveniles. The FAHCE rule curves would add operational criteria that benefit steelhead and salmon populations by providing winter base flows, pulse flows, and summer releases to support each steelhead life stage, as well as by providing a framework for ramping pulse flows and reservoir operations under low-flow conditions. The implementation of FAHCE rule curves would differ under dry-year, median-year, and wet-year conditions. These water year types correspond to 90 percent exceedance probability (EP) (dry year), 50 percent EP (median year), and 10 percent EP (wet year), respectively.

These rates were calculated so that the minimum release rates for each type of release could be met in 90 percent of historic water year conditions. That is, the calculations used to determine the rule curves relied upon a reservoir storage volume that was documented to occur in 90 percent of all water years on record for Anderson Reservoir and Coyote Reservoir, so minimum release rates based on those storage volumes would occur in 90 percent of historic water year conditions [25]. At least 30 years of historic data were used in the hydrologic modeling to develop the EPs. This does not mean that flow management is guaranteed in 90 percent of all years; rather, the rule curves were developed to meet flow-based obligations consistent with 90 percent of all water years in the current dataset. Rule curves are shown in **Figure 2-13 and Figure 2-14**; post-construction releases are summarized in **Table 2-18** ~~Table 2-19~~ below. Imported water that is moved into Anderson Reservoir would not contribute to the combined storage calculations.

[24] A *rule curve* is a tool used to guide reservoir operations by prescribing releases from a dam based on storage levels. A rule curve indicates the minimum water level requirement in the reservoir at a specific time to meet the needs for which the reservoir is designed.

[25] The FAHCE Rule Curves rely on the combined storage of Anderson and Coyote Reservoirs. These two reservoirs must contain a minimum of 20,000 AF for emergency storage and a maximum of 113,597 AF. Coyote Reservoir has a storage capacity of approximately 22,541 AF, but is under a ~~permanent seismic~~ restriction by DSOD which limits its storage to approximately 11,843 AF.

Table 2-18 ~~2-19~~. Summary of Anderson Reservoir Operations Under FAHCE Rule Curves

Flow Release	Time Period	Summary Description
Winter base flows	November 1 – April 30	Releases intended to improve winter and springtime habitat for salmonids, maintain groundwater recharge, meet minimum bypass flow requirements, and provide incidental flood risk reduction. Release rate will depend on storage levels as shown in **Table 2-23**, with the required minimum combined storage of Anderson and Coyote Reservoirs ranges from 20,866 acre feet (November 1) to 22, 763 acre feet (May 1), which would initiate a 5 cfs base flow (as measured at Stream Gage 5082, Coyote Creek at Madrone). The maximum winter base flow release rate of at least 26 cfs would be initiated when combined storage totals 31,050 acre feet (November 1 through May 1).
Spring pulse flows	February 1 – April 30	Pulse flows to improve passage conditions for migrating steelhead and Chinook salmon. Only made when the combined storage of Anderson and Coyote Reservoirs exceed 80,000 AF and it is safe to do so, releases of 50 cfs for a period of 5 consecutive days (as measured at Stream Gage 5082, Coyote Creek at Madrone) would be carried out twice during the time period.
Summer base flows	May 1 – October 31	Releases intended to enhance summer rearing conditions for steelhead, with the target of maintaining a daily average temperature of 64.4°F (18°C) in as much of the CWMZ as possible.
Flow ramping	Year round	Decreases in releases done in a gradual manner to minimize impacts on aquatic species; this would include lowering release rates so that water flows recede in a slow, stepwise fashion to provide time for fish and other aquatic species to adapt and avoid stranding.

Sources: Valley Water 2023a ~~2023b~~, 2023c

Key: °C = degrees Celsius; °F = degrees Fahrenheit; AF = acre-feet; cfs = cubic feet per second; CWMZ = cold water management zone

2.8.3.1 Proposed Winter Releases

Winter base flows are releases made between November 1 and April 30 to manage aquifer recharge while improving winter and springtime habitat for salmonids and providing flood risk reduction, and protecting cold water storage for the summer release program. The winter base flow releases are determined from the combined storage of Anderson and Coyote Reservoirs.

These releases may be made from Anderson Reservoir (typically from the Bypass Pipeline of the LLOW) or the CDL (which releases imported water via the Cross Valley Pipeline and SCC to Coyote Creek), or some combination provided the total required release is made. The temperature of both Anderson Reservoir releases and imported water releases is typically 57.2°F (14°C) or less during the period of November 1 through April 30; imported water releases to Coyote Creek would not be made if doing so would cause the temperature of blended sources to exceed 57.2°F (14°C) at the CDL release point. Winter base flows would be managed according to rule curves displayed in **Figure 2-13** and described in **Table 2-19** ~~**Table 2-20**~~. For these releases (and all releases discussed below), any use of imported water to meet an operational commitment in lieu of local supply from Anderson Reservoir would result in the reclassification of an equivalent volume of local water in Anderson Reservoir from local water to imported water for the purpose of applying the Reservoir Reoperation Rule Curves.

Figure 2-13. Anderson-Coyote Reservoirs Combined Storage Rule Curves: FAHCE Winter Base Flows

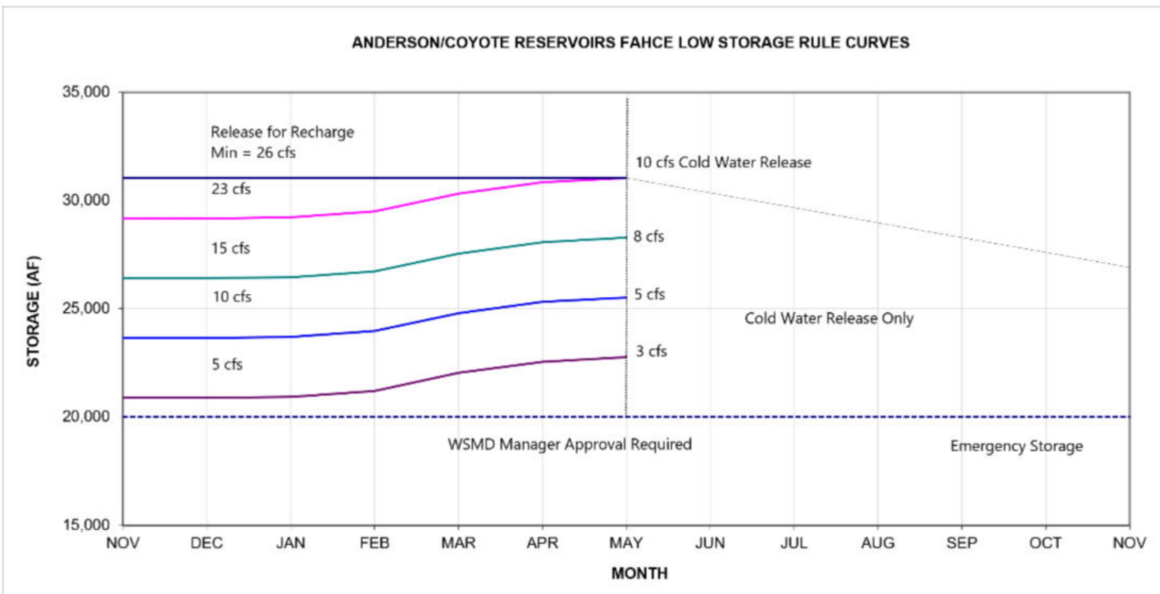


Table 2-19~~2-20~~. Combined Anderson Reservoir and Coyote Reservoir Storage Thresholds (AF) for Winter Base Flow Releases (CFS) Under FAHCE Rule Curves

Begin Month Combined Storage (AF)	Min. Base Flow Release 26 cfs	Min. Base Flow Release 23 cfs	Min. Base Flow Release 15 cfs	Min. Base Flow Release 10 cfs	Min. Base Flow Release 5 cfs
November 1	31,050	29,173	26,411	23,648	20,886
December 1	31,050	29,173	26,411	23,648	20,886
January 1	31,050	29,216	26,454	23,691	20,929
February 1	31,050	29,495	26,733	23,970	21,208
March 1	31,050	30,316	27,554	24,791	22,029
April 1	31,050	30,842	28,080	25,317	22,555
May 1	31,050	31,050	28,288	25,525	22,763

As shown in **Figure 2-13** and **Table 2-19**, proposed winter flow releases would not be initiated until there is adequate storage above a given curve to allow for five days of consecutive releases at that release rate. The maximum flow release rule curve criterion for Anderson Reservoir is 23 cfs. However, if the storage is above the highest winter base rule curve, then 26 cfs or the flow rate that is required for aquifer recharge will be released[26]. As reservoir storage decreases, or if storage never reaches the maximum reoperation rule curve, a reduced winter base flow would be released as described in **Figure 2-13** and **Table 2-19**. In dry water years, where adequate storage above even the minimum rule curve does not allow for 5 days of consecutive releases, winter base flow releases may not occur. In addition to following FAHCE Rule Curves, Valley Water's releases must also meet the minimum bypass flow releases that are required by LSAAs at all instream diversions below Anderson Dam to maintain a wetted channel downstream of facilities when water is being diverted. The specific flow rate would depend on reservoir storage and where storage volume falls within the range of the graduated curves.

Incidental flood risk reduction releases may also contribute to winter base flows by releasing up to 1,485 cfs through the LLOW. The incidental flood risk reduction releases are releases that under Pre-FERC Order conditions would have likely been lost through an uncontrolled spill event. After completion of the Project, reservoir storage will be increased and the LLOW would be capable of releasing larger volumes of water, enabling Valley Water more flexibility to make incidental flood risk reduction releases, and the recurrence of spillway events is likely to decrease.

2.8.3.2 Proposed Spring Pulse Flow Releases

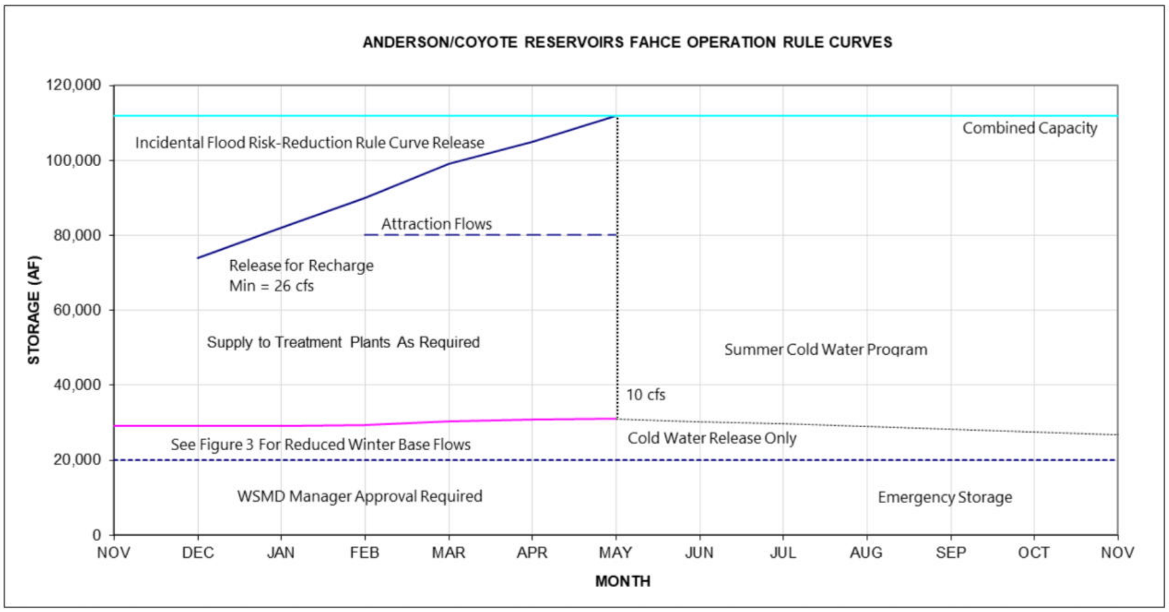
When reservoir storage allows, Valley Water would implement up to 2 pulse flows between December 1 and April 1 (inclusive) to improve passage conditions for migrating salmonids. When the combined reservoir storage of Anderson and Coyote exceeds 80,000 AF, up to two

[26] Recharge releases are generally determined by achieving 2.5 cfs of streamflow at station 5058, Coyote Creek at Edenvale.

pulse flow events would be triggered (**Figure 2-14**). Pulse flows are reservoir releases of 50 cfs for a period of 5 consecutive days made between February 1 and April 30, as measured at Stream Gage 5082 (Coyote Creek at Madrone). These flows are intended to enhance upstream passage for adult steelhead, by providing attraction flows and improving passage conditions. These events would also benefit out-migrating juvenile steelhead and Chinook salmon by flushing them downstream from the upper watershed, aiding them in their migration to San Francisco Bay, and ultimately, to the ocean.

Reservoir storage levels that would trigger spring pulse flows are probable in average to wet water years, or about 50 percent of the time. Anderson Reservoir would be operated in this manner until there have been two periods of 5 consecutive days of flows greater than 50 cfs in the current water year. Flood flow releases and spill events in excess of 50 cfs for 5 consecutive days between February 1 and April 30 would also be considered pulse flow events.

Figure 2-14. Anderson-Coyote Combined Reservoirs Operation Rule Curves: FAHCE Pulse Flows



2.8.3.3 Proposed Summer Cold Water Flow Releases

Summer flow releases from Anderson Reservoir would be made between May 1 and October 31 at a rate sufficient to maintain a continuous flow of water with a temperature not to exceed a daily average of 18°C ~~or less~~ in the FCWMZ and a minimum flow of 1 cfs at the downstream end of the FCWMZ. When the Ogier Pond CM been completed, Valley Water will shift the temperature and flow objectives to maintain a continuous flow of water with a temperature not to exceed a daily average of 18° C~~or less~~ and a minimum flow of 1 cfs at the downstream end of as much of the entire CWMZ as feasible based on available cold water storage. If there is not sufficient storage to satisfy this condition, the daily release rate will be equal to the total available cold water storage less estimated evaporation divided by 184 days (i.e. the time period from May 1 through October 31). Reservoir storage in excess of the minimum recharge curve may be released to Coyote Creek or sent to the Raw Water Distribution System.

In dry or very dry years, imported water may be used to supplement Anderson reservoir releases for groundwater recharge, and incidentally to provide summer rearing habitat benefits. If ~~if~~ imported water is released for cold water management, then releases of imported water, together with any concurrent releases of Anderson Reservoir, shall not exceed 57.2°F (14°C). As noted above, any use of imported water in lieu of local supply from Anderson Reservoir would result in the reclassification of an equivalent volume of local water in Anderson Reservoir from local water to imported water for the purpose of applying the Reservoir Reoperation Rule Curves.

Below Anderson Dam, Valley Water would maintain Coyote Creek FCWMZ, and, after completion of the Ogier Ponds CM, the CWMZ to provide over-summer refugia for rearing steelhead based on available cold water in Anderson Reservoir. The extent of the CWMZ may vary by year, depending on Anderson Reservoir storage volume and local precipitation and inflows. Between April 15 and April 30 of each year, Valley Water would perform a thermal profile survey of Anderson Reservoir to determine the volume of the hypolimnion that is at or below 57.2°F (14°C) using ~~). Based on this information, Valley Water would determine~~ the depth to cold water and a rating curve to calculate the size of the cold water pool in AF. The ~~appropriate~~ reservoir release rate from May 1 ~~rates to maximize the extent of the CWMZ~~ through October 31 would be equal to or less than the total available cold water storage in AF, less the estimated evaporation divided by 184 days.[27] If required, additional reservoir temperature profiles may be made monthly from June through October to aid in determining cold water releases. Additional imported water may be introduced to Anderson Reservoir at any time, so long as the water is introduced in a manner that does not jeopardize the volume of the hypolimnion that is at or below 57.2°F (14°C).

2.8.3.4 Proposed Flow Ramping

Flow ramping is used to manage changes in flow volumes of each type of release (winter base flow, pulse flow, and summer cold water program release) to minimize impacts on aquatic species. Flow ramping manages changes in the rate of water flow in a slow, stepwise fashion, helping fish and other aquatic life to avoid stranding. Ramping would occur whenever Valley Water-controlled flows would be ~~increased or~~ decreased by 50 percent or more from the existing flow condition.

Flows that are under Valley Water control would be reduced in specified increments over a specific period of time, in accordance with the discharge rating curves that would be used to determine ramping schedules. Ramping would be applied to reservoir releases, pulse flow releases, and controlled releases from pipelines and diversion dams. Flow ramping applies only to flows within Valley Water control; inflow to the stream from uncontrolled events such as natural runoff or reservoir spillway flows is not subject to the ramping provisions.

When ramping is needed, Valley Water would implement protocols to ramp reservoir releases, depending on whether the original flow is more or less than 50 cfs.

[27] Typically, Anderson Reservoir releases allowed for by the available cold water pool are managed to maintain the temperature in the Coyote Creek FCWMZ ~~is maintained~~ such that the daily average temperature does not exceed 18°C. Water temperatures may also be augmented with releases from the CVP or SCC, as necessary, Coyote Discharge Line. Imported releases (together with any concurrent Anderson Reservoir releases) made between May 1 through October 31 shall not exceed 14°C at the CDL Outlet.

2.8.4 Imported Water Storage and Releases

As noted above, Anderson Reservoir operations would allow for the storage of imported water from the SCC, the Cross Valley Pipeline and/or San Luis Reservoir in Anderson Reservoir, if available, in late winter and spring, while temperatures of imported water is still relatively cold and so long as water can be released to the reservoir without jeopardizing the maintenance of the reservoir cold pool storge. This would enable Anderson Reservoir to increase in depth, thereby increasing the cold-water volume in the reservoir. In addition, imported water may be released into Anderson Reservoir at other times of the year, if necessary, to avoid losing Valley Water supplies stored in San Luis Reservoir, or in anticipation of a planned shutdown in the conveyance system from San Luis Reservoir to Santa Clara County, or to otherwise preserve the cold water pool and/or summer releases, so long as water is introduced into the reservoir in a manner that does not jeopardize the volume of the hypolimnion that is at or below 57.2°F (14°C).[28]

Santa Clara Conduit and Cross Valley Pipeline releases to Coyote Creek (via the CDL) may be made anytime from November 1 through April 30. ~~;~~ Releases ~~releases~~ may also be made from May 1 through October 31 ~~so long as the temperature with any Anderson Reservoir water of the imported water~~ if releases from the CDL cannot occur because water temperature exceeds ~~released is~~ 14°C or ~~less at the CDL outlet.~~ if stream flow from Anderson Dam does not reach the Cross Valley Pipeline Extension outfall and a dryback is present downstream. In dry and severely dry years when releases from Anderson reservoir and/or the CDL are not sufficient to prevent dryback in the vicinity of the Cross Valley Pipeline ~~CVPE~~ outlet, Cross Valley Pipeline ~~CVPE~~ release may be made to manage groundwater recharge, attempt to meet minimum LSAA flow targets downstream of Coyote Percolation Ponds and at Edenvale, and support fisheries, wetland and riparian habitat types. Valley Water would release imported water to the downstream end of the CWMZ via the Cross Valley Pipeline Extension. If stream flow from Anderson Dam does not reach the Cross Valley Pipeline Extension outfall and a dryback is present downstream of the outfall, Valley Water may release imported water to Coyote Creek from the Cross Valley Pipeline Extension for managed groundwater recharge and to maintain a wetted channel downstream of the release point with no temperature limitation.

2.8.5 Anderson Dam and Pipeline Facilities Maintenance

Maintenance of dam appurtenances is necessary to ensure the safe and efficient working of Anderson Dam over time. Valley Water would maintain the newly retrofitted Anderson Dam as part of Valley Water's DMP and PMP.

2.8.5.1 Dam Maintenance Program

The DMP includes over 65 covered maintenance activities within each dam's Area of Routine Maintenance Effects (ARME)[29] (Valley Water 2007). These DMP maintenance activities have

[28] Valley Water's stored supplies at San Luis Reservoir are subjected to DWR and Reclamation rules and approval, and Valley Water's stored supplies may not interfere with operations of the projects. For example, stored supplies may be lost to make room for SWP and CVP Project ~~project~~ supplies at San Luis Reservoir when Project ~~project~~ storage becomes limited.

[29] The ARME describes the areas where activities will occur on a regular basis. The ARME includes areas of routine work and a corresponding buffer defined by Valley Water engineers and maintenance personnel. Routine maintenance includes activities such as road repair, bank

been grouped into four major categories outlined below and include both routine and corrective maintenance. Routine (preventive) maintenance consists of normal work performed to existing infrastructure to maintain the expected life cycle of the appurtenance. Corrective maintenance consists of the replacement of components or appurtenances that have failed to maintain the service of the infrastructure.

The following categories of DMP maintenance would apply to the Project seismic retrofit improvements, and would be implemented pursuant to DMP AMMs:

- Surfaces and/or Earth Work – any work on the natural environment at the ground surface level
  - Vegetation management
  - Burrowing rodent control
  - Access road and boat ramp work
  - Erosion control/bank stabilization/drainage
  - Embankment repair (cracking and slumping)
  - Trash and debris removal
- Maintenance of Dam Appurtenances and Equipment – any work on dam equipment, mechanical equipment, monitoring instruments, or supervisory control and data acquisition systems.
  - Inlets/outlets
  - Valve systems and hydraulic systems
  - Sediment removal around intake structures and hydraulic lines
  - Concrete structure repairs, Replacement and Cleaning (including weep holes)
  - Seepage systems (weirs and piping)
  - Other appurtenances (piezometers, electrical systems, fences, etc.)
- Inspections, Monitoring, and Exploratory Work – ongoing inspections to enhance the lifetime of the infrastructure
  - Exploratory field investigations (including exploratory drilling on land and from barges)
  - DSOD and other inspections
- Reservoir Dewatering – activities to provide access to and refurbish dam appurtenances located in wetted areas

Routine maintenance that would be required for the newly constructed Anderson Dam infrastructure is summarized in **Table 2-25.**

stabilization at the base of the spillways, rodent control, and equipment maintenance, which could happen every year or every few years. Approximately 85 percent of impacts would occur within the ARME. Some less frequent impacts could occur outside the ARME but within the larger APE. These impacts are estimated to be about 15 percent of the total impacts from the Project.

2.8.5.2 Pipeline Maintenance Program

The PMP addresses maintenance for several pipelines and pipeline facilities Valley Water owns and/or maintains (Valley Water, 2007). The program establishes a process for conducting routine water conveyance system maintenance activities including maintenance on pipelines, pump stations, blow offs, turnouts and vaults. Routine maintenance activities covered under the PMP include:

- Cathodic protection and monitoring
- Leak repair
- Internal pipe inspection
- Unscheduled releases of water due to pressure surge
- Rehabilitation and/or replacement of pipeline components
- Bank stabilization and erosion control related to pipeline infrastructure
- Replacement and repair of buried service valves
- Maintenance of pipeline turnouts
- Replacement/repair of appurtenances, fittings, manholes and meters
- Vault maintenance
- Telemetry cable/system inspections and repairs
- Maintenance of pump stations, operations yards, utility yards and corporation yards
- Access road repairs

Routine maintenance that would be required for the newly constructed Anderson Dam facilities and pipeline infrastructure is summarized in **Table 2-20** ~~Table 2-21~~.

Table 2-20 ~~2-21~~. Summary of Proposed Anderson Reservoir Maintenance Activities

Project Component	Maintenance Activities
Dam Embankment[1]	Maintenance activities for the dam embankments include rodent control, vegetation maintenance (includes cut stump method), instrumentation maintenance, concrete slab repair, exploratory drilling, embankment repairs, access road maintenance, and erosion control and repair.
Spillway[1]	Maintenance activities for the spillway include routine maintenance of the debris boom, repair, and replacement of any broken parts of the debris boom, replacement of the debris boom every 10 years, drainage maintenance (includes cleaning the drainage system, vegetation maintenance, soil and debris removal behind the spillway walls, maintenance of access points and roads). Drainpipes and weepholes would also be regularly cleaned out to ensure proper drainage from behind the spillway walls.
Inlet/Outlet Works[1]	Maintenance activities would include inspection, repair, and replacement of steel liners and pipe, concrete repairs, and removing sediment/stabilizing slopes around inlet structures and hydraulic/control lines. Repair and replacement of fencing and signage, access points and roads, lighting, and security features would also be performed. ~~Valley Water's contractor would provide security to minimize the potential for theft from the construction site.~~ Excess vegetation and sediment would be periodically removed from the spillway to prevent blockages and maintain positive drainage. Inspections of the valves would be required every 10 years. Routine annual valve exercises would also be conducted. The valve exercise would consist of inspection and observations of the valve conditions, fully opening and closing the valves, and repair and replacement of any broken parts. The HLOW would be normally operated, with the portion of the 13-foot tunnel downstream of the 13-foot wheel gate empty and the 11-foot fixed cone valves open.
Anderson Force Main and Main Avenue Pipelines[2]	Realignment and connections of the underground Anderson Force Main and Main Avenue Pipelines would be maintained in a manner consistent with the existing Valley Water PMP. Valves and appurtenances at the LLOW would be maintained as part of the DMP, which would include routine inspections, annual tests, and monitoring. The Anderson Force Main and Main Avenue Pipelines would be maintained in accordance with the PMP, which includes scheduled maintenance, inspections, and periodic dewatering. Pipeline dewatering of these pipe sections would be achieved though releasing water into Coyote Creek via the LLOW (Valley Water 2007, 2012).
Temporary and Permanent Roadway Modifications	Earthen roads would be maintained annually by re-grading the surface and importing materials to ensure a safe travelling surface. Paved roads would be maintained annually to keep cracks sealed, remove potholes, and resurface roadways, as needed. Re-paving would be done every 10-15 years. Repainting and repaving of the recreational parking areas would be maintained by County Parks.

Project Component	Maintenance Activities
Recreational Facility Modifications	After the completion of park restoration, County Parks will assume maintenance and operation of all recreational facilities. Valley Water will continue to maintain restoration sites adjacent to recreational areas, which would include tree irrigation, maintenance of replaced trees, maintenance of fencing around Valley Water facilities, sediment augmentation, and potentially replacing the installed large woody debris structures that would be placed in Coyote Creek for fish habitat enhancement.
Decommissioning of Hydroelectric Facility	The facility would not be used once it is decommissioned. However, standard building maintenance would be required to prevent the building from deteriorating. Routine building maintenance such as vegetation management, inspections, building and fencing repair, trash removal, and maintenance of signage would be conducted to upkeep the building.

Sources: Valley Water 2007, 2012

Notes:

[1.] The DMP describes routine maintenance associated with the Dam Embankment, Spillway, and Outlet Works.

[2.] The PMP describes routine maintenance associated Anderson Force Main and Main Avenue Pipelines.

Key: DMP = Dam Maintenance Program; HLOW = high-level outlet works; LLOW = low-level outlet works; PMP = Pipeline Maintenance Program

2.9 Post-Construction Conservation Measures Operations and Maintenance

Following construction, ongoing compliance monitoring would confirm the functionality and success of conservation measures, and guide long-term operation and maintenance of CMs. In many cases, adaptive management of CMs would overlap with the long-term operation of CMs. As described above in **Table 2-1** and below in Section 2.10, post-construction adaptive management of ADSRP CMs would be implemented as a part of ADSRP based upon the adaptive management framework already established by the FAHCE program, including Vally Water's ~~VW's~~ determination of specific adaptive management actions in coordination with the AMT . Post-construction maintenance activities would be performed in accordance with applicable provisions of the Valley Water Stream Maintenance Program (SMP) as described in this section below. ~~Post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures, as well as FAHCE Adaptive Management, is not anticipated to utilize any new natural gas in buildings or install any new non-EV charging spaces for maintenance employees.~~

2.9.1 CDL and Cross Valley Pipeline Extension Pipeline Maintenance for Imported Water and Dam Releases

CDL and Cross Valley Pipeline Extension pipeline maintenance would be the same as that described in Section 2.8.5 above for Anderson Dam related pipelines, and would be conducted under Valley Water's PMP (2007).

2.9.2 Ogier Ponds Operations and Maintenance

2.9.2.1 Maintenance

Although the low-flow channel and floodplain would be designed to be geomorphically stable, following the restoration of creek flows to the pre-1997 channel, Valley Water would maintain the restored channel, including its berms, to support flow capacities. In addition, Valley Water ~~water~~ would maintain spillway structures/fish screens between the restored channel and the remaining ponds to support proper functioning of the ponds and protect the restored channel from high flow events. Valley Water would also conduct maintenance of access roads to ensure site access. Maintenance roads would be located along the new creek channel on the southwest left bank of Coyote Creek.

Ongoing vegetation and sediment removal from the channel, as necessary, would ensure that the channel maintains adequate flow capacity to meet the goals of the Project. This would include vegetation management that would remove vegetation and sediment that restrict flows in the creek channel beyond Project design goals, invasive plants that compete with native plants and detract from the ecology of the creek habitat, trimming and/or removal of vegetation, and replanting or other efforts to establish native vegetation. Berms, spillways, fish screens, in-channel bio-engineered habitat enhancements (e.g., root wads, stream barbs, overhanging banks), rock slope protection, and stormwater outfalls would also need to be inspected and repaired, as necessary. Maintenance of the spillway and fish screens would be conducted by Valley Water. Additional maintenance activities would include trash removal, inspections of infrastructure to identify maintenance issues, and access and maintenance road inspections. County Parks would maintain recreational facilities, such as trails, picnic areas, access and parking areas, dog-training area, and a controlled model airplane field. Channel maintenance would be performed through the Valley Water SMP. Vegetation management required to maintain the ponds and recreational facilities would be conducted by County Parks.

2.9.2.2 Operations

Operations for Ogier Ponds involve allowing creek flows to flow through the pond only in certain circumstances. The spillway structure would be designed to divert flows from the restored channel to the ponds to protect the integrity of the channel when flows exceed 2,000 cfs. The culvert and fish screens re-connecting flows from the downstream pond with the restored channel would similarly be maintained and operated to allow flows to reenter the creek when flows exceeding 2,000 cfs enter the ponds. Eliminating creek flow through the ponds under general conditions via the creek pond separation projects is a key element of improving summer temperatures and reducing predation within the Ogier Ponds Reach of Coyote Creek for the benefit of steelhead. As part of the Ogier Ponds CM, the creek channel would be widened and separated from ponds that remain after creek/pond separation by weir and berms. Water would be generally maintained in ponds by groundwater seepage. Changes in water quality that may occur due to creek channel/pond separation as necessary to improve temperature and other steelhead habitat conditions within Coyote Creek include ~~:~~ reduction in DO (particularly in summer time) and surface water changes. Creek flows through the ponds would only occur via operation of spillway. The spillway structure would be designed to divert flows to ponds when creek flows exceed 2,000 cfs, to help protect the integrity of the creek channel banks/berms. High flows would flow into Pond 2 through spillway, then travel through Ponds 3 and 4, until flows exit Pond 4 and flow back into the creek via a culvert that will have fish screens to prevent predation. Monthly inspections would be conducted to monitor water quality changes. To maintain or improve DO in the ponds during normal conditions in the absence of creek flow-through, solar powered floating aerators would be installed to maintain or improve DO as compared to existing conditions. Other water quality best management practices may also be deployed, if necessary, as indicated by pond water quality monitoring results to maintain or improve upon existing water quality conditions in the ponds.

2.9.3 North Channel Reach ~~Extension~~

Long term maintenance of the North Channel Reach, which includes the maintenance activities discussed in this section below, would be conducted under the SMP for the North Channel and in accordance with the DMP (2012) for the weirs.

2.9.3.1 Maintenance

Following large flow events, including releases from the spillway, Valley Water would monitor the North Channel to ensure that the channel maintains a positive draining channel, and that debris is not accumulating within the channel. If channel conditions were negatively impacted by a large flow event, the North Channel would be inspected to determine the required actions necessary to restore the flow capacity of the channel. This may include debris and/or vegetation removal from the channel or, if regrading is required, further dewatering of the channel to provide a dry area where the regrading of the channel bottom may occur to maintain a positive draining channel. The channel would also be assessed to ensure that large pools or irregular backwaters are not forming that could result in fish strandings as waters recede within the North Channel. The wetland bench would also be inspected following large flow events, and replanting and/or repairs would be implemented, as needed.

2.9.3.2 Operations

The ~~Post construction operation of the~~ North Channel ~~Extension would involve the same operations described in Section 2.6.2. The north channel~~ weir design includes a labyrinth weir that would activate the rock-lined north channel when post-construction releases from the reservoir exceed approximately 100 ~~230~~ cfs. The weir at the head of the southern channel includes a 5-ft-wide ‘U’ shaped channel invert weir, with slots on which stop logs may be installed. The stop logs create a variable weir system that would be installed on the south weir. This ~~, this~~ would allow the North Channel ~~north channel~~ to be activated when reservoir releases exceed 100 cfs~~, rather than 230 cfs~~. High flows would be managed between the channels using the labyrinth weirs to direct flows of up to 230 cfs through the South Channel, and flows greater than 230 cfs through the restored North Channel, limiting flows within the South Channel. This would minimize the potential for erosion and support salmonid spawning within the South Channel, while minimizing fish stranding throughout the restored North Channel where deep holes would be graded out~~, and facilitate access for channel maintenance. The grading of the North Channel alignment would also eliminate the existing deep pools throughout this reach that otherwise may result in fish stranding as water recedes after high flow events.~~.

2.9.4 Sediment Augmentation Program Maintenance ~~Operations~~

During post construction as a part of the implementation of the Project and FAHCE AMP, following ~~Following~~ large flow events and in response to post-construction incision, deposition, and spawning and rearing habitat monitoring data and information, Valley Water would inspect habitat quality within the CWMZ, focusing on, but not limited to, the Live Oak Restoration Reach and the Ogier Ponds Restoration Reach sites, to determine if habitat maintenance is required. Activities and locations for habitat enhancement via sediment augmentation would be determined pursuant to the Project adaptive management program described in Section 2.10. Maintenance would include placing up to 500 cy of ~~spawning gravels or~~ sediments in multiple locations within the Live Oak Restoration Reach ~~Coyote Creek between Anderson Dam~~ or ~~and~~ Ogier Ponds Restoration Reach every 5 years, as and where determined to be necessary pursuant to the Project adaptive management program described in Section 2.10. Culverts and low flow crossings between the dam and Coyote Percolation Ponds would also be inspected and maintained after dam releases that exceed 500 cfs to assure that habitat enhancement via the sediment augmentation program does not impair channel capacity or hydraulics.

Post construction maintenance ~~operation~~ of the Sediment Augmentation Program would involve the same methods and activities described in Section 2.6.3 though quantity and placement of sediment, gravels and woody debris within the CWMZ may vary in response to monitoring data. Maintenance of culverts and low-flow crossings would include excavating sediments that have filled or blocked culverts or crossings using hand tools or heavy equipment (bobcat or small excavator).

2.9.5 Phase 2 Coyote Percolation Dam Operations and Maintenance

2.9.5.1 Maintenance

After completion of the roughened channel as a part of the Phase 2 Coyote Percolation Dam design and restoration of flows within Coyote Creek, ongoing maintenance would be necessary to ensure that groundwater recharge capacity, fish passage criteria and roughened channel flow capacity are maintained over time. Maintenance activities would include the periodic removal of sediment deposited in the restored channel when it could compromise the channel's conveyance capacity, results in geomorphic instability, or is detrimental to the quality of aquatic habitat. Additional maintenance would be required at Coyote Percolation Dam because injected sediments introduced to the CWMZ as a part of the Sediment Augmentation Program are expected to deposit in the percolation ponds and may potentially also be depositing in the channel, particularly upstream of the facility. This maintenance work would be done using hand tools or heavy equipment (bobcat, small excavators). Vegetation management would also be required. Vegetation management activities would include the removal of invasive plants and trimming and/or removal of growth clogging the channel. Vegetation management would occur on a routine basis. The crew would consist of two to four maintenance staff. Maintenance staff would also inspect the roughened channel bi-annually, particularly after large flows, and replace roughness elements and/or repair in-channel bio-engineered habitat enhancements (e.g., root wads, stream barbs, overhanging banks), and enhance rock slope protection, as needed, to maintain channel function and fish passage conditions. Similar to the Anderson Dam facilities, the Coyote Percolation Dam CM would be covered under Valley Water's DMP (2012).

2.9.5.2 Operations

Consistent with current operational rules of the Coyote Percolation bladder dam, installed as a part of FOCP to allow more flexible operations for the benefit of steelhead than are possible with a flashboard dam, the bladder dam would be lowered during high flow events (exceeding approximately 250 ~~320~~ cfs) and then be raised after high flow events have receded. The facility would pass flows up to 250 ~~320~~ cfs via a combination of the fish ladder and radial gates. When flows are predicted to exceed 250 ~~320~~ cfs, releases would be made from the percolation pond via the overshot weir to reduce storage and then deflate the dam when safe to do so. The purpose of draining the pond prior to deflating the dam is to avoid sending a large uncontrolled surge of water down Coyote Creek. When the dam is deflated, all water would be directed over the dam sill with a portion (at least 10 percent of total flow) going through the roughened channel to provide fish passage ~~the radial gates would be closed to direct all water through the fish 26 ladder and over the dam sill to provide fish passage~~. The dam would be inflated when flows recede and can be safely passed via a bypass (overshot weir) ~~the radial gates~~ and fish ladder. The dam and facilities will be designed in accordance with NMFS and CDFW fish passage criteria to safely provide up and downstream passage for flows between 7.5 and 1,320 cfs ~~pass fish during all flow conditions~~. Passage criteria do not apply above 1,320 cfs.

Within 13 months of completion of the Phase 2 Coyote Percolation Dam design (completion of design anticipated prior to ~~in~~ Year 1 ~~4~~), Valley Water will prepare in coordination with the regulatory agencies a Phase 2 Coyote Percolation Dam Operations Plan. The objectives of the Operations Plan will be to continue to provide sufficient groundwater recharge, while improving conditions for smolt migration. Key elements of operations will include the following:

- Operational flexibility to temporarily drain the Coyote Percolation Pond to improve smolt migration when logistically practicable given water supply demands and ecologically appropriate in terms of habitat management to protect steelhead and other listed and sensitive aquatic and riparian species.
- Upstream passage through the Coyote Creek Percolation Dam Facility will be provided at flows between 2.5 cfs and 1,320 ~~320~~ cfs.
- Between October 16th and June 14th, the bladder dam will be inflated when Coyote Creek flows arriving at the dam are less than 275 cfs to facilitate upstream passage through the fish ladder.
  - When the dam is inflated, fish ladder flows will be maintained between 2.5 and 25 cfs, and flows above 25 cfs (and less than 275 cfs) will be released through the new overshot weir ~~bypass gates~~ replacing one of the existing radial gates.
  - The bladder dam will be deflated when Coyote Creek flows arriving at the dam are greater than 275 cfs and upstream passage will be provided by the roughened channel. When the dam is deflated, Coyote Creek flow greater than 275 cfs arriving at the dam will go over the deflated dam, a portion of this flow will go into the roughened channel to provide upstream passage, and under normal operating conditions, the Fish Ladder and bypass gates will be closed.
- During summer periods (June 15th through October 15th) outside of the steelhead migration season, the weir gates in the fish ladder may be raised to cut off flows to the fish ladder and allow inspection and maintenance activities to be conducted. VW will maintain the minimum required flows per the LSAA to Coyote Creek.
- The plan will include an evaluation of smolt migration conditions through the pond under Pre-FERC Order baseline conditions (including dam operations and instream flows) and will include measures to ensure an improvement in migration conditions through the percolation pond as compared to that baseline condition following implementation of Phase 2 designs, including water depth, velocity, and predation risk.

2.9.6 Maintenance Activities at the Live Oak Restoration Reach

In response to long-term habitat assessment monitoring data, the habitat restoration and sediment augmentation activities necessary to maintain the spawning and rearing habitat created at the Live Oak Restoration Reach would continue after construction is completed and in long-term as described for the Sediment Augmentation Program in Section 2.9.4. These activities would include replenishment of spawning gravels in the south channel. The maintenance activities would be accomplished by placing up to 500 cy of gravel in various locations within the CWMZ every 5 years. If high flows are not experienced in the Live Oak Reach, the spawning gravels may stay in place and require only minor additions, in which case the remaining sediment would be used to augment other locations within the CWMZ where indicated to be appropriate by monitoring information. Maintenance of installed wood structures would require replacing structures and associated hardware if they appear to be creating hazardous conditions within Live Oak Park.

Activities and methods to implement ongoing maintenance of the Live Oak Restoration Reach spawning and rearing habitat are the same as those described for the Sediment Augmentation Program Section 2.6.3.

In the long-term Live Oak Maintenance via the Sediment Augmentation Program would be adaptively managed. The long-term, post-construction adaptive management of the Live Oak Restoration Reach would occur in accordance with the Sediment Augmentation Program and would be implemented in the same manner pursuant the framework established by the FAHCE Program, as described in that program and in Section 2.10.

2.10 Project and FAHCE Adaptive Management Program

The FAHCE AMP, outlined in Chapter 6 of the FHRP in accordance with the FAHCE *Settlement Agreement* (2003), would guide post-construction adaptive management of Project flow operations, and all non-flow fish barrier remediation and habitat restoration Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. A Project-specific AMP (see Appendix D for details) has been developed in accordance with the framework described in the FAHCE Settlement Agreement and FAHCE Program. Implementation of the Project and FAHCE AMP is designed to satisfy the ~~measurable objectives defined in the~~ FAHCE Settlement Agreement and ~~the~~ FAHCE Program commitment and overall conservation objective to restore and maintain a healthy steelhead trout and salmon population in the Coyote Creek watershed, by providing: (A) suitable spawning and rearing habitat within Coyote Creek (consisting of approximately five miles of spawning and rearing habitat below Anderson Dam and in Upper Penitencia Creek); and (B) adequate passage for adult steelhead trout and salmon to reach suitable spawning and rearing habitat and for out-migration of juveniles. The measurable objectives are designed ~~FHRP~~, and to assure the long-term management and effectiveness of Project CMs to benefit steelhead and Chinook salmon as defined by the FAHCE Program commitment.

The FAHCE AMP component of the Project and FAHCE AMP, found in Chapter 6 of the FHRP, would guide adaptive management of all post-construction dam facility (FAHCE rule curve) operations, and long-term configuration and operation of all non-flow fish barrier remediation and habitat restoration Conservation Measures (i.e., Maintenance Activities at the Live Oak Reach Restoration, Ogier Ponds CM, and Phase 2 Coyote Percolation Dam CM). As in the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements:

Measurable Objectives. The FAHCE *Settlement Agreement* (2003) and the FHRP provide measurable objectives for steelhead and salmon fisheries and their habitats. These objectives would be achieved through implementation of FAHCE flow and non-flow measures for Coyote Creek, along with implementation of additional conservation measures identified in this Project description (Appendix D).

Monitoring. Monitoring activities would focus on compliance, validation, effectiveness and long-term trends. Systematic monitoring would be conducted of actual habitat conditions affected by the post-construction operations flow measures and non-flow conservation measures implemented under the FAHCE, FOCP, and Project to determine whether the conservation measures are contributing to the achievement of measurable objectives, and therefore to attainment of the FAHCE Program overall restoration objective. Monitoring activities would evaluate the performance of the entire program in improving habitat quality and availability for steelhead and salmon, as well as the performance in each phase of the program in reducing or eliminating limiting factors affecting various life stages of steelhead and salmon, where such conditions are directly attributable to Valley Water facilities and operations in Coyote Creek.

Adaptive Actions. The Project and FAHCE AMT, including NMFS, other regulatory agencies, and non-governmental organizations (NGOs), would review potential adaptive actions described in the Project component of the Project and FAHCE AMP set forth in Appendix D and prioritize these actions for implementation. This may include modification of post-construction operations flow measures and non-flow conservation measures identified under FAHCE and in this EIR, as well as individual regulatory agency requirements, as appropriate, to help achieve measurable objectives.

Reporting. The AMT would synthesize and analyze results, evaluate progress attained by flow and non-flow measures, and identify potential adaptive actions where needed.

Pursuant to the FAHCE Framework, the Project and FAHCE AMP has been developed. The Project and FAHCE AMP is designed to track progress toward achieving the measurable objectives for Coyote Creek outlined above. The monitoring program to inform selection of adaptive management measures to implement in response to management triggers has been organized into three categories, as follows:

- Compliance monitoring includes administrative metrics such as reservoir releases and cold-water pool volume, compliance with the schedule for implementing a particular program element (such as a site-specific passage impediment remediation project), or progress on planning or feasibility studies.
- Validation monitoring includes physical monitoring of instream flows, depth, velocity, water temperatures within the CWMZ and FCWMZ, areas of enhanced habitat, jump height and pool depth for passage impediments, habitat mapping to assess suitability for various life stages of salmonids, validating flow-habitat relationships, and other elements of the program.
- Effectiveness monitoring evaluates the progress made towards the overall restoration objective established for the FAHCE Program by the FAHCE Settlement Agreement, as follows:
  - Stream flow monitoring for Coyote Creek to determine the efficacy of post-construction operations in creating migratory habitat conditions for steelhead and chinook, as well as other native anadromous fish;
  - Water depth monitoring for POIs within Coyote Creek to determine the efficacy of post-construction operations in creating migratory habitat conditions in Coyote Creek;
  - Fish passage monitoring at Coyote Perc Phase 2 facility to determine the efficacy of post-construction operations, the Coyote Perc Phase 2 design, and the Coyote Perc Phase 2 Operations Plan in providing suitable conditions for adult and smolt migration; and
  - Sediment deposition and habitat monitoring for Ogier Reach and Live Oak Reach to determine the effectiveness of the habitat restoration CMs in achieving suitable rearing and spawning habitat goals in those reaches and to inform ongoing maintenance as well as Sediment Augmentation Program replenishment locations, volumes and timing.
- Long-term trend monitoring includes evaluation of ecosystem responses to management actions and/or natural drivers, including monitoring adult salmonid

abundance, juvenile steelhead density, salmonid migration, steelhead genetics,~~,~~ water quality, and species composition.

Compliance, validation ~~Validation~~, effectiveness and long-term trend monitoring would build on existing monitoring infrastructure (e.g., Valley Water's hydrologic monitoring network) and plans, water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, and electrofishing surveys). Valley Water would also collaborate with the NOAA Fisheries Southwest Fisheries Science Center regarding sampling methodologies to ensure that fisheries population status and trends can be established over time.

The Project and FAHCE AMT would play an important role in adaptive management decision making, as described in detail in the FAHCE AMP. Considerations for adaptive management decision making include inter-annual and seasonal variation in hydrologic conditions, other constraints and limiting factors affecting achievement of the overall management objectives, monitoring results of the actual habitat enhancement measures already implemented, opportunities for improving habitat for other fish, wildlife, and plant species, and more generally, the ecological conditions of the watersheds. Data and analysis from compliance, validation, effectiveness, and long-term trend monitoring, evaluated using measurable objectives, would help determine whether refinements need to be made to post-construction operations reservoir releases, fish passage projects or habitat restoration projects carried out as part of the FOCP and Project to incrementally improve instream fisheries habitat conditions.

The post-construction flow Conservation Measure commitments for each habitat restoration and fish barrier remediation Conservation Measure adaptive management goals, measurable objectives, monitoring types, methods and frequency, triggers for potential management actions, and potential management actions to be considered for implementation by Valley Water in coordination with the regulatory agencies of the Project and FAHCE AMT are summarized in Appendix D. Valley Water's Project-specific commitment to implement adaptive management of Conservation Measures supplements its commitment under FAHCE to adaptive management of FAHCE Phase 1 measures. Because Project Conservation Measures (some of which also constitute FAHCE Phase 1 measures) have been refined and further developed at a project specific level in consultation with NMFS and the other regulatory agencies (CDFW, USFWS, SWRCB) to assure avoidance, minimization and offset of Project environmental impacts to steelhead, the AMP for the Project Conservation Measures is more detailed than the program level FAHCE adaptive management program adopted for other Phase 1 measures for Coyote Creek, Guadalupe Creek, or Stevens Creek. The Project and FAHCE AMP assures long-term management of Project Conservation Measures (many of which also constitute FAHCE Phase 1 Measures) to provide long term conservation benefit for steelhead.

While the Project and FAHCE AMP would be implemented pursuant to the adaptive management framework established by the FAHCE Program, the Project and FAHCE ~~FACHE~~ AMP also supplements the FAHCE AMP, which would continue to provide for study, evaluation and selection of future Coyote Creek FAHCE Phase 2 measures, if required, as outlined in the FAHCE *Settlement Agreement* (2003) and FHRP. The FAHCE *Settlement Agreement* contained a menu of potential Phase 2 measures that have not been defined or evaluated for feasibility. Once Phase 1 measures are fully implemented and 10-year monitoring results are analyzed, a determination of whether or not Phase 2 measures (e.g., revised water releases from Anderson to provide for continuous stream flows to approximately Metcalf Road, remediate Priority No. 2 barriers, implement a trap and truck operation to relocate adult steelhead into upper watershed habitat, etc.) are necessary will be discussed through the FAHCE AMP decision making process.

2.11 Avoidance and Minimization Measures

Valley Water would implement a range of standardized measures to avoid or minimize adverse effects on the environment. These are introduced below and summarized in **Table 2-21**, and described in Appendix A.

2.11.1 Best Management Practices

Best management practices (BMPs) are standard practices that prevent, avoid, or minimize potentially adverse effects associated with construction, operations, and maintenance activities. Valley Water routinely incorporates a wide range of BMPs from its *Best Management Practices Handbook* (Valley Water, 2014) into project designs and throughout the implementation of projects. In addition, for work in and near streams, Valley Water would also employ other BMPs included in the *2019–2023 Stream Maintenance Program Manual* (Valley Water 2019; Appendix A), as necessary, to reduce impacts on specific resources; however, SMP BMPs are only applicable to Project activities conducted at or near surface waters in areas downstream of Anderson Dam. The Project would also include the applicable Valley Water BMPs ~~(~~ as well as VHP conditions (and their associated AMMs), as summarized in **Table 2-21** ~~**Table 2-22**~~**.**

Table 2-21 ~~2-22.~~ Relevant BMPs and VHP Conditions

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
Aesthetics	
BMPs	
REVEG-1: Seeding	Would require that restored areas are planted with native seeds as soon as work activities are complete
REVEG-2: Planting Material	Would require that restored areas are replanted with locally collected native species and that species selection is based on surveys of natural areas on the same creek that have a similar ecological setting
BI-8: Choose Local Ecotypes of Native Plants and Appropriate Erosion Control Seed Mixes	Would require that restored areas are planted with native species that are ecologically appropriate to the work area and help improve visual conditions post-construction
WQ-11: Maintain Clean Conditions at Work Sites	Would require that work areas and access roads are maintained in an orderly condition and that materials or equipment left on site overnight are stored as inconspicuously as possible
VHP Conditions	
VHP Condition 7	Would reduce impacts of rural development

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
Agriculture and Forestry Resources	
BMPs	
AQ-1: Use Dust Control Measures	Would reduce the potential for construction-related dust to damage or reduce the productivity of agricultural activities nearby.
BI-11: Minimize Predator-Attraction	Would reduce the potential for pests to be attracted to the Project Area, causing damage to agricultural operations.
WQ-4: Limit Impacts from Staging and Stockpiling Materials	Would reduce the potential for equipment at staging areas and stockpiled materials to damage soils in agricultural production.
WQ-11: Maintain Clean Conditions at Work Sites	Would reduce the potential for debris to attract pests to the Project Area, causing damage to agricultural operations.
TR-1: Use Suitable Public Safety Measures	Would reduce the potential for safety impacts on traffic.
Air Quality	
BMPs	
AQ-1: Use Dust Control Measures	Would require implementation of dust and air quality management measures, including implementation of BAAQMD's BMPs for dust suppression.
AQ-2: Avoid Stockpiling Odorous Materials	Would avoid stockpiling odorous materials within 1,000 feet of sensitive land uses.
Biological Resources	
BMPs	
AQ-1: Use Dust Control Measures	Would reduce the potential for construction-related dust to damage or reduce the productivity of agricultural activities nearby.[30]
WQ-1: Conduct Work from Top of Bank	Would reduce the effect of machinery on streambed and water quality.
WQ-3: Limit Impact of Pump and Generator Operations and Maintenance	Would reduce impacts to water quality and aquatic species.
WQ-4: Limit Impacts from Staging and Stockpiling Materials	Would reduce runoff and erosion and reduce impacts on instream biota and water quality.

30 Due to the unique and complex nature of Seismic Retrofit Construction, one minor variance from the BAAQMD BMPs related to vehicle speeds on unpaved roads is necessary in certain situations and areas to make it feasible for the Project, as detailed in Section 3.3.3.7, *Applicable Best Management Practices and BAAQMD Measures*. The 15 miles per hour speed limit would apply to all vehicles and equipment only in areas containing naturally occurring asbestos. Outside of these areas, a 25 mile per hour speed limit would be observed for haul trucks on unpaved roads (light duty pick-up trucks would observe the 15 mile per hour limit), such as the in-reservoir access roads to Stockpile Areas K and L.

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
WQ-5: Stabilize Construction Entrances and Exits	Would reduce runoff and erosion and reduce impacts on instream biota and water quality.
WQ-6: Limit Impact of Concrete Near Waterways	Would reduce runoff from increasing impervious surfaces and eliminate contact with uncured concrete.
WQ-8: Minimize Hardscape in Bank Protection Design	Would reduce downstream or adjacent bank scour and erosion.
WQ-10: Prevent Scour Downstream of Sediment Removal	Would decrease scour downstream of sediment removal by grading the channel transitions and ensuring that there are no rapid changes in the slope.
WQ-15: Prevent Water Pollution	Would reduce impact to aquatic species and reduce transport of pollution in the channel network.
WQ-16: Prevent Stormwater Pollution	Would prevent stormwater pollution by installing sedimentation and erosion control measures.
BI-3: Remove Temporary Fills	Would remove temporary fill material upon finishing work to reduce impacts to water quality.
BI-4: Minimize Adverse Effects of Pesticides on Non-Target Species	Would limit of use of pesticides.
BI-5: Avoid Impacts to Nesting Migratory Birds	Would protect migratory birds.
BI-6: Avoid Impacts to Nesting Migratory Birds from Pending Construction	Would limit construction to protect migratory birds.
BI-9: Restore Riffle/Pool Configuration of Channel Bottom	Would enhance aquatic habitat and restore its functions to native biota.
BI-10: Avoid Animal En~~t~~ry and Entrapment	Would avoid entrapment of local species.
BI-11: Minimize Predator Attraction	Would reduce the likelihood of predation on native species.
WQ-2: Evaluate Use of Wheel and Track Mounted Vehicle in In-stream Bottoms	Would reduce impacts on instream biota and water quality.
WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement	Would reduce erosion and reduce impacts on instream biota and water quality.
~~WQ-12: Manage Well or Exploratory Boring Materials~~	~~Would reduce runoff and erosion and reduce impacts on instream biota and water quality.~~
WQ-11: Maintain Clean Conditions at Work Site	Would reduce impacts related to the storage of construction equipment and materials.
WQ-17: Manage Sanitary and Septic Waste	Would reduce the risk of waste spillage associated with temporary sanitary facilities.

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
VEG-1: Minimize Local Erosion Increase from In-channel Vegetation Removal	Would reduce local erosion potential from in-channel vegetation removal.
VEG-2: Non-native Plant Removal	Would reduce impacts from non-native plants in surrounding areas.
VEG-3: Use Appropriate Equipment for In-stream Removal	Would reduce risk of impacts from damaging equipment.
SED-1: Groundwater Management	Would reduce risk of water quality contamination.
SED-2: Prevent Scour	Would reduce impacts on instream biota and water quality.
SED-3: Restore Channel Features	Would restore pre-construction conditions for channel features.
SED-4: Berm Bypass	Would reduce impacts on instream biota and water quality.
REVEG-1: Seeding	Would require that restored areas are planted with native seeds as soon as work activities are complete
REVEG-2: Planting Material	Would require that restored areas are replanted with locally collected native species and that species selection is based on surveys of natural areas on the same creek that have a similar ecological setting
~~HM-7: Vehicle Cleaning~~[31]	~~Would reduce potential impacts associated with cleaning construction vehicles and equipment.~~
HM-8: Vehicle Fuel and Maintenance	Would reduce the risk of spills or accidental releases of hazardous materials.
HM-9: Hazardous Materials Management	Would reduce risk of spills or accidental releases of hazardous materials.
HM-10: Spill Prevention	Would reduce risk of potential spills.
HM-12: Fire Prevention	Would reduce risk of fire and erosion related water quality impacts on instream biota and water quality.
GEN-1: In-Channel Work Window (for maintenance)	Would reduce impacts related to in-channel work.
GEN-4: Minimize Disturbance Area	Would reduce risk area if disturbance area is minimized.
GEN-16: In-Channel Minor Activities	Would reduce large impacts related to in-channel activities
GEN-17: Employee/Contractor Training	Would reduce risk of impacts from improper activities.

[31] BMP HM-7 has been removed in the Final EIR due to conflict with Mitigation Measure HAZ-1, which states that: "Equipment shall be washed down after use and prior to the equipment moving from the work area onto a paved public road. Wheels shall be washed prior to moving equipment from construction areas containing NOA to areas that do not contain NOA."

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
GEN-20: Erosion and Sediment Control Measures	Would reduce potential impacts of erosion by installing control measures.
GEN-21: Staging and Stockpiling of Materials	Would reduce impacts related to storing of equipment and materials.
GEN-22: Sediment Transport	Would reduce impacts on instream biota and water quality.
GEN-23: Stream Access	Would reduce number of access points for potential impacts related to increased disturbed areas.
GEN-24: On-Site Hazardous Materials Management	Would reduce risk of potential spills or runoff that may include hazardous materials
GEN-25: Existing Hazardous Materials	Would reduce the risk of impacts from existing hazardous materials
GEN-26: Spill Prevention and Response	Would reduce risk of potential spills of hazardous materials.
GEN-28: Fire Prevention	Would reduce risk of fire impacts.
GEN-30: Vehicle Maintenance	Would ensure that on-site equipment is operating properly through vehicle maintenance.
GEN-31: Vehicle Cleaning	Would ensure that on-site equipment is cleaned away from aquatic resources and sensitive habitats
GEN-32: Vehicle and Equipment Fueling	Would reduce impacts related to fuel spills
GEN-35: Pump/Generator Operations and Maintenance	Would reduce impacts related to pump or generator operations and maintenance.
ANI-5: Slurry Mixture near Waterways	Would reduce potential impacts from slurry
BI-2: Minimize Impacts to Steelhead	Would reduce impacts to Steelhead during activities.
BI-8: Choose Local Ecotypes Of Native Plants and Appropriate Erosion-Control Seed Mixes	Would require that restored areas are planted with native species that are ecologically appropriate to the work area and help improve visual conditions post-construction.
VHP Conditions	
VHP Condition 1	Would reduce impacts to protected plant and wildlife species
VHP Condition 3	Maintain hydrologic conditions and protect water quality
VHP Condition 4	Would reduce impacts for in-stream projects
VHP Condition 5	Would reduce impacts for in-stream operations and maintenance
VHP Condition 7	Would reduce impacts of rural development
VHP Condition 11	Would minimize impacts on streams by specifying setbacks and buffer zones

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
VHP Condition 12	Would minimize impacts on wetlands and ponds and avoid impacts on high quality wetlands and ponds
VHP Condition 13	Would minimize or avoid impacts on serpentine soils
VHP Condition 17	Would avoid impacts to Tricolored Blackbirds
VHP Condition 19	Would protect covered plants
VHP Condition 20	Would reduce impacts to covered plants
Cultural Resources	
BMPs	
CU-1: Accidental Discovery of Archaeological Artifacts or Burial Remains	Would formalize response and handling of accidental discovery so as to minimize the potential for disturbing previously recorded or newly discovered prehistoric or historic archaeological resources.
AQ-1: Use Dust Control Measures	Would require implementation of dust and air quality management measures, including implementation of BAAQMD's BMPs for dust suppression.
Energy	
BMPs	
AQ-1: Use Dust Control Measures	Would require implementation of dust and air quality management measures, including implementation of BAAQMD's BMPs for dust suppression.
Geology and Soils	
Handbook BMPs	
GEN-20: Erosion and Sediment Control Measures	Would reduce the potential of erosion by installing control measures.
GEN-21: Staging and Stockpiling of Materials	Would reduce impacts related to storing of equipment and materials.
AQ-1: Use Dust Control Measures	Would require implementation of dust and air quality management measures, including implementation of BAAQMD's BMPs for dust suppression.
BI-3: Remove Temporary Fill	Would reduce the potential for erosion by removing temporary fill.
BI-8: Choose Local Ecotypes of Native Plants and Appropriate Erosion Control Seed Mixes	Would reduce the potential for erosion by planting native plants and installing erosion-control seed mixes.
WQ-4: Limit Impacts from Staging and Stockpiling Materials	Would reduce the potential for equipment at staging areas and stockpiled materials to cause erosion.
WQ-5: Stabilize Construction Entrances	Would reduce runoff and erosion.

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
and Exits	
WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement	Would reduce the potential for erosion by installing erosion control measures.
BANK-1: Bank Stabilization Design to Prevent Erosion Downstream	Would reduce the potential for erosion at streambanks.
REVEG-1: Seeding	Would require that restored areas are planted with native seeds as soon as work activities are complete
VHP Conditions	
VHP Condition 3	Maintain hydrologic conditions and protect water quality.
VHP Condition 4	Would reduce impacts for in-stream projects
VHP Condition 5	Would reduce impacts for in-stream operations and maintenance
VHP Condition 7	Would reduce impacts of rural development
VHP Condition 8	Would reduce impacts for rural road maintenance
VHP Condition 11	Would minimize impacts on streams by specifying setbacks and buffer zones
VHP Condition 12	Would minimize impacts on wetlands and ponds and avoid impacts on high quality wetlands and ponds
Hazards and Hazardous Materials	
BMPs	
AQ-1: Use Dust Control Measures	Would implement dust and air quality management measures, including implementation of BAAQMD's BMPs for dust suppression.
~~HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations~~	~~Would reduce potential hazardous impacts associated with cleaning construction vehicles and equipment.~~
HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance	Would reduce the risk of spills or accidental releases of hazardous materials.
HM-9: Ensure Proper Hazardous Materials Management	Would reduce the risk of spills or accidental releases of hazardous materials
HM-10: Utilize Spill Prevention Measures	Would reduce the risk of spills of hazardous materials.
HM-13: Avoid Impact from Naturally Occurring Asbestos	Would reduce impacts associated with NOA.
WQ-6: Limit Impact of Concrete Near Waterways	Would reduce hazardous impacts related to concrete.
WQ-17: Manage Sanitary and Septic Waste	Would reduce the risk of hazardous waste spillage associated with temporary sanitary facilities.

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
TR-1: Use Suitable Public Safety Measures	Would reduce temporary traffic impacts to emergency response providers.
Hydrology	
BMPs	
AQ-1: Use Dust Control Measures	Would reduce the potential for construction-related dust to damage or reduce the productivity of activities nearby.
~~HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations~~	~~Would reduce potential impacts associated with cleaning construction vehicles and equipment.~~
HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance	Would reduce the risk of spills or accidental releases of hazardous materials.
HM-9: Ensure Proper Hazardous Materials Management	Would reduce risk of spills or accidental releases of hazardous materials.
HM-10: Utilize Spill Prevention Measures	Would reduce risk of potential spills.
WQ-1: Conduct Work from Top of Bank	Would reduce the effect of machinery on streambed and water quality.
WQ-2: Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms	Would reduce the potential effects of machinery and vehicles on stream bottoms.
WQ-4: Limits Impacts from Staging and Stockpiling Materials	Would reduce runoff and erosion and reduce impacts on instream biota and water quality.
WQ-5: Stabilize Construction Entrances and Exits	Would reduce runoff and erosion and reduce impacts on instream biota and water quality.
WQ-8: Minimize Hardscape in Bank Protection Design	Would reduce downstream or adjacent bank scour and erosion.
WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement	Would reduce the potential for erosion.
WQ-10: Prevent Scour Downstream of Sediment Removal	Would decrease scour downstream of sediment removal by grading the channel transitions and ensuring that there are no rapid changes in the slope.
WQ-11: Maintain Clean Conditions at Work Sites	Would require that work areas and access roads are maintained in an orderly condition and that materials or equipment left on site overnight are stored as inconspicuously as possible.
WQ-16: Prevent Stormwater Pollution	Would reduce impact to aquatic species and reduce transport of pollution in the channel network.
VEG-1: Minimize Local Erosion Increase from In-Channel Vegetation Removal	Would reduce local erosion potential from in-channel vegetation removal.
BANK-1: Bank Stabilization Design to Prevent Erosion Downstream	Would reduce impact of erosion.

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
BANK-3: Bank Stabilization Post-Construction Maintenance	Would reduce impact of erosion during post-construction maintenance.
REVEG-1: Seeding	Would require that restored areas are planted with native seeds as soon as work activities are complete.
VHP Conditions	
VHP Condition 3	Maintain hydrologic conditions and protect water quality.
VHP Condition 4	Would reduce impacts for in-stream projects
VHP Condition 5	Would reduce impacts for in-stream operations and maintenance
VHP Condition 7	Would reduce impacts of rural development
VHP Condition 11	Would minimize impacts on streams by specifying setbacks and buffer zones
VHP Condition 12	Would minimize impacts on wetlands and ponds and avoid impacts on high quality wetlands and ponds
Groundwater	
Handbook BMPs	
HM-1: Comply with All Pesticide Application Restrictions and Policies	Would reduce hazardous impacts associated with the use of pesticides.
HM-2: Minimize Use of Pesticides	Would reduce hazardous impacts associated with the use of pesticides.
HM-4: Comply with All Pesticide Usage Requirements	Comply with all pesticide usage requirements.
HM-5: Comply with Restrictions on Herbicide Use in Upland Areas	Would reduce impacts associated with the use of herbicides
HM-6: Comply with Restrictions on Herbicide Use in Aquatic Areas	Would reduce impacts associated with the use of pesticides
~~HM-7: Restrict Vehicle and Equipment cleaning to Appropriate Locations~~	~~Would reduce potential impacts associated with cleaning construction vehicles and equipment.~~
HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance	Would reduce the risk of spills or accidental releases of materials.
HM-9: Ensure Proper Hazardous Materials Management	Would reduce the risk of spills or accidental releases of materials.
HM-10: Utilize Spill Prevention Measures	Would reduce the risk of spills of materials.
SED-1: Groundwater Management	Would reduce risk of water quality contamination.

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
VHP Conditions	
VHP Condition 3	Maintain hydrologic conditions and protect water quality.
VHP Condition 4	Would reduce impacts for in-stream projects
VHP Condition 5	Would reduce impacts for in-stream operations and maintenance
VHP Condition 7	Would reduce impacts of rural development
VHP Condition 11	Would minimize impacts on streams by specifying setbacks and buffer zones
VHP Condition 12	Would minimize impacts on wetlands and ponds and avoid impacts on high quality wetlands and ponds
Water Supply and Water Quality	
BMPs	
AQ-1: Use Dust Control Measures	Would require implementation of dust and air quality management measures, including implementation of BAAQMD's BMPs for dust suppression.
HM-1: Comply with All Pesticide Application Restrictions and Policies	Would reduce hazardous impacts associated with the use of pesticides.
HM-2: Minimize Use of Pesticides	Would reduce hazardous impacts associated with the use of pesticides.
HM-4: Comply with All Pesticide Usage Requirements	Comply with all pesticide usage requirements.
HM-5: Comply with Restrictions on Herbicide Use in Upland Area	Would reduce impacts associated with the use of herbicides
HM-6: Comply with Restrictions on Herbicide Use in Aquatic Areas	Would reduce impacts associated with the use of pesticides
~~HM-7: Restrict Vehicle and Equipment Cleaning to Appropriate Locations~~	~~Would reduce potential impacts associated with cleaning construction vehicles and equipment.~~
HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance	Would reduce the risk of spills or accidental releases of materials.
HM-9: Ensure Proper Hazardous Materials Management	Would reduce the risk of spills or accidental releases of materials.
HM-10: Utilize Spill Prevention Measures	Would reduce the risk of spills of materials.
WQ-1: Conduct Work from Top of Bank	Would reduce the effect of machinery on streambed and water quality.
WQ-2: Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms	Would reduce the potential effects of machinery and vehicles on stream bottoms.
WQ-3: Limit Impact of Pump and Generator Operation and Maintenance	Would reduce impacts to water quality and aquatic species.

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
WQ-4: Limit Impacts from Staging and Stockpiling Materials	Would reduce the potential for equipment at staging areas and stockpiled materials to damage soils in agricultural production.
WQ-5: Stabilize Construction Entrances and Exits	Would reduce runoff and erosion and reduce impacts on instream biota and water quality.
WQ-6: Limit Impact of Concrete Near Waterways	Would reduce runoff from increasing impervious surfaces and eliminate contact with uncured concrete.
WQ-8: Minimize Hardscape in Bank Protection Design	Would reduce downstream or adjacent bank scour and erosion.
WQ-9 - Use Seeding for Erosion Control, Weed Suppression, and Site Improvement	Would reduce the potential for erosion.
WQ-11 - Maintain Clean Conditions at Work Sites	Would require that work areas and access roads are maintained in an orderly condition and that materials or equipment left on site overnight are stored as inconspicuously as possible.
WQ-15 - Prevent Water Pollution	Would reduce impact to aquatic species and reduce transport of pollution in the channel network.
WQ-16 - Prevent Stormwater Pollution	Would reduce impact to aquatic species and reduce transport of pollution in the channel network.
GEN-1: In-Channel Work Window	Would reduce impacts related to in-channel work.
GEN-20: Erosion and Sediment Control Measures	Would reduce potential impacts of erosion by installing control measures.
GEN-21 - Staging and Stockpiling	Would reduce impacts related to storing of equipment and materials.
GEN-26 - Spill Prevention and Response	Would reduce risk of potential spills of hazardous materials.
GEN-30 - Vehicle and Equipment Maintenance	Would ensure that on-site equipment is operating properly through vehicle maintenance.
GEN-31 - Vehicle Cleaning	Would ensure that on-site equipment is cleaned away from aquatic resources and sensitive habitats
GEN-32: Vehicle and Equipment Fueling	Would ensure that fueling occurs away from aquatic resources and sensitive habitats.
GEN-35 - Pump/Generator Operations and Maintenance	Would reduce impacts related to pump or generator operations and maintenance.
VEG-1 - Minimize Local Erosion Increase from In-Channel Vegetation Removal	Would reduce local erosion potential from in-channel vegetation removal.
BANK-1 - Bank Stabilization Design to Prevent Erosion Downstream	Would reduce impact of erosion.
BANK-2 - Concrete Use Near Waterways	Would reduce concrete use near waterways
BANK-3 - Bank Stabilization Post-	Would reduce impact of erosion during post-

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
Construction Maintenance	construction maintenance.
REVEG-1 - Seeding	Would require that restored areas are planted with native seeds as soon as work activities are complete.
VHP Conditions	
VHP Condition 3	Maintain Hydrologic Conditions and Protect Water Quality
VHP Condition 4	Would reduce impacts for in-stream projects
VHP Condition 5	Would reduce impacts for in-stream operations and maintenance
VHP Condition 7	Would reduce impacts of rural development
VHP Condition 11	Would minimize impacts on streams by specifying setbacks and buffer zones
VHP Condition 12	Would minimize impacts on wetlands and ponds and avoid impacts on high quality wetlands and ponds
Land Use	
BMPs	
AQ-1: Use Dust Control Measures	Would require implementation of dust and air quality management measures, including implementation of BAAQMD’s BMPs for dust suppression.
AQ-2: Avoid Stockpiling Odorous Materials	Would avoid stockpiling odorous materials within 1,000 feet of sensitive land uses.
TR-1: Use Suitable Public Safety Measures	Would reduce the potential for safety impacts on traffic.
GEN-36: Public Outreach	Would specify measures to notify the public.
GEN-37: Implement Public Safety Measures	Would specify public safety measures to notify and warn the recreating public of work activities.
GEN-39: Planning for Pedestrians, Traffic Flow, and Safety Measures	Would schedule bicycle and pedestrian facility closures outside the peak periods to minimize recreational access and use impacts.
Public Services	
BMPs	
HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance	Would reduce the potential for accidental upset of hazardous materials.
HM-9: Ensure Proper Hazardous Materials Management	Would reduce the potential for accidental upset of hazardous materials.
HM-12: Incorporate Fire Prevention Measures	Would reduce the potential for fire ignition.
TR-1: Use Suitable Public Safety Measures	Would reduce the potential for safety impacts on

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
	traffic.
Recreation	
BMPs	
AQ-1: Use Dust Control Measures	Would require implementation of dust and air quality management measures, including implementation of BAAQMD's BMPs for dust suppression.
AQ-2: Avoid Stockpiling Odorous Materials	Would avoid stockpiling odorous materials within 1,000 feet of sensitive land uses.
TR-1: Use Suitable Public Safety Measures	Would reduce the potential for safety impacts on traffic.
GEN-36: Public Outreach	Would specify measures to notify the public.
GEN-37: Implement Public Safety Measures	Would specify public safety measures to notify and warn the recreating public of work activities.
~~GEN-38: Minimize Noise Disturbances to Residential Areas~~	~~Would specify maintenance practices that minimize disturbances to residential areas and recreational facilities and users.~~
GEN-39: Planning for Pedestrians, Traffic Flow, and Safety Measures	Would schedule bicycle and pedestrian facility closures outside the peak morning and afternoon periods to minimize the effect of Project measures on recreational access and use.
Transportation	
BMPs	
TR-1: Use Suitable Public Safety Measures	Would reduce the potential for safety impacts on traffic.
Tribal Cultural Resources	
BMPs	
CU-1: Accidental Discovery of Archaeological Artifacts or Burial Finds	Would formalize response and handling of accidental discovery so as to minimize the potential for disturbing previously recorded or newly discovered prehistoric or historic archaeological resources.
Utilities and Service Systems	
BMPs	
WQ-16: Prevent Stormwater Pollution	Would prevent stormwater pollution by installing sedimentation and erosion control measures.
WQ-17: Manage Sanitary and Septic Waste	Would avoid the need for relocation or construction of wastewater treatment facilities through the use of temporary sanitary facilities.

Valley Water SMP[1]/BMP/VHP No.	SMP/BMP/VHP Summary
Wildfire	
BMPs	
HM-12: Incorporate Fire Prevention Measures	Would reduce the potential for fire ignition.
TR-1: Incorporate Public Safety Measures	Would reduce the potential for safety impacts on traffic.

Sources: Valley Water 2014, 2019

Notes:

[1] SMP BMPs are only applicable to Project activities conducted at or near surface waters in areas downstream of Anderson Dam.

Key: AQ = Air Quality; BAAQMD = Bay Area Air Quality Management District; BI = Biology; BMP = best management practices; CU = Cultural Resources; EIR = Environmental Impact Report; GEN = General; HM = Hazards and Hazardous Materials; NOA = Naturally occurring asbestos; SMP = Stream Maintenance Program; TR = Transportation; WQ = Water Quality; VHP = Santa Clara Valley Habitat Plan

2.11.2 Valley Habitat Plan Conditions

The VHP is a joint Habitat Conservation Plan (HCP) and Natural Communities Conservation Plan (NCCP) developed to serve as the basis for issuance of incidental take permits and authorizations pursuant to Section 10 of the federal ESA, the California Endangered Species Act (CESA), and NCCPA (SCVHA, 2012). The Project is a covered activity identified in the VHP. Valley Water would adhere to applicable VHP conditions 1, 3, 4, 5, 7, 8, 11, 12, 13, 17, 19, and 20 ~~and 5~~, and all applicable VHP AMMs, including the aquatic habitat AMMs from the VHP (VHP Table 6-2) throughout Project implementation (**Table 2-21**). Valley Water would also pay applicable VHP impact fees, which are included in the Project as a Conservation Measure. The applicable VHP conditions and AMMs are included in Appendix A, *Best Management Practices and Santa Clara Valley Habitat Conservation Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures ~~Incorporated in the Project~~.* All VHP conditions and AMMs would be incorporated into the construction documents (plans and specifications).

2.12 Permits, Approvals, and Consultations

This EIR would be used by the regulatory agencies issuing permits, as well as for other agency approvals and consultations for the Project. **Table 2-22** ~~**Table 2-23**~~ provides a list of the agencies that are expected to use the EIR in their decision-making or consultations, and the applicable permits, approvals, and consultations that are expected to be required for the Project.

Table 2-22 ~~2-23~~. Regulatory Permits, Approvals, and Consultations for the Project

Agency	Permit / Approval / Consultation
Federal Agencies	
FERC – NEPA Lead Agency	FERC NEPA Regulations (18 CFR Part 2.80, 380) – oversight of conditional surrender of FERC hydroelectric license exemption and completion of NEPA process; lead federal agency for ESA Section 7 and NHPA Section 106 consultation
NMFS	ESA – Section 7 consultation on combined FOCP and the Project
	Magnuson-Stevens Act – Essential Fish Habitat Assessment on combined FOCP and the Project
U.S. Army Corps of Engineers	Section 404 of the Clean Water Act – permit or FOCP permit amendment
USFWS	ESA –authorization under incidental take provisions of the VHP for Covered Species and Activities –Section 7 consultation on the Project for non-Covered Species or Activities
State Agencies	
CDFW	Section 1600 et seq. of the California Fish and Game Code – Lake or Streambed Alteration Agreement
	California Endangered Species Act – authorization under incidental take provisions of the VHP for Covered Species and activities --Individual Section 2081 Permit for Non-Covered Species or Activities
DSOD	California Water Code, Division 3 – approval of repairs or alterations to a dam or reservoir California Code of Regulations, Title 23 – approval of dam safety and dam repairs or alterations
San Francisco Regional Water Quality Control Board	San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (Order No. R2-2022-0018; NPDES Permit No CAS612008, as amended)
SWRCB	Section 401 of the Clean Water Act and Porter Cologne Water Quality Control Act – water quality certification Section 402 of the Clean Water Act – notification under Construction General Permit Order No. WQ 2022-0057-DWQ ~~2009- 0009-DWQ~~ Water rights license amendments California Statewide NPDES Permit for Discharges

Agency	Permit / Approval / Consultation
	from Drinking Water Systems (Order WQ 2014-0194-DWQ; NPDES No. CAG140001, as amended)
San Francisco Bay Conservation and Development Commission	Coastal Zone Management Act Consistency Certification
State Office of Historic Preservation	NHPA Section 106 consultation
Regional and Local Agencies	
BAAQMD	Authorities to Construct and Permits to Operate stationary source equipment
County of Santa Clara	County Floodplain Development Permit Approval of access/activities on County owned land and consultation on the reestablishment of recreational facilities Other County approvals applicable to Valley Water
City of San José	Cherry Flat Reservoir Cooperative Operating Agreement Other municipal approvals applicable to Valley Water
City of Morgan Hill	Encroachment permit, temporary right of entry
	Other municipal approvals applicable to Valley Water

Key: BAAQMD = Bay Area Air Quality Management District; CDFW = California Department of Fish and Wildlife; CFR = Code of Federal Regulations; DSOD = California Department of Water Resources, Division of Safety of Dams; ESA = federal Endangered Species Act; FERC = Federal Energy Regulatory Commission; FOCP = FERC Order Compliance Project; NEPA = National Environmental Policy Act; NHPA = National Historic Preservation Act; NMFS = National Oceanic and Atmospheric Administration – National Marine Fisheries Service; SWRCB = State Water Resources Control Board; USFWS = U.S. Fish and Wildlife Service; VHP = Santa Clara Valley Habitat Plan

2.12.1 Water Rights Amendments

In May 2015, Valley Water submitted proposed water rights amendments, or Petitions for Change, to the SWRCB to address technical aspects of the water rights subject to the FAHCE Settlement Agreement; these Petitions are being updated. The amendments are intended to update the water rights held in the Coyote Creek Watershed consistent with the FAHCE ~~FACHE~~ Settlement Agreement and implementation of FAHCE flow curve post-construction operation. Technical changes include correcting the locations of points of diversion and updating maps. The petitions also request that Valley Water's water rights licenses be amended to add Fish and Wildlife Preservation and Enhancement as a beneficial use of the diverted water. Chapter 5 of the FHRP supports the petitions as they propose modifying current operations to ensure that this beneficial use of water is achieved. Specific proposed water rights changes to Valley Water's Coyote Creek rights permits are listed in **Table 2-23** ~~**Table 2-24**~~**.**

Table 2-23~~2-24~~. Water Right Amendments Proposed

Permit Number	Facility/Water Source	Priority Date	Current Appropriation (Acre Feet per Year)	Diversion Period	Existing Purpose of Use	Change Proposed in Petition[1]
5061	Coyote Reservoir/ Coyote Creek	12/09/1931	24,560	10/01 to 07/01	Domestic, Irrigation, Minor Industrial and Incidental Recreation	Change Purpose of Use to Municipal, Minor Industrial and Fish and Wildlife Preservation and Enhancement
5062	Coyote Percolation Pond/Coyote Creek	07/10/1935	5,000	04/01 to 12/15	Domestic and Irrigation	Change Purpose of Use to Municipal, and Fish and Wildlife Preservation and Enhancement
8494	Anderson Reservoir/ Coyote Creek	04/04/1949	71,100	12/01 to 05/01	Domestic, Irrigation, Industrial, Recreational and Incidental Power	Change Purpose of Use to Municipal, Industrial, Incidental Power, and Fish and Wildlife Preservation and Enhancement
14704	Anderson Reservoir/ Coyote Creek	01/21/1963	20,180	10/01 to 07/01	Domestic, Industrial, Recreational and Incidental Power	Change Purpose of Use to Municipal, Industrial, Incidental Power, and Fish and Wildlife Preservation and Enhancement

[1] *Valley Water plans to amend its rights petitions to not seek the removal of irrigation and recreational uses from its water right licenses as part of the change petition process.*

2.13 References

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Chapter 3
ENVIRONMENTAL AND REGULATORY SETTING AND IMPACT ANALYSIS

3.0 Introduction

Chapter 3 presents the environmental setting, regulatory framework, impacts, and mitigation measures applicable to the Project. Section 3.0, *Introduction* of Chapter 3, *Regulatory and Environmental Setting and Impact Analysis* introduces the common features used to assess impacts for each of the EIR's 22 resource topic areas, including the regional environmental setting, the definition of the Project baselines, and the definition of the analytical time horizon. This section also describes the overall organization of the environmental resource sections to follow and the approach to assessing impacts. Finally, based on an IS completed pursuant to *CEQA Guidelines* (Appendix B), this section identifies resource topic areas that were evaluated and found to have no potential for significant impacts based on the scope and nature of the Project activities and provides the justification for eliminating them from detailed analysis in this EIR.

3.0.1 Regional Environmental Setting and Project Area

As described in Section 2.2, *Project Location*, of Chapter 2, *Project Description,* the regional setting area (refer to Section 2.2.1 ~~2.1.1~~) for the purposes of this EIR is defined as the Coyote Creek Watershed, including mainstem tributaries and Valley Water water supply facilities where Valley Water holds corresponding water rights licenses.

The Project Area (refer to Section 2.2.2 ~~2.1.2~~), for the purposes of this EIR, is defined as the area and immediate vicinity within which all construction-related activities or ground disturbance would occur and the areas and facilities that would be operated through the implementation of the Project. The Project Area, including lands associated with both the Seismic Retrofit and Conservation Measure components, is described in detail in Section 2.2.2 ~~2.1.2~~ and shown in **Figure 2-3a** and **Figure 2-3b**. The Project Area includes Anderson Reservoir, Anderson Dam, Coyote Creek channel below Anderson Dam (including the tidally inundated portion of lower Coyote Creek and the waters of San Francisco Bay to the confluence with Alviso Slough for construction impacts), the Coyote Creek CWMZ, and lands in the immediate vicinity of Anderson Reservoir and Coyote Creek (owned by Valley Water, the County of Santa Clara, or by private landowners), as well as portions of the Cochrane Road and Coyote Road rights-of-way. Please note that specific study areas for each resource impact analysis are defined within the individual environmental resource topic sections; study areas can be larger than the Project Area in order to account for the full range of direct and indirect impacts that could result from the Project.

3.0.2 Environmental Baselines

Under CEQA, physical baseline conditions serve as the basis against which the incremental impacts of a proposed project are measured. The effects of Project implementation are compared with environmental baseline conditions under each resource topic. As described in *CEQA Guidelines* section 15125(a)(1):

> Generally, the lead agency should describe physical environmental conditions as they exist at the time the notice of preparation is published… [August 2013].
>
> Where existing conditions change or fluctuate over time, and where necessary to provide the most accurate picture practically possible of the project's impacts, a lead agency may define existing conditions by referencing historic conditions, or conditions expected when the project becomes operational, or both, that are supported with substantial evidence. In addition, a lead agency may also use baselines consisting of both existing conditions and projected future conditions that are supported by reliable projections based on substantial evidence in the record.

Each resource topic section (Sections 3.1 through 3.22) includes a description of the environmental setting for the resource topic in the relevant Project Area. Where appropriate, environmental baseline conditions are included in this description. For construction phase impacts, existing conditions at the time of the NOP (2013) are not used[1] because many environmental conditions have changed since 2013. Instead, either existing conditions based on data available at the time of EIR preparation or post-FOCP conditions (if FOCP implementation has changed these existing conditions) are generally used, which allows for a more accurate prediction of Project impacts. Where resources would be affected by proposed flow measures associated with post-construction operations, two modeled baselines are generally used. These are:

- "Pre-FERC Order Baseline" – represented by groundwater recharge operations to meet current consumer demand and Coyote Creek conditions immediately prior to the 2020 FERC IRRM Order (i.e., prior to the reservoir drawdown to deadpool and FOCP).
- "Future Baseline" – anticipated future, post-construction "business-as-usual" Anderson Dam operations without implementing FAHCE or flow regime improvements after all seismic safety improvements have been implemented, permitting the reservoir to return to maximum storage capacity, including groundwater recharge operations to meet future anticipated consumer demand and anticipated Coyote Creek conditions in the absence of drawdown, FOCP construction, and Project construction.

Construction and operational environmental baselines are further described below.

3.0.2.1 Existing Conditions Baseline

The baseline for evaluating the construction phase impacts of Seismic Retrofit components, downstream non-flow Conservation Measures, construction phase flow operations and flow Conservation Measures, and other physical elements of the Project generally relies on publicly accessible data and/or field observations representing existing conditions when this EIR was written. This baseline includes consideration of post-FOCP conditions where FOCP implementation has changed or will change existing conditions. In other words, "existing

[1] Under *CEQA Guidelines* Section 15025(a), existing conditions at the time of NOP publication are generally used as the environmental baseline, but due to the age of the Project EIR NOP, this EIR uses more recent information to provide a more accurate picture of Project construction impacts.

conditions" for Seismic Retrofit component construction, flow operations, and flow and non-flow measure implementation includes changes to the environment caused by construction of the FOCP upgrades to existing Anderson Dam and Reservoir facilities. Accordingly, for evaluation of construction phase impacts, environmental settings for resources near the Project Area and relevant study areas are described as they would exist following completion of the FOCP.

This existing conditions baseline applies to all resource topics and construction impacts. It is generally used to determine impacts of both physical facility Conservation Measure components construction, and impacts of construction phase reservoir operations and flow releases, including construction phase flow Conservation Measures. In addition, for water-related resource topics, the Pre-FERC Order Baseline is also generally used to analyze impacts of construction phase reservoir operations and flow releases, including construction phase flow Conservation Measures components.

With respect to construction phase flow operations and releases, the existing conditions baseline accounts for the reservoir drawdown condition and associated reduced flow operations mandated by the FERC Order, as well as the completion of the ADTP and downstream flood management measures as required by the FERC Order and resulting FOCP. The use of the existing conditions baseline is particularly important to obtaining an evaluation of the effects of the Project on conditions existing at the time the Project would be commenced, and is used when analyzing the biological resources and water resources (i.e., hydrology, water quality, groundwater) Project construction impacts.

3.0.2.2 Post-Construction Operational Impact Baselines

Background on Historical and Current Anderson Reservoir Operations

As discussed in Chapter 1, *Introduction*, between 2008 and 2012, several dam safety deficiencies associated with seismic shaking, fault offset, flood capacity, and emergency drawdown capabilities were identified that have been the catalyst for several voluntary and regulatory-agency-imposed reservoir restrictions. These restricted capacity conditions imposed prior to the 2020 FERC IRMM order became the "typical" historical operating condition for Anderson Reservoir and, therefore, are reflected by DSOD restrictions assumed to constrain Anderson Reservoir in the Pre-FERC Order Baseline condition described below.

Historically, water released for groundwater recharge incidentally has provided in-stream environmental flows for the FCWMZ, and in some cases downstream of the FCWMZ, and provided connectivity between Coyote Creek and San Francisco Bay. Historically, these releases have been made year-round, but releases have been generally higher in the summer when the groundwater basins are dryer and groundwater pumping is higher, which requires more water for percolation to meet water supply demands, while maintaining sustainable groundwater levels to prevent subsidence. Historically, flows from the reservoir's "cold pool" have been released primarily in summer and fall months, at times mixed with imported water flows from the CDL, to augment in-stream flows and to provide cooler temperature flows than would otherwise be present in the FCWMZ to benefit steelhead. In addition, Valley Water has historically been required to maintain a flow of 2.5 cfs past the Edenvale streamflow gage (SF58), which marks the end of the groundwater recharge zone, to keep the creek wet all the way to the San Francisco Bay per the Lake and Streambed Alteration Agreement (LSAA) that Valley Water has with CDFW (Valley Water 2020a).

In 2020, the FERC IRRM Order mandated that Valley Water must implement IRRMs (FERC 2020a), including additional drawdown to further restrict the reservoir at deadpool (i.e., elev. ~~488~~ 490 feet, equivalent to 2,850 AF of reservoir storage). This reservoir capacity limitation contributes to current existing conditions, which reflect drawdown and implementation of the FOCP. Due to restrictions imposed by the 2020 FERC IRRM Order on reservoir storage capacity, and, in turn, reductions in reservoir water available for operation, the amount of reduction in operational releases has varied from year to year since the FERC IRRM Order, based on non-reservoir watershed inflows, availability and quality of imported water, pipeline outages, groundwater supplies, and water demand. The FERC IRRM Order, subsequent FERC Orders (FERC 2020b and FERC 2021), and the resulting FOCP are not considered in the Pre-FERC Order Baseline because the Pre-FERC Order Baseline is intended to reflect a historical period of typical Anderson Dam operations, prior to the emergency FERC IRRM Order and FOCP implementation.

The Pre-FERC Order Baseline is used as the baseline for comparison of post-construction Project operations, allowing a comparison of post-construction typical operations with pre-dam retrofit typical operations. The Pre-FERC Order Baseline constitutes the Water Evaluation and Planning (WEAP) modeled historical typical operations baseline, reflecting historical DSOD ~~seismic~~ restrictions issued prior to the FERC IRRM Order *but not* the environmental conditions after implementation of the FERC IRRM Order and FOCP (which are the conditions captured by the existing conditions baseline described in section 3.0.2.1 above).

The operations described by the Pre-FERC Order Baseline continued with both voluntary and DSOD safety restrictions in place for many years prior to the FERC IRRM Order, limiting available water storage in Anderson Reservoir to some extent, until the February 2020 FERC IRRM Order severely limited storage in Anderson reservoir to deadpool. Therefore, the Pre-FERC Order Baseline is an appropriate historical typical operations baseline for evaluating effects of post-construction Project operations. Since the 2020 FERC IRRM Order, water supply and groundwater recharge operations and flow releases have continued with both historical DSOD restrictions *and* FERC IRRM Order restrictions in place.

Pre-FERC Order Baseline for Post-Construction Operational Impacts

For the purposes of this ~~Draft~~ EIR, the Pre-FERC Order Baseline describes the typical operational conditions with historical DSOD reservoir capacity ~~seismic~~ restrictions but prior to the FERC IRRM Order ~~seismic~~ restrictions and FOCP facility upgrades. The Pre-FERC Order Baseline is represented by a modeled projection of 2015 flow conditions using a hydrological period of record extending from 1990 through 2010[2] and is based on water demands and usage estimates from Valley Water's 2015 Urban Water Management Plan (UWMP; Valley Water 2016 ~~2015~~), which was then the most recent UWMP available for incorporation into the WEAP model. In addition to the 1990-2010 period of record and 2015 estimates of water supplies and demands, the Pre-FERC Order Baseline incorporates DSOD ~~seismic~~ restrictions for Anderson and Coyote Creek dams, prior to the emergency FERC IRRM Order restrictions (i.e., drawdown and FOCP implementation), as described in Chapter 1, *Introduction*. The historical DSOD reservoir capacity ~~seismic~~ restrictions, hydrological period of record, and 2015 UWMP water demands and usage

[2] The Pre-FERC Order Baseline is also consistent with the "current conditions" baseline in the FAHCE EIR, where the FERC Order was not assumed for Anderson operations, which assures evaluation of post-Project operations with ongoing operations in a manner consistent with recommendation of the FAHCE Advisory Committee regarding flow modeling and, specifically, the WEAP model.

reasonably represent typical normal operational conditions prior to the FERC IRRM Order restrictions.[3] Resource topics using this modeled Pre-FERC Order Baseline to evaluate post-construction impacts particularly include biological resources (focused on fisheries, riparian habitats, wetlands), hydrology, groundwater, water quality, and water supply.

For post-construction impact analyses of effects associated with the completion of seismic retrofit components, non-flow Conservation Measures, and other physical components of the Project, for all other resource topics, the Pre-FERC Order Baseline condition is generally not used. Instead, the baseline for assessment of post-construction impacts of completed physical facilities and improvements is existing conditions at the time of the Draft EIR preparation, including post-FOCP conditions when applicable (i.e., the Construction Phase Baseline). This baseline is used for the evaluation of post-construction impacts of completed facilities and improvements for resource topics, including aesthetics, agricultural and forestry resources, air quality, other terrestrial biological resources, cultural resources, energy, geology and soils, greenhouse gas (GHG) emissions, hazards and hazardous materials, land use and planning, noise and vibration, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and wildfire.

Future Baseline for Post-Construction Operational Impacts

For the purposes of this ~~Draft~~ EIR, a Future Baseline for Anderson Reservoir post-construction operations is also sometimes used that represents projected conditions if business-as-usual operations were resumed after completion of the Project, without implementing FAHCE or flow regime improvements, but after all seismic safety improvements have been implemented, permitting the reservoir to return to maximum storage capacity. The purpose of adding a Future Baseline analysis is to isolate the incremental impacts and benefits of implementing the FAHCE rule curves after Project construction. The Future Baseline was modeled using the same hydrological period of record as the Pre-FERC Order Baseline; however, the Future Baseline model uses projected 2035 water demands and conditions as defined in Valley Water's 2015 UWMP (Valley Water 2016 ~~2015~~) and Water Supply Master Plan 2040 (Valley Water ~~2016a~~, 2019a). Elimination of DSOD dam restrictions, together with the data from the same hydrological period of record, and 2035 water demands are considered reasonably representative of future business-as-usual conditions. Future Baseline conditions are considered to evaluate post-construction operations impacts, particularly for the resource topics materially affected by changes in flow conditions. For these resource topics, the impacts of Project implementation as of 2035 are also compared to Future Baseline conditions.

3.0.3 Environmental Resource Topic Sections

This chapter, Chapter 3, discusses the approach to determining the regulatory and environmental setting used to determine significant impacts per each environmental resource section. Sections 3.1 through 3.22 of the ~~Draft~~EIR discuss the following environmental resource topics and impact analyses for the Project. The following environmental resource topics are analyzed in this EIR:

[3] The 2020 UWMP, an update to the 2015 UWMP, was adopted by the Valley Water Board of Directors in June 2021. Nevertheless, the 2015 UWMP continues to reasonably represent typical operating conditions prior to the severe FOCP restrictions.

- 3.1 – Aesthetics
- 3.2 – Agriculture and Forestry Resources
- 3.3 – Air Quality
- 3.4 – Biological Resources – Fisheries Resources
- 3.5 – Biological Resources – Wildlife and Terrestrial Resources
- 3.6 – Cultural Resources
- 3.7 – Energy
- 3.8 – Geology and Soils
- 3.9 – Greenhouse Gas Emissions
- 3.10 – Hazards and Hazardous Materials
- 3.11 – Hydrology
- 3.12 – Groundwater Resources
- 3.13 – Water Supply
- 3.14 – Water Quality
- 3.15 – Land Use
- 3.16 – Noise and Vibration
- 3.17 – Public Services
- 3.18 – Recreation
- 3.19 – Transportation
- 3.20 – Tribal Cultural Resources
- 3.21 – Utilities and Service Systems
- 3.22 – Wildfire

Sections 3.1 through 3.22 contain the following information about each resource topic:

- **Environmental and Regulatory Setting:** a description of the environmental and regulatory setting and background information about the resource topic to help the reader understand the resources that could be affected by the Project
- **Methodology and Approach to the Impact Analysis:** a description of the methodology and approach to the impact analysis, including a description for how potential (for and the severity of) impacts have been analyzed, usually broken into the following Project components:
    - Seismic Retrofit Construction: impact analysis associated with constructing the Seismic Retrofit components of the Project, including construction phase reservoir operations and flow releases when relevant to the resource topic
    - Conservation Measures Construction: impact analysis for the construction of proposed physical, non-flow Conservation Measures
    - Post-Construction Anderson Dam Facilities Operations and Maintenance: impact analysis for operational rule curve changes tied to non-emergency flow releases to occur following Anderson Dam facility upgrades and improvements
    - Post-Construction Conservation Measures Operation and Maintenance: impact analysis for the operation and maintenance of certain physical Conservation Measures components (Phase 2 Coyote Percolation Dam CM, Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Sediment Augmentation Program, and Maintenance Activities at the Live Oak Restoration Reach) following their construction
    - Post-Construction Project and FAHCE Adaptive Management: programmatic impact analysis of implementing the Project and FAHCE AMP following Project construction

- **Applicable Best Management Practices and VHP Conditions:** a discussion of applicable BMPs~~,~~ and VHP Conditions~~, and mitigation avoidance and minimization measures~~ that would allow Valley Water to avoid, minimize, or compensate for Project impacts
- **Thresholds of Significance:** a discussion of the criteria and thresholds used in determining the significance of the Project's environmental impacts
- **Impact Analysis:** a discussion of the impacts of the Project on the resource, including a **bolded** determination of significance for each impact criterion
- **Mitigation Measures:** a description of feasible mitigation measures to avoid or substantially lessen significant impacts

3.0.3.1 Environmental and Regulatory Settings

Sections 3.1 through 3.22 include detailed descriptions of the environmental and regulatory settings of the Project specific to individual resource topics. The environmental setting section for each resource topic describes existing conditions and environmental baselines for the Project Area and the resource-specific study area. The regulatory setting section for each resource topic describes the applicable federal, state, and local laws, regulations, and policies that guide the protection and use of that resource, providing context for the Project and a basis for determining the Project's consistency with applicable plans and regulations.

3.0.3.2 Impact Analyses

The impact analysis for each resource topic covers the construction, construction phase operations, and post-construction operations and maintenance aspects of the Project components. Impacts are organized based on defined thresholds of significance, as introduced in each section. For this reason, in most resources, each resource topic includes individual impact headings. For example, if a resource topic area includes three thresholds of significance, there are three corresponding first-level impact headings (for example, Impacts AQ-1, AQ-2, and AQ-3). Each of these impact categories might then be further divided into a series of sub-impacts (for example, Impacts AQ-1a, AQ-1b, and AQ-1c) for which the same stated threshold is applied to multiple specific impacts.

Where applicable, avoidance and minimization measures (as listed in Section 2.10), including BMPs and VHP conditions (see Appendix A) relevant to each resource topic are identified at the beginning of that section, and the subsequent impact analysis assumes inclusion of these BMPs and VHP conditions as part of the Project. BMPs and VHP condition are further discussed within the context of each significant impact evaluation when they effectively reduce an adverse impact that would occur in the absence of the BMP or VHP conditions. Pre-mitigation impact significance findings rely on BMP or VHP condition implementation.

For significant impacts, feasible mitigation measures are proposed. Similar to the impact nomenclature, mitigation measures are denoted by the resource topic and numbered according to listing (i.e., taking air quality for example, Mitigation Measure AQ-1). Note that a mitigation measure established under one resource topic might also reduce an impact for another resource. These occurrences are identified and cross-referenced.

A statement of post-mitigation significance is provided based on applying the stated mitigation measures.

3.0.4 General Methodology

3.0.4.1 Impact Terminology

CEQA requires a lead agency to determine the significance of all environmental impacts (*CEQA Guidelines* section 15064). A threshold of significance for a given environmental impact defines the level of effect above which the lead agency considers impacts to be significant and below which considers impacts to be less than significant. Thresholds of significance are identifiable quantitative, qualitative, or performance levels for a particular environmental effect, whichever is most applicable to each specific type of environmental impact (*CEQA Guidelines* section 15064.7[a]).

The following terminology is used in this EIR to describe the various levels and types of environmental impacts associated with the Project:

- *Significance threshold:* A significance threshold is a criterion used by Valley Water, as lead agency under CEQA, to determine whether an adverse physical environmental impact would be significant.
- *Less-than-significant impact:* An impact is less than significant if the analysis concludes that the implementation of the Project would not result in environmental impacts that exceed the applicable significance threshold.
- *Significant impact:* An impact is significant if it would result in a substantial adverse change in the physical conditions of the environment, as determined by whether it exceeds the applicable significance threshold.
- *Significant and unavoidable impact:* An impact is significant and unavoidable if it would result in a substantial adverse physical change in the environment that cannot be feasibly mitigated to a less-than-significant level; that is, to a magnitude below the significance threshold.
- *Mitigation measure:* A mitigation measure is a feasible action proposed to be taken that would avoid or substantially lessen the magnitude of a significant impact. *CEQA Guidelines* section 15370 defines mitigation as:
    - Avoiding the impact altogether by not taking a certain action or parts of an action
    - Minimizing impacts by limiting the degree or magnitude of the action and its implementation
    - Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment
    - Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
    - Compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of conservation easements
- *Feasible:* For purposes of defining feasible mitigation measures, *feasible* means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (*CEQA Guidelines* Section 15364).

3.0.4.2 General Approach to Analysis of Post-Construction Phase Flow Operational Rule Curves and Other Flow Conservation Measures

Hydrologic, hydraulic, water temperature, and fisheries habitat modeling and comparison to the Pre-FOCP Order Baseline and Future Baseline provide a quantitative basis from which to assess the effects of proposed post-construction operational rule curves and other flow Conservation Measures, as well as proposed operational rule curves under the Project (and the FAHCE Plus Alternative). Models and other tools applied in the evaluation of the Project post-construction flow operations (and the FAHCE Plus Alternative), which are described further in Sections 3.4, 3.5, 3.11, 3.12, 3.14 of the ~~Draft~~ EIR, include:

- Hydrologic modeling (WEAP model) to simulate mean daily river flows at specific nodes or points of interest (POI) downstream of Anderson Reservoir and average daily reservoir storage volumes
- Water temperature modeling to simulate mean daily river water temperatures at specific POIs downstream of Anderson Reservoir
- Hydraulic modeling at specific POIs and within defined stream reaches and habitat types downstream of Anderson Reservoir to simulate water depth, water velocity, and wetted area
- Fisheries habitat availability estimation modeling for steelhead and fall run Chinook salmon life stages to estimate the suitability and extent of physical habitat availability in defined reaches of Coyote Creek based on modeled flows, hydraulics, water temperatures, and habitat monitoring data
- Fish passage modeling for steelhead and fall run Chinook salmon to estimate the number of days when adults and juveniles would be able to pass designated POIs in Coyote Creek based on simulated water depths and water temperatures.

Note that the ~~Draft~~ EIR analysis relies on integrated flow measure modeling originally developed for the FAHCE program, which included the Stevens Creek, Guadalupe River, and Coyote Creek watersheds. This EIR analysis, however, considers the model results only as they apply to Coyote Creek Watershed.

Computer simulation models and postprocessing tools were used to assess changes in hydrology, hydraulics, water temperature, and associated changes in habitat conditions that could occur during construction, and under the Project (and alternatives) relative to baseline comparisons. Model predictions and results were used for comparative purposes, and the analysis focused on differences in the results among comparative scenarios.

The models used in the analyses, although mathematically precise, should be viewed as having some inherent uncertainty because of limitations in the theoretical basis of the models, underlying data availability, and the scope of the formulation and function for which each model is designed. Nonetheless, models developed for planning and impact assessment purposes produce credible and reliable representative results and constitute professionally acceptable analytic tools with which to conduct environmental evaluations of the Project (and alternatives).

3.0.4.3 General Approach to Analysis of Conservation Measures

The impact analysis for physical, non-flow Conservation Measures relies both on site-specific information, where the locations for construction and operation for Conservation Measures are generally known (e.g., Phase 2 Coyote Percolation Dam CM, Ogier Ponds CM, Sediment Augmentation Program, Maintenance of the North Channel Reach ~~Extension~~, and Maintenance Activities at the Live Oak Restoration Reach), and also on geographic information system (GIS) analysis of the stream reaches in the Project Area, where site-specific information is unknown but environmental resources within, and adjacent-to, those reaches would be impacted. The analysis of impacts from non-flow Conservation Measures components considers construction, operation, and maintenance impacts associated with these measures.

Where appropriate, the EIR proposes mitigation measures for significant impacts that would result from implementation of physical, non-flow Conservation Measures, with Valley Water assigned responsibility for implementation (e.g., Valley Water would directly implement mitigation measures for fish barrier remediation projects in Coyote Creek, since these projects would be directly implemented by Valley Water). In some cases, a Conservation Measure would be implemented by another entity, for example, when another entity owns the property on which the Conservation Measure would be constructed and would implement physical facilities or improvements on the property. In that case, Valley Water would require implementation of the mitigation measure(s) through agreement with the implementing entity. For example, Valley Water would add the mitigation measures as conditions of a funding agreement with the implementing entity.

3.0.4.4 General Approach to Analysis of Project Construction Monitoring and Post-Construction Attainment of Conservation Measure Success Criteria

As described in Chapter 2, *Project Description*, construction monitoring activities include data collection to monitor habitat environmental conditions (e.g., water quality, fisheries, sediment deposition, groundwater, invasive species), identify any changes that have or may result from construction activity to ecological functions and habitat values, and where feasible, adjust construction activities to prevent or reduce the effect of those changes on baseline environmental conditions, often in compliance with Project regulatory permits. For the purpose of the EIR analysis, impacts of the monitoring program are based on the physical impacts that might occur if these activities are implemented (e.g., the impacts of electrofishing on special-status fish species).

Monitoring also includes assessing post-construction performance objectives and success criteria to be attained by physical, non-flow Conservation Measures, namely through habitat restoration. While data collection and assessment might indicate that certain Conservation Measures are not satisfying success criteria specified for those measures, such as habitat vegetation cover, presence of particular-sized gravel and woody debris, or similar criteria, the actions that would be undertaken to attain prescribed success criteria would be largely identical to the methods described for implementation of the Conservation Measure.

3.0.4.5 General Approach to Project and FAHCE Adaptive Management Program

The FAHCE AMP would guide post-construction adaptive management of Project flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers and includes compliance, validation, effectiveness and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are evaluated for resource topics where impacts are expected.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measures construction. Impacts of adaptive actions are evaluated for resource topics where impacts are expected; impacts are evaluated at a programmatic level because the detailed characteristics, timing, and/or locations of the proposed adaptive measures are not known at the time of EIR preparation. Project-specific CEQA review would be undertaken in the future, as necessary, when specific projects would be proposed and project-specific details would be available.

3.0.4.6 General Approach to Analysis of Water Rights Amendments

Valley Water is proposing changes to its currently held water rights in Coyote Creek watershed as part of the Project. As discussed in Section 2.10.1, *Water Rights Amendments*, technical changes to water rights include correcting the locations of points of diversion and updating maps. The petitions also request that Valley Water's water rights licenses be amended to add Fish and Wildlife Preservation and Enhancement as a beneficial use of the diverted water. The water rights amendments require SWRCB (responsible agency) approval. However, the water rights amendments themselves would not cause any physical impacts in addition to the Project impacts. Therefore, impacts of the proposed Coyote Creek Watershed water right amendments are not evaluated separately in this EIR.

3.0.5 Resource Topics Dismissed from Further Review

The IS for the Project evaluated potential impacts in an Environmental Checklist (provided in Appendix B, *Notice of Preparation/Initial Study and Scoping Report*) and determined that some resource topics would have no significant impacts. These topics were eliminated from further analysis in the ~~Draft~~ EIR.[4] The discussion that follows explains the rationale behind dismissal of these resource topics and summarizes the determinations made in the IS.

3.0.5.1 Mineral Resources

The IS dismissed the topic of mineral resources from further analysis because no mineral, oil, or gas resource-producing areas or recovery sites are known to be located in the Project Area. In addition, the Project would not involve any activities that could directly affect mineral production sites or prevent future availability of mineral resources. Specifically, the Project would not:

- result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state
- 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

Two on-site borrow areas have been identified as sources for the materials necessary to construct the Anderson Dam embankment and buttresses (see **Figure 2-4** in Chapter 2, *Project Description*). These areas have been identified as feasible for use as borrow areas for the Project, having the appropriate material types needed for construction. Based on the Economic Exclusion category presented in the *California Geological Survey Guidelines for Classification and Designation of Mineral Lands* (California Department of Conservation [CDOC] 2000), the materials from these borrow areas are not considered minerals of statewide importance, and the Project's use of the borrow areas also are not located in a locally important mineral resource recovery site (Santa Clara County 1994); therefore, the Project's use of the borrow areas would not affect future mining of mineral resources. Excavated materials would be used directly for dam reconstruction and would not be sold or distributed to other parties.

Some material required for Project construction may be obtained from offsite sources, but the quantity needed for construction of the Project would be relatively small and within the capacity of existing quarries.

In conclusion, Project construction activities would primarily rely on mineral resources found on site. Neither locally nor regionally important mineral resources are present within the Project Area that would become unavailable as a result of the Project, nor would the Project use a substantial quantity of mineral resources from off site or involve other activities that would adversely affect future mining in Santa Clara County. The Project would have no impact on mineral resources of local or statewide importance.

3.0.5.2 Population and Housing

The IS dismissed the topic of population and housing from further analysis because the Project would not involve the construction of new housing, induce growth, or disrupt or displace any existing housing units. Specifically, the Project would not:

[4] In some instances, the IS determined that certain impacts or entire topics would have no significant impacts; however, subsequent to filing the NOP, changes to the Project and/or new substantial evidence was made available to Valley Water, such that Valley Water has elected to carry forward these impact topics for further analysis in the ~~Draft~~ EIR.

- induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure[5]), that was not anticipated in approved local or regional planning documents
- displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere
- displace substantial numbers of people, necessitating the construction of replacement housing elsewhere

3.0.6 Approach to Cumulative Impacts

Cumulative impacts, as defined in Section 15355 of the *CEQA Guidelines*, refer to two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the proposed project when added to other closely related past, present, and reasonably foreseeable probable future projects. Pertinent guidance for cumulative impact analysis is provided in Section 15130 of the *CEQA Guidelines*:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (i.e., the incremental effects of the proposed project are significant when viewed in connection with the effects of past, current, and probable future projects) (*CEQA Guidelines* Sections 15130[a] and 15065[a][3]).
- An EIR should not discuss cumulative impacts that do not result in part from the project evaluated in the EIR.
- A project's contribution is not significant if the Project ~~project~~ is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
- The discussion of impact severity and likelihood of occurrence need not be as detailed as for effects attributable to the project alone.
- The focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than on attributes of the other projects that do not contribute to the cumulative impact.

3.0.6.1 Approach to Cumulative Impact Analysis: List Approach

Two approaches to a cumulative impact analysis are discussed in *CEQA Guidelines* Section 15130(b)(1). The analysis can be based on (a) a list of past, present, and probable future projects producing related or cumulative impacts, or (b) a summary of projections contained in a general plan or related planning document. The analysis presented in this EIR employs the list-based approach.

[5] Note that the Project replaces and upgrades existing infrastructure (i.e., the dam and associated appurtenances); however, the Project would not extend infrastructure, nor does it increase capacity of existing infrastructure.

The criterion for considering whether a project is reasonably foreseeable and probable in this EIR is whether the project has been defined in adequate detail – for instance, through the completion of publicly available preliminary evaluations, feasibility studies, and/or draft environmental and engineering documents – to identify project impacts. Projects that were only in development – without detailed descriptions, operations criteria, or general locations – at the time that this cumulative impact assessment was written were not considered further.

In addition, the following factors were used to determine an appropriate list of projects for consideration in this cumulative analysis:

- **Similar Environmental Impacts.** A relevant project contributes effects on resources also affected by the Project. The Project could have either less-than-significant impacts or significant impacts that could contribute to cumulative impacts. Relevant projects in this cumulative analysis are those that could contribute impacts to the same environmental resources.
- **Geographic Location.** A relevant project is located within a defined geographic location for the cumulative effect. The potential for the Project to contribute to a cumulative impact arises if projects are located within the same geographic area.

The following terminology is used in this EIR to describe the various levels and types of cumulative environmental impacts associated with the Proposed Project:

- **Cumulative impact**: Under CEQA, a cumulative impact refers to an impact created as a result of the project evaluated in the EIR, together with impacts of other reasonably foreseeable probable projects causing similar impacts. A significant cumulative impact is one in which the cumulative effect would exceed the applicable significance threshold.
- **Significance threshold**: Like that used to evaluate the impacts resulting from the Project and alternatives, this is the criterion used in the EIR to determine whether the magnitude of a cumulative environmental impact would be significant.
- **Significant cumulative impact**: A cumulative impact is considered significant if it would result in a substantial adverse change in the physical conditions of the environment, as determined by whether it exceeds the applicable significance threshold.
- **Cumulatively considerable:** Incremental project impacts are cumulatively considerable, and thus significant, when they are significant when viewed in connection with the effects of other projects [*CEQA Guidelines* Section 15064(h)(1)]. *CEQA Guidelines* Section 15130(a) states that, if the contribution of the project to a significant cumulative impact is less than considerable, the incremental impact is less than significant.

3.0.6.2 *Geographic Scope of Analysis*

The area of analysis for the cumulative impact evaluations varies depending on the resource topic being analyzed. **Table 3.0-1** defines the geographic scope that is used in the cumulative impact analysis for each resource area.

Table 3.0-1. Geographic Scope for Resources with Potential Cumulative Impacts

EIR Section	Resource	Geographic Area of Analysis
3.1	Aesthetics	Local and regional – Individual component sites and local viewshed
3.2	Agriculture and Forestry Resources	Local and regional – Individual component sites and regional vicinity (i.e., Coyote Valley and southern Santa Clara County)
3.3	Air Quality	Regional – Bay Area Air Basin* and local for potential health risk impacts
3.4	Biological Resources – Fisheries Resources	Local and regional – Coyote Creek and Upper Penitencia Creek Watersheds; San Francisco Bay
3.5	Biological Resources – Wildlife and Terrestrial Resources	Regional – Coyote Creek Watershed, central Santa Clara County, and San Francisco Bay
3.6	Cultural Resources	Local – Individual component sites or other ground disturbance areas and immediate vicinity
3.7	Energy	Regional – Santa Clara County
3.8	Geology and Soils	Local – Individual component sites or other ground disturbance areas and immediate vicinity; Coyote Watershed
3.9	Greenhouse Gas Emissions	Regional – Bay Area Air Basin* and statewide
3.10	Hazards and Hazardous Materials	Local – Individual component sites and immediate vicinity
3.11	Hydrology	Local – Local watershed system and individual construction/grading sites Regional – Santa Clara County and San Francisco Bay
3.12	Groundwater Resources	Local and regional – Santa Clara and Llagas Subbasins
3.13	Water Supply	Local and regional – Santa Clara County
3.14	Water Quality	Local and regional – Coyote Creek, and Upper Penitencia Creek, watersheds; San Francisco Bay
3.15	Land Use and Planning	Local – Individual component sites and immediate vicinity
3.16	Noise and Vibration	Local – Immediate vicinity of individual component sites (i.e., typically within 0.5 mile or less, depending on the nature of the project noise source)
3.17	Public Services	Local – Service areas of public service providers
3.18	Recreation	Local and regional within 5 miles – Recreation facilities/areas near individual component sites; other nearby regional recreation facilities/areas that may serve as alternate recreational locations (see Table 3.18-1 for a comprehensive list of facilities).
3.19	Transportation	Local and regional – Roadway network within Santa Clara County (including local roadways and major freeways/roadways)

EIR Section	Resource	Geographic Area of Analysis
3.20	Tribal Cultural Resources	Local – Individual component sites or other ground disturbance areas and immediate vicinity
3.21	Utilities and Service Systems	Local and regional – Service areas of public utilities
3.22	Wildfire	Local and regional – Individual component sites and immediate vicinity; central Santa Clara County

**Bay Area Air Basin as regulated by Bay Area Air Quality Management District.*

3.0.6.3 Timing and Duration of Cumulative Impacts

This analysis assumes that cumulative impacts for seismic retrofit construction activities and Conservation Measures construction activities would take place over approximately <u>8</u> ~~10~~ years <u>starting in 2027.</u> ~~(spring 2026 through winter 20302 for work on the dam and spring 2032 through 2034 for the Ogier Ponds CM).~~ These construction-related impacts would be temporary and would only occur during construction of the proposed facilities and Conservation Measures.

Cumulative short-term operational impacts would take place within 3-5 years following construction, and long-term operational impacts are those that would persist after construction of the Project has been completed, the reservoir has been filled, and the reservoir returns to normal operations. To contribute to longer-term, permanent, or operational cumulative effects, other activities must be probable future projects that also have long-term effects.

3.0.6.4 Determination of Baseline Conditions for Cumulative Impact Analysis

For the ~~Draft~~ EIR cumulative impact analysis, specifically to account for FOCP impacts, the environmental baseline is defined as existing conditions prior to FOCP implementation (i.e., a Pre-FERC Order baseline). This baseline is used both for construction impacts and for operational impacts. This is in contrast to the Project baseline approach used for the resource impact analysis in Sections 3.1 through 3.22, described in more detail in Section 3.0.2, *Environmental Baselines*. The Pre-FERC Order baseline for operational impact analysis, including background on Anderson Reservoir operations, is described in Section 3.0.2.2.

3.0.6.5 List of Relevant Projects

Table 3.0-2 lists the past, present, and reasonably foreseeable future projects ("projects" also include certain plans and programs) considered in the cumulative impact analysis. These projects were reasonably foreseeable and probable at the time of Draft EIR preparation.

Land-based projects are primarily projects throughout Santa Clara County that could affect resources similar to or the same as those affected by the Project. The list was developed by reviewing CEQAnet, an online database of CEQA documents (including proposed projects), Valley Water's Five-Year Capital Improvements Program list, and current project lists and databases for the City of Morgan Hill, City of San José, and Santa Clara County. While not every potential cumulative project is specifically listed, the list of cumulative projects is considered to be sufficiently thorough, such that it represents the types of impacts that would be generated by these other projects.

Table 3.0-2. Probable Future Projects, Programs, and Plans Considered for Cumulative Impact Analysis

Project Description (Name, Sponsor, Source)	Location	Timeframe	Key Affected Resources
Water Supply and Water Quality Improvement Projects			
Anderson Dam FERC Order Compliance Project (FOCP) – Valley Water The FOCP is a set of actions to comply with the FERC IRRM order including: Drawdown of Anderson Reservoir to deadpool Construction and operation of Anderson Dam Tunnel Bank and rim stability improvements Coyote Creek Chillers Existing intake structure modifications Channel and bank erosion control modifications Cross Valley Pipeline Extension Inflatable bladder dam at Coyote Percolation Pond Coyote Creek Flood Management Measures Coyote Creek Habitat Restoration Measures Avoidance and Minimization Measures See Section 1.3.3 for details In addition to the FOCP activities discussed in Section 1.3.3, Valley Water has purchased 9 houses along the rim of the reservoir that are subject to landslide risk. The purchase, abandonment, and eventual demolition of these houses are done as part of FOCP reservoir stability improvements, near the Hoot Owl Way landslide. CEQA analysis would need to be completed prior to demolition of the structures. (Valley Water 2020b)	Coyote Creek	Under construction; completion in 2026 ~~2024~~	Aesthetics Fisheries Resources Terrestrial Resources Hydrology Groundwater Resources Water Supply Water Quality Recreation
Coyote Creek Flood Protection Project – Valley Water Improvements along approximately nine (9) miles of Coyote Creek, between Montague Expressway and Tully Road, in San José. The primary objective is to provide protection from floods up to the level that occurred on February 21, 2017, equivalent to approximately a 5% flood (20-year event). Project implementation is expected from 2022 to 2026. (Valley Water 2022a)	Coyote Creek	Construction 2025 – 2027 ~~2031~~	Fisheries Resources Terrestrial Resources Hydrology Water Quality

Project Description (Name, Sponsor, Source)	Location	Timeframe	Key Affected Resources
Pacheco Reservoir Expansion Project – Valley Water, San Benito County Water District, and Pacheco Pass Water District The Valley Water Board has approved an MOU between Valley Water, Pacheco Pass Water District and San Benito County Water District and approved an option to buy land for a new dam and expanded reservoir on the North Fork of Pacheco Creek that could hold 141,000 AF of water. Constructed in 1939 and used for groundwater recharge, the existing reservoir is located about 13 miles southwest of San Luis Reservoir, off Highway 152. (Valley Water 2021c~~b~~)	Pacheco Creek – Santa Clara County	Draft EIR released in 2021 Construction timing to be determined ~~2027 - 2034~~	Air Quality Terrestrial Resources Cultural Resources Energy GHG Emissions Water Supply Tribal Cultural Resources Utilities
Singleton Road Fish Barrier, Stream Restoration, and Pedestrian Bridge Project – San Jose Removal of the existing Singleton Road low-water crossing, restoration of a portion of Coyote Creek, and construction of a bicycle and pedestrian bridge. The removal of the existing low-water crossing barrier and restoration of Coyote Creek is to provide opportunities for protected and endangered aquatic species to migrate upstream to better spawning areas. (Valley Water 2023a~~b~~)	Coyote Creek	Completed 2021	Fisheries Resources Terrestrial Resources Hydrology Water Quality
Guadalupe Dam Seismic Retrofit Project – Valley Water Improvements to Guadalupe Dam to stabilize the embankment to withstand a Maximum Credible Earthquake; implement improvements as necessary for the Dam to safely pass the Probable Maximum Flood; ensure that the outlet works and hydraulic control system meet DSOD requirements; relocate the intake structure out of the upstream berm; and incorporate other measures to address seismic and other dam safety deficiencies that are identified through the Project delivery process. (Valley Water 2015b ~~2021b~~)	Guadalupe Watershed	Construction 2028 – 2031 ~~2030~~	Fisheries Resources Terrestrial Resources Groundwater Resources Water Supply
Almaden Dam Improvements Project – Valley Water Modification or construction of a new intake structure to meet DSOD regulatory standards; reconfiguration of the spillway as a result of potential findings from the reservoir's future probably maximum flood investigation; and correction of ongoing operation and maintenance issues to aging hydraulic lines, valves and energy dissipaters. The project also includes a separate future element to fix the Almaden-Calero Canal to restore operational capacity to the canal and stabilize and improve maintenance access; however, these improvements are on hold until Valley Water	Guadalupe Watershed	Construction 2030-2032 ~~2025 - 2031~~	Fisheries Resources Terrestrial Resources Groundwater Resources Water Supply

Project Description (Name, Sponsor, Source)	Location	Timeframe	Key Affected Resources
completes improvements at the Anderson, Calero, and Guadalupe Dams. (Valley Water 2015d ~~2018~~)			
Calero Dam Seismic Retrofit Project – Valley Water Improvements to the Calero Dam to stabilize the Calero Dam embankment to withstand a Maximum Credible Earthquake; modify or replace the outlet works if determined to be inadequate; modify the spillway or increase the freeboard of the dam for safe passage of the Probable Maximum Flood; provide modifications that do not preclude potential future expansion of dam and reservoir to provide additional reservoir storage; and remove or relocate the Bailey Ranch structures and breach Fellow's Dike. (Valley Water 2015a~~2021a~~)	Guadalupe Watershed	Construction 2027 ~~2032~~ - 2036	Fisheries Resources Terrestrial Resources Groundwater Resources Water Supply Recreation
Silicon Valley Purified Water Project – Valley Water Construction of facility to purify water treated at wastewater treatment plants for groundwater recharge or raw water augmentation. Includes construction of water conveyance pipelines, lateral pipelines, and associated facilities. (Valley Water 2021b~~j~~)	San Jose, Sunnyvale, Santa Clara, Palo Alto, Los Gatos	Construction 2026 – 2030 ~~2029~~ (Palo Alto to Los Gatos)	Groundwater Resources Water Supply Water Quality
Valley Water-wide Programs and Projects			
Fish and Aquatic Habitat Collaborative Effort – Valley Water FAHCE is a collaborative process to identify actions to balance fish and aquatic habitat needs with Valley Water's water supply operations. The program seeks to improve aquatic spawning and rearing habitat and fish passage for migration to and from the watersheds of the Coyote Creek, Stevens Creek, and Guadalupe River. The FAHCE ~~FAVCE~~ EIR evaluates impacts of implementing these measures in the Stevens Creek and Guadelupe watersheds. These measures include (a) modifications to reservoir operations to provide instream flows; (b) restoration measures to improve habitat conditions and provide fish passage; and (c) monitoring and adaptive management. Environmental and community benefits includes providing flows to improve habitat conditions; resolving water rights concerns; and complying with regulatory requirements. A Final Program EIR was issued in June 2023 that included project-level review for some project components. (Valley Water 2023b~~a~~)	Coyote Creek, Stevens Creek, and Guadalupe Watersheds	~~Final EIR released in June 2023~~ Project for Stevens Creek, and Guadalupe River approved in August 2023 and is currently being implemented. Numerous fish passage improvements have been completed.	Fisheries Resources Terrestrial Resources Hydrology Groundwater Resources Water Supply Water Quality Recreation

Project Description (Name, Sponsor, Source)	Location	Timeframe	Key Affected Resources
Stream Maintenance Program (SMP) – Valley Water The SMP removes sediment, manages vegetation, clears trash and debris, and stabilizes banks within channel reaches that have been modified for flood protection. Work is performed annually between June and October following approval of the season's proposed work by the regulatory agencies. The program also includes the removal of nonnative/invasive vegetation and management of upland vegetation on Valley Water properties to comply with local fire codes and ensure access to the channels for maintenance and emergency work. An SMP mitigation measure, Stream and Watershed Land Preservation, includes acquisition and preservation of land in the upper watersheds. (Valley Water 2019b)	Stevens Creek, Guadalupe Creek	Ongoing/long term	Fisheries Resources Terrestrial Resources Cultural Resources Geology and Soils Hydrology Groundwater Resources Water Supply Water Quality Noise Recreation Tribal Cultural Resources
Water Supply Master Plan 2040 (WSMP)– Valley Water The WSMP analyzes what additional water supplies and infrastructure are necessary for Valley Water to meet future water demand assuming population growth, climate change, regulatory changes in imported supplies, and infrastructure constraints. The WSMP identifies purified water, additional demand management and water conservation efforts, Pacheco Reservoir, Los Vaqueros Reservoir, and the Delta Conveyance Project as potential projects to pursue to ensure future water supply reliability. The Water Supply Master Plan is updated every five years. (Valley Water 2019a)	Santa Clara County	Ongoing, long term	Groundwater Resources Water Supply
2020 Urban Water Management Plan (UWMP) – Valley Water The 2020 UWMP complements other Valley Water water resource planning efforts including planning for annual operations, sustainable groundwater management, recycled water, integrated water resource management, and integrated regional water management. The UWMP documents current and projected water supplies and demands over the next 25 years during normal and drought years, as well as water reliability analysis and conservation efforts. The plan provides an overall picture of current and future water conditions and management in Santa Clara County. Most importantly, it provides the demand and supply projections that form the basis of Valley Water's Water Supply Master Plan and includes Valley Water's Water Shortage Contingency Plan (WSCP) establishing actions and procedures for managing water shortages due to droughts and other emergencies consistent with state regulations.	Santa Clara County	Ongoing	Groundwater Resources Water Supply

Project Description (Name, Sponsor, Source)	Location	Timeframe	Key Affected Resources
The Urban Water Management Plan is updated every five years. (Valley Water 2021c~~a~~)			
Countywide Water Reuse Master Plan (WRMP) – Valley Water The Countywide WRMP complements other plans, including the 2020 UWMP, to help meet Valley Water's Water Supply Master Plan 2040 goals. Valley Water initiated the WRMP to identify locally reliable, sustainable, and efficient recycled and purified water to address its water supply challenges. Valley Water's goal is to develop recycled and purified water to provide for at least 10% of the total County water demands by 2025. To achieve this, Valley Water plans to develop up to 24,000 acre-feet per year (AFY) of additional highly purified water for potable reuse by the year 2025 and support continued production and expansion of recycled water. Valley Water's planning evaluates development of up to 45,000 AFY of purified water for potable reuse. Valley Water finalized its Countywide WRMP in June 2021. (Valley Water 2021c)	Santa Clara County	Ongoing, long term	Groundwater Resources Water Supply
Encampment Clean Up Program – Valley Water Valley Water, working with the City of San José, removes illegal encampments on Valley Water-owned property to reduce damage to riparian habitat, reduce trash entering the waterway, and improve water quality. (Valley Water 2022b ~~2021o~~)	Coyote Creek, Guadalupe River	Ongoing, long term	Fisheries Resources Terrestrial Resources Hydrology Water Quality Utilities
Dam Maintenance Program – Valley Water The Dam Maintenance Program is comprised of four key elements – periodic engineering studies, surveillance and monitoring, inspection and maintenance, and emergency response and preparedness. Maintenance on the dams consists of vegetation management on the dam face, along access roads, and around infrastructure such as spillways, outlets, and control systems. (Valley Water 2012)	Valley Water dams in Santa Clara County	Ongoing, long term	Air Quality Fisheries Resources Terrestrial Resources Cultural Resources Energy Geology and Soils GHG Emissions Hydrology Groundwater Resources Water Supply Water Quality Noise Tribal Cultural Resources

Project Description (Name, Sponsor, Source)	Location	Timeframe	Key Affected Resources
Valley Water Additional Conservation and Stormwater Projects and Programs – Valley Water Incentivizing the use of advanced metering infrastructure; customer side leak repair incentives; graywater program expansion; rebates for the installation of rain barrels, cisterns, and rain gardens; partnerships to construct stormwater capture basins; and a flood- managed aquifer project. Implementation ongoing.	Santa Clara County	Operations: Potential changes to Valley Water supplies	Hydrology Groundwater Resources Water Supply Water Quality
Valley Water 10-Year Pipeline Inspection and Rehabilitation Program – Valley Water This program is intended to keep approximately 140 miles of large diameter water pipelines reliable. The work includes inspecting, repairing and replacing distressed pipe sections, defective or older valves and flowmeters. It also includes update of electric and control systems, repair corrosion protection systems and installation of a new pipeline monitoring system.	Valley Water pipelines in Santa Clara County	Ongoing, long term	Hydrology Groundwater Resources Water Supply Water Quality
Regional Projects			
San Francisco Bay Shoreline Protection Project – Valley Water, California State Coastal Conservancy, USACE, regional stakeholders This project is a partnership with the California State Coastal Conservancy, USACE, and regional stakeholders to provide tidal flood protection, restore and enhance tidal marsh and related habitats, and provide recreational and public access opportunities. Initial construction for flood protection is planned for of the San Francisco Bay shoreline between Alviso Slough and Coyote Creek in north San José and the community of Alviso. (Valley Water 2015c ~~2021c~~)	Coyote Creek, Guadalupe River, south San Francisco Bay	In construction, completion in 2028	Fisheries Resources Terrestrial Resources Water Quality
B.F. Sisk Dam Safety of Dams Modification Project and B.F. Sisk Dam Raise and Reservoir Expansion Project – Reclamation ~~San Luis & Delta-Mendota Water Authority and Reclamation Dam Safety Project~~: Raise sections of the B.F. Sisk Dam crest by 10 ~~12~~ feet and develop stability berms along sections of the embankment to address seismic issues. Dam Raise Project: Increase storage capacity in San Luis Reservoir by 130 TAF by raising the dam an additional 10 feet (beyond that proposed in the Dam Safety Project) to increase operational flexibility and improve water supply reliability for the CVP and SWP. (Reclamation 2019a Final EIS/EIR; Reclamation 2020 Final EIR/ Supplemental EIS)	San Luis Reservoir – Merced County	Final EIR for Dam Safety Project certified in 2020 Construction ~~2025~~ 2028 - 2032	Water Supply Water Quality

Project Description (Name, Sponsor, Source)	Location	Timeframe	Key Affected Resources
Reinitiation of Consultation on the Coordinated Long-Term Operation of the CVP and SWP – Reclamation Water flow operational changes and habitat restoration. Implementation ongoing. (Reclamation 2019b) – Final EIS	Statewide	Ongoing, long term	Water Supply
Non-Valley Water Projects			
Residential, Commercial, Industrial, and Recreation Area Development – Santa Clara County Santa Clara County, San José, Morgan Hill and other cities may implement a number of larger residential, industrial, commercial, and recreation area development projects that could impact similar resource areas are the Project. The build out of these projects would add impacts that are discussed in various EIRs, Specific Plans, and General Plan EIRs for relevant cities in Santa Clara County. Example projects include: Downtown West – Google (San Jose) Diridon Station Area Plan (San Jose) Moffett Park Specific Plan (Sunnyvale) Cochrane Commons Phase 2 (Morgan Hill) Five Wounds Urban Village / Downtown BART (San Jose) Mission Point Project (Santa Clara) Cochrane–Borello Residential Development Project (Morgan Hill) (Santa Clara County 2024 ~~2020~~, City of San José 2021~~b~~)	Santa Clara County	Current and ongoing	Air Quality Agriculture Terrestrial Resources Energy Geology and Soils GHG Emission Water Quality Noise Public Services Transportation Utilities
Santa Clara Valley Habitat Restoration Program – Santa Clara County, Santa Clara Valley Habitat Agency Santa Clara Valley Habitat Agency Reserve System involves land acquisition, restoration, and protection of an estimated 46,900 acres of land that accomplishes the following: Acquires and permanently protects an estimated 33,600 acres of land for the benefit of covered species, natural communities, biological diversity, and ecosystem function. Incorporates about 13,300 acres of existing open space areas and enhances the long-term management and monitoring on those lands within the Reserve System. Protects 100 miles of streams	Santa Clara County	Ongoing, long term	Fisheries Resources Terrestrial Resources

Project Description (Name, Sponsor, Source)	Location	Timeframe	Key Affected Resources
Restores up to 500 acres of riparian woodland and scrub, wetlands, and ponds and up to 10.4 miles of streams to offset losses and contribute to species recovery Provides management and monitoring of habitats on protected lands to enhance populations of covered species and maintain ecosystem processes. Preserves major local and regional connections between key habitat areas and between existing protected areas. (Santa Clara Valley Habitat Agency 2012 ~~2018~~)			
Santa Clara County Parks Planning Projects and Natural Resource Management – Santa Clara County Parks Santa Clara County Parks has a number of current planning and development projects in the Santa Clara County park system. Current projects include the following: Alviso Dock Feasibility Study Coyote Highlands – Coyote Canyon Interim Management Plan Sanborn County Park Master Plan Creekside and Meadowbrook Shelters Improvements Project Motorcycle County Park Site Improvements Project Los Gatos Creek Trail and Irrigation System Improvements Projects In addition, Santa Clara County Parks Natural Resource Management Program protects, enhances, and restores regional parks. Preservation of natural systems, biodiversity and special status species, and restoration of degraded habitats are all goals of the Santa Clara County Parks' Natural Resource Program. Programs within the Natural Resource Management Program include vegetation management, rare plants, inventory and monitoring, fisheries and wildlife and the trails program. (Santa Clara County Parks 2019)	Recreational areas of Santa Clara County	Ongoing	Fisheries Resources Terrestrial Resources Cultural Resources Water Quality Recreation Tribal Cultural Resources

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3.0.7 References

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3.1 Aesthetics

This section evaluates Project impacts on aesthetic and visual resources in the study area, defined below. The *CEQA Guidelines* significance criteria for aesthetics and visual resources address impacts related to the substantial damage to scenic resources within a State Scenic Highway, the substantial degradation to the existing visual character or quality of non-urbanized areas, or the creation of a new source of substantial light or glare that would adversely affect day or nighttime views to or from an area that may occur as a result of a Project.

The study area used to assess the Project aesthetic and visual resources impacts is the study area, which includes both the Seismic Retrofit components and Conservation Measure components that would be visible by the public or from public vantage points. These include public viewing opportunities from Anderson Lake County Park, Coyote Creek Parkway (largely from the Coyote Creek Trail), and public roads, including those within residential developments adjacent to Anderson Reservoir (Borello Ranch Estates and Holiday Lake Estates), Coyote Percolation Dam (California Maison), and US 101.

Note that the Anderson Dam and Reservoir, and the remainder of the Project Area, do not include remarkable landscape elements that create scenic vistas and have not been designated as scenic vista points in the Santa Clara County (County) General Plan, City of Morgan Hill General Plan, or the Envision San José 2040 General Plan. Therefore, impacts related to scenic vistas are not addressed in this section.

3.1.1 Terminology Overview

Aesthetics refers to visual resources and the quality of what can be seen or perceived in the environment, including characteristics such as building scale and mass, design character, and landscaping. Key terms used in this section to describe aesthetics are defined below.

Visual quality is the intrinsic appeal of a landscape or scene due to the combination of natural and built features. Visual quality consists of three visual features: visual character, viewer exposure, viewer concern, and visual sensitivity. These three visual quality features are defined below:

Visual character is the unique set of landscape features that combine to make a view, including native landforms, water, and vegetation patterns, as well as built features such as buildings, roads, and other structures. In urban settings, the visual character is primarily influenced by the land use type and density, urban landscaping and design, topography, and background setting.

Viewer exposure describes the degree to which viewers are exposed to views of the landscape. Viewer exposure considers landscape visibility, distance from which the landscape can be seen by viewers, number of viewers, and the duration of views.

Viewer concern addresses the general public's level of interest or concern of viewers regarding an area's visual resources and is closely aligned with viewers' expectations for the area. Viewer concern reflects the importance placed on a given landscape based on the human perceptions of the intrinsic beauty of the existing landforms, rockforms, water features, vegetation patterns, and cultural features. Viewer concern is generally rated as high, moderate, or low; where high viewer concern is represented by views that are appreciated frequently, for longer durations, and/or by receptors located within a short distance. In contrast, low viewer concern is characterized by views that are not regarded for intrinsic beauty and/or are not seen by many sensitive receptors or are only seen for short durations and from long distances where views are obstructed. Viewer concern ratings take into consideration viewer activity, view duration, viewing distance, adjacent land use, and special management or planning designation.

Visual sensitivity is the level of interest or concern that viewers and responsible land management agencies have for a particular visual resource. Visual sensitivity includes visual quality, viewer concern, and viewer exposure. Visual sensitivity is a measure of how noticeable proposed changes might be in a particular setting. The visual sensitivity is determined based on the distance from a viewer, the contrast of the proposed changes, and the duration that a particular view would be available to viewers. For example, areas such as scenic vistas, parks, trails, and scenic roadways typically have a high visual quality and visual sensitivity because these locales are publicly protected, appear natural, view durations are typically long, and close-up views are more commonly available.

As described above, natural and built features combine with viewer exposure and viewer concern to form varying degrees of visual quality, which are rated in this analysis as high, moderate, or low. The visual quality ratings are defined below:

- **High:** A high visual quality rating is defined as visual resources that are unique or exemplary of the region's natural or cultural scenic amenities, with high viewer exposure and/or concern.
- **Moderate:** A moderate visual quality rating is defined as visual resources typical or characteristic of the region's natural and/or cultural visual amenities, with moderate to high viewer exposure and/or concern.
- **Low:** A low visual quality rating refers to areas lacking in natural or cultural visual resource amenities typical of the region with low to moderate viewer exposure and/or concern, or visual resources typical or characteristic of the region's natural and/or cultural visual amenities with low visual exposure and/or concern.

3.1.2 Environmental Setting

The environmental setting describes the conditions of aesthetic and visual resources in the study area. This section describes the study area's existing visual character, viewer groups in the vicinity, scenic vistas, scenic highways, and light and glare. The environmental setting is based on two different baseline conditions that would form the basis for comparing Project impacts to visual resources. The baselines used in this section include the existing conditions baseline and Pre-FERC Order Conditions Baseline. The existing conditions baseline, which reflects reasonable assumptions of the study area's visual setting, would exist following the completion of the FOCP, based on available information at the time of EIR preparation (2023 ~~2022~~). The existing conditions baseline is used for evaluating the Seismic Retrofit and Conservation Measures construction impacts. For evaluating post-construction operation, the Pre-FERC Order Conditions Baseline is used. The Pre-FERC Order Conditions Baseline reflects general conditions at the time the NOP was filed in 2013. See discussion below for environmental setting and baselines conditions.

As described in Chapter 2 *Project Description,* the following recreational areas were closed as a result of the FOCP at the time of EIR preparation; these areas had previously provided public views of the study area:

- Toyon Group Picnic Area, Serpentine Trail, Dam Crest Trail, Cochrane Trail, and Woodchopper's Flat Picnic Area
- Anderson Dam Boat Ramp and Parking Area
- Coyote Road from the toe of the dam to the boat and vehicle parking areas
- Lakeview Trail (from the Anderson Boat Ramp Parking Area trailhead to the westernmost junction with the Rancho Laguna Seca Trail) in the Rosendin Park Area
- Fishing areas along the entire reservoir shoreline

Therefore, views from and within these areas during Seismic Retrofit Construction are not included in the impact analysis for visual resources.

3.1.2.1 Visual Character and Views

Regional Character

Anderson Dam and Reservoir are located in the County, 0.8 miles east of US 101, approximately 18 miles southeast from the downtown area of San José. The Project Area is located on land owned by Valley Water, the County, City of Morgan Hill, City of San José, and private property owners. The study area is within the jurisdictions of the County, City of Morgan Hill, and City of San José.

Morgan Hill is located in the southern part of Coyote Valley. The majority of Morgan Hill lies within a valley characterized by relatively flat topography that transitions to steep slopes along the western and eastern foothills. At the valley floor, Morgan Hill is at elev. 350 feet above mean sea level (Topographic-map.com 2021). Morgan Hill is largely comprised of residential land uses and commercial areas. Land uses surrounding Morgan Hill include rural residential development, agricultural lands, and open space that includes orchards and vineyards. Land uses to the east and west of Morgan Hill predominantly include undeveloped hillsides, and open space areas and reservoirs that include Anderson Reservoir, Anderson Lake County Park, and Coyote Lake to the east and Uvas Reservoir and Chesbro Reservoir to the west (City of Morgan Hill 2017 ~~2016~~).

San José is a largely urban environment adjacent to large open spaces, surrounded by natural settings that include the Baylands, redwood forests, Pacific Ocean, Santa Cruz mountains, and Monterey Bay area. Historically, development patterns in San José have focused on preserving the surrounding hillsides as open space, parklands, or natural habitat, providing the residents of San José with views of the natural environment and developing parklands and trails along San José's riparian corridors (City of San José 2023 ~~2012~~).

Project Area

Seismic Retrofit Components

Anderson Lake County Park is a 4,275-acre park that encompasses Anderson Reservoir and dam, Coyote Creek Parkway, Jackson Ranch Historic Park Site, Moses L. Rosendin Park (Rosendin Park

Area), and the Burnett Park Area (County 2021). Anderson Reservoir and recreation amenities along Coyote Creek, including multi-use trails and picnic areas located on Cochrane Road in Morgan Hill, east of US 101. The Jackson Ranch Historic Park Site can be accessed by following Dunne Avenue east from US 101, although it is closed to the public.

Anderson Dam is constructed of natural materials and is similar in color tones to the earthen shoreline. Serpentine grassland, chaparral, and oak woodland communities are present on the slopes above the reservoir. The dam embankment and immediate shoreline include a mix of native and non-native annual and perennial species typical of disturbed areas, such as wild oats, bromes, and mustards.

While Anderson Dam is visible from US 101, the Project Area for the Seismic Retrofit component is not located within the viewshed of any designated scenic highways (California Department of Transportation [Caltrans] 2021b). More distant views of Anderson Dam are accessible from local roads in the residential area to the west of the dam. However, due to distance, Anderson Dam and the Project Area for the Seismic Retrofit components are not located within the viewshed of any locally designated scenic routes, including East Dunne Avenue (County of Santa Clara 2008).

The Project Area for the Seismic Retrofit components includes lands in the immediate vicinity of Anderson Reservoir owned by Valley Water and the County, as well as portions of Cochrane Road and Coyote Road rights-of-way (**Figure 3.1-1** and **Figure 3.1-2**). These figures show the existing land uses within and adjacent to the Seismic Retrofit components, including recreational uses. These include Coyote Creek, parklands, and hiking trails (e.g., Coyote Creek Trail, Serpentine Trail), Rosendin Park (which includes Rancho Laguna Seco Trail, Lakeview ~~Lake View~~ Trail, and Gray Pine Trail), the Anderson Lake County Park Visitor's Center, an orchard, and private residences. Other facilities near the Seismic Retrofit components include the County Justice Training Center and the William F. James Boys Camp.

Pre-FERC Order Conditions Baseline

Figure 3.1-1 provides an overview of the locations under the Pre-FERC Order Conditions Baseline of land uses discussed above and includes viewpoints where representative photos have been taken from within the study area. Representative photos depicting the visual character of the Seismic Retrofit Components prior to FOCP under Pre-FERC Order Conditions Baseline are provided in **Figure 3.1-3** ~~**Figure 3.1-2**~~**.**

These photos were captured in October 2013, September 2014, and April 2018. In general, under the Pre-FERC Order Conditions Baseline, the visual quality of views from the dam crest looking toward the reservoir (Photo 7 in **Figure 3.1-3** ~~**Figure 3.1-2**~~) is considered high due to the expansive views of open water and undeveloped hillsides in the background. Under the Pre-FERC Order Conditions Baseline, the visual quality of views of Basalt Hill from the boat ramp parking area (Photos 11 and 12 in **Figure 3.1-3** ~~**Figure 3.1-2**~~) is moderate as the hillside includes trees and vegetation that are typical of the surrounding landscape. Similarly, the visual quality of more distant views of the Seismic Retrofit study area under Pre-FERC Order Conditions Baseline is also moderate, as the natural earth tones and vegetation on the dam and Basalt Hill are visually consistent with the surrounding natural landscape.

Since the time of the Pre-FERC Order Conditions Baseline, FERC required changes to be implemented in Anderson Dam and Reservoir, and since the beginning of construction of the FOCP, visual conditions have changed in the study area.

Existing Conditions Baseline

In 2020, the FOCP was implemented in response to a FERC order to address seismic vulnerability at Anderson Dam. The FOCP included changes that affected the visual character of the area, including drawdown of the reservoir. To capture these changes under the existing conditions baseline for impact analysis, **Figure 3.1-1** ~~**Figure 3.1-4**~~ shows viewpoint locations for the Project under the existing conditions baseline, including specific recreation areas at Anderson Lake County Park and the Conservation Measures area that provide public views of Seismic Retrofit components. **Figure 3.1-4** provides representative photos of these areas taken in June 2022, which include the Live Oak Picnic Area (Photos 10 and 11 in **Figure 3.1-4**) and trails within the Rosendin Park Area (see Photos 2, 3, and 4 in **Figure 3.1-4** which represent views from Gray Pine Trail). Photos 2 through 4 show the expansive views of the reservoir from the Gray Pine Trail and surrounding hills, Anderson Dam, the BHBA, and Morgan Hill to the west. As shown in Photo 10, scenic views of Coyote Creek, riparian trees, and the Serpentine Trail bridge crossing are accessible from the Live Oak Picnic Area of Anderson Lake County Park. Mature trees, passive recreation areas, and the BHBA are shown in Photo 11.

As shown in the photos in **Figure 3.1-4**, views of the Seismic Retrofit component are primarily visible from the residential area west of the dam, the Live Oak Picnic Area, the Rosendin Park Area, and the Holiday Lake Estates residential area to the south of the central portion of the reservoir. As shown in Photos 5, 7, 8, and 9, under the existing conditions baseline, views of construction equipment, materials, and staging areas associated with the FOCP can be seen. Low reservoir levels are also visible from Holiday Drive in the Holiday Lake Estates neighborhood and from the Gray Pine Trail in the Rosendin Park Area (Photos 1 and 2).

The overall visual quality from the residential areas and local roads under the existing conditions baseline is considered low-to-moderate due to the presence of large construction equipment, stockpiled materials, and construction activities associated with the FOCP. While those construction equipment, materials, and activities associated with the FOCP, such as for the ADTP, would be removed before construction of the Seismic Retrofit components; new construction equipment, materials, and activities would replace them. The visual quality from Rosendin Park Area is moderate due to the low reservoir levels, and the views from this area of the undeveloped hills are characteristic of the region. The visual character and visual quality from the Live Oak Picnic Area are moderate to high, as scenic views of riparian trees and Coyote Creek can be seen as shown in Photo 8.

Figure 3.1-1 Viewpoint Map of Representative Photos of ADSRP Area Under Historic Baseline Conditions

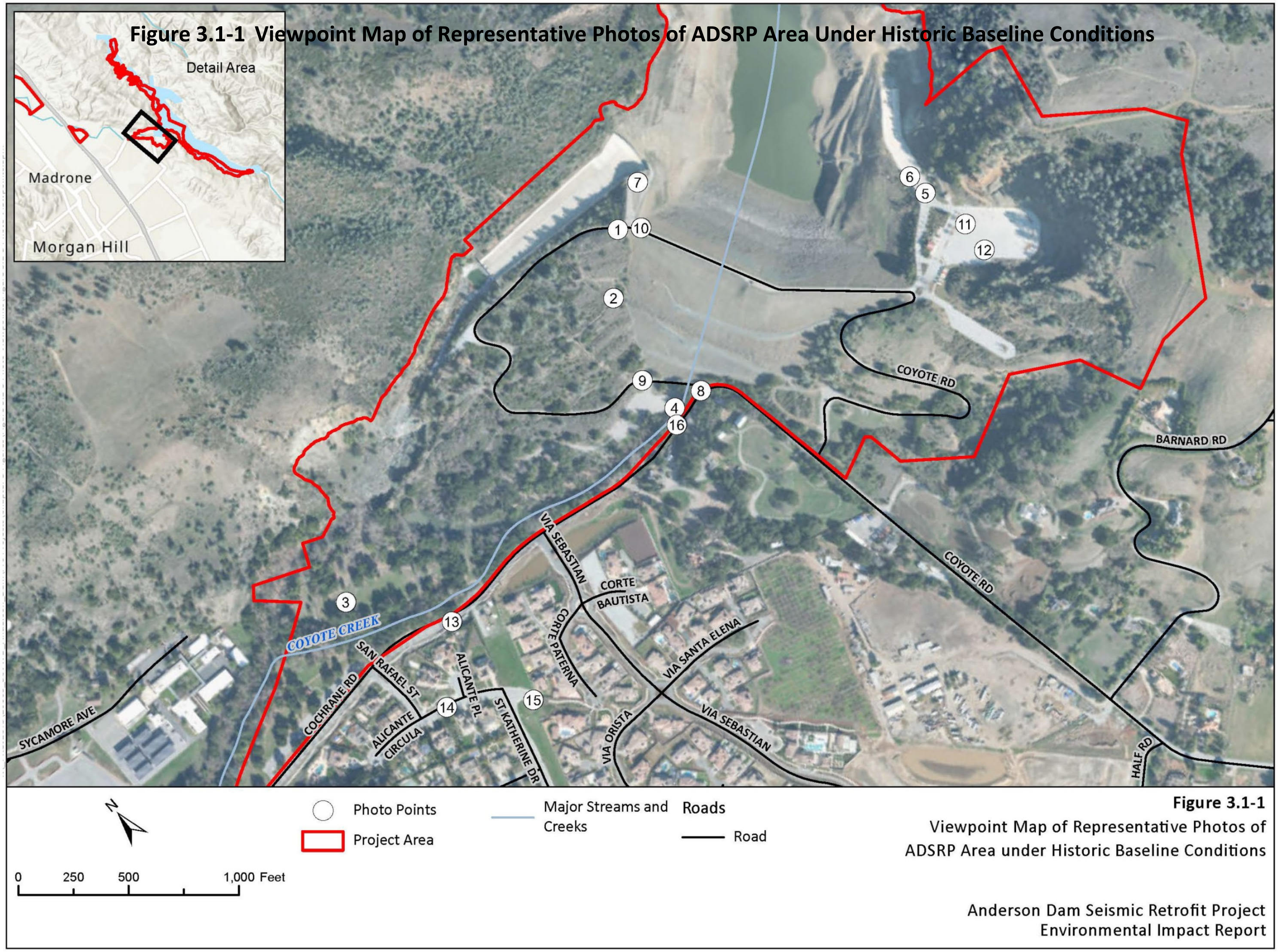

Figure 3.1-2 Viewpoint of Representative Photos of ADSRP Area under Existing Baseline Conditions

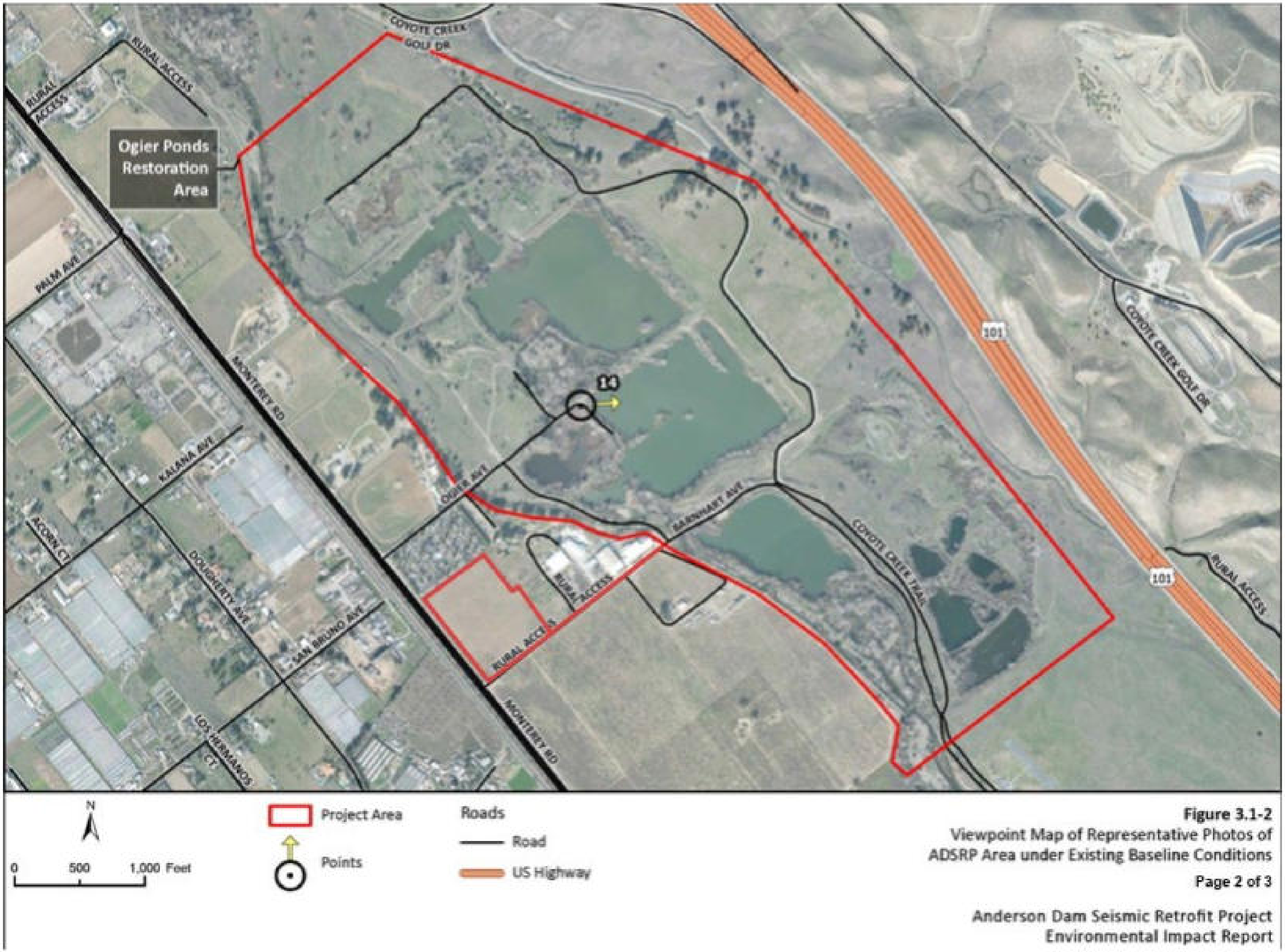

Figure 3.1-2
Viewpoint Map of Representative Photos of ADSRP Area under Existing Baseline Conditions
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Anderson Dam Seismic Retrofit Project
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Figure 3.1-2
Viewpoint Map of Representative Photos of ADSRP Area under Existing Baseline Conditions
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Environmental Impact Report

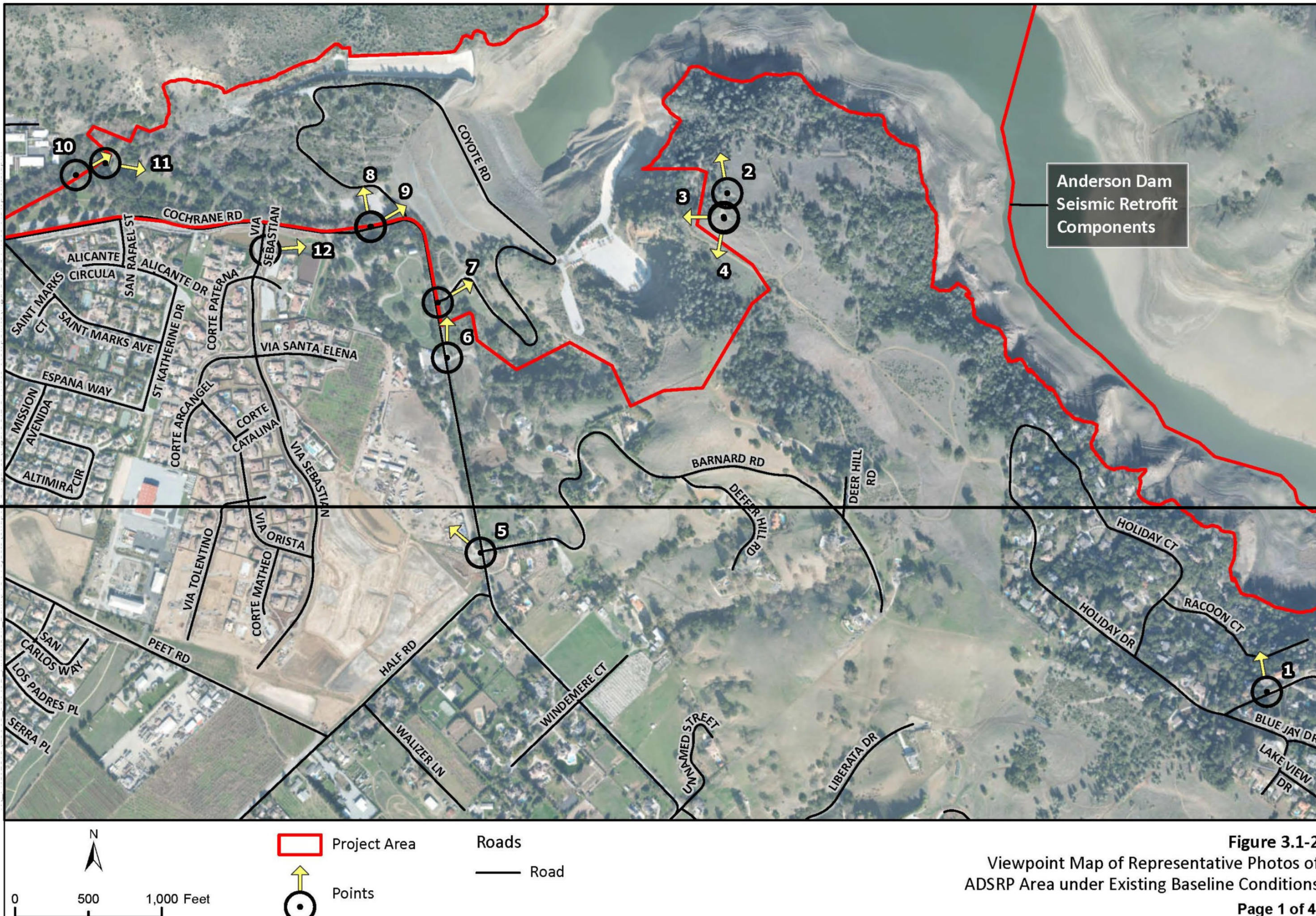

Figure 3.1-2
Viewpoint Map of Representative Photos of ADSRP Area under Existing Baseline Conditions
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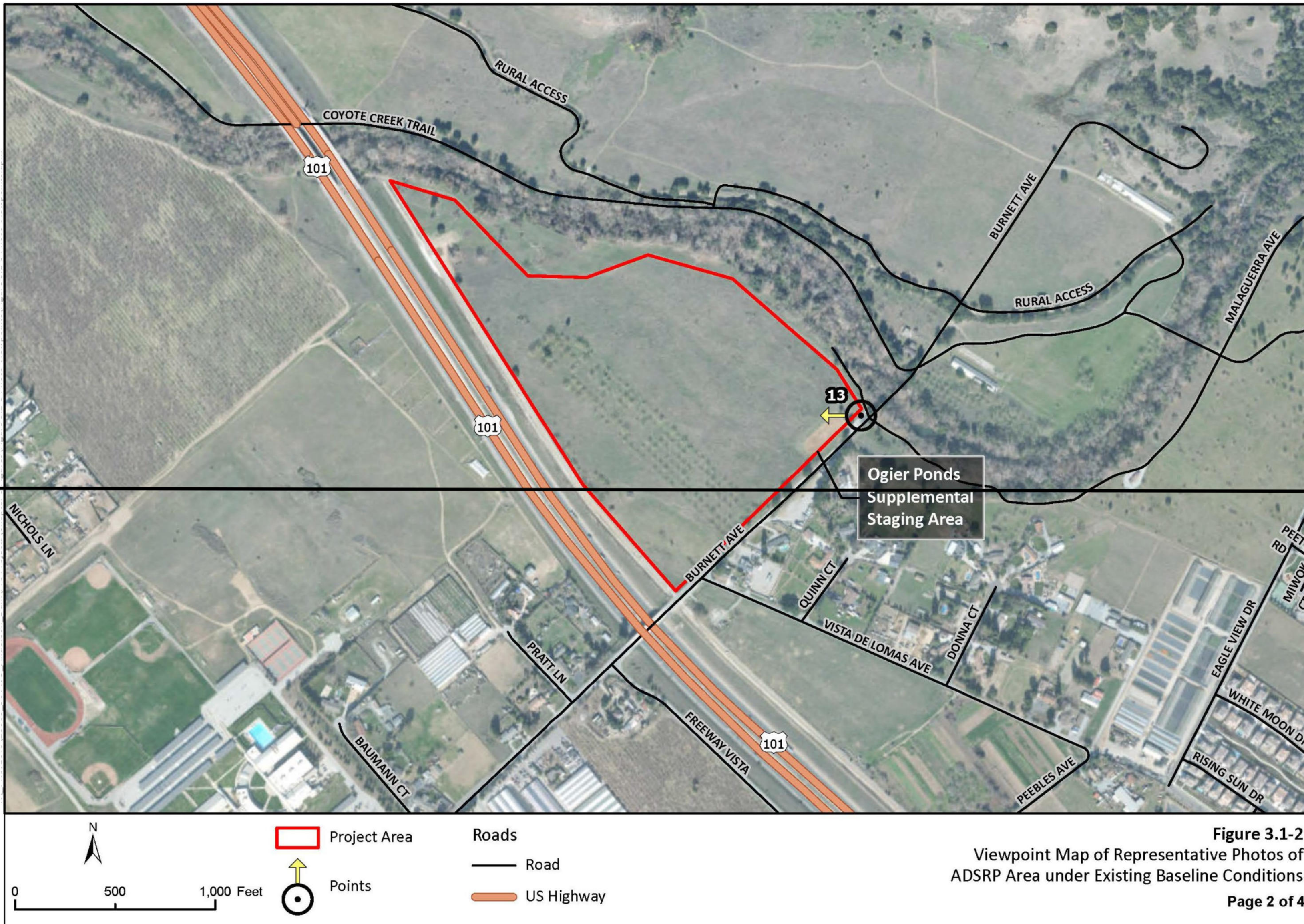

Figure 3.1-2
Viewpoint Map of Representative Photos of ADSRP Area under Existing Baseline Conditions
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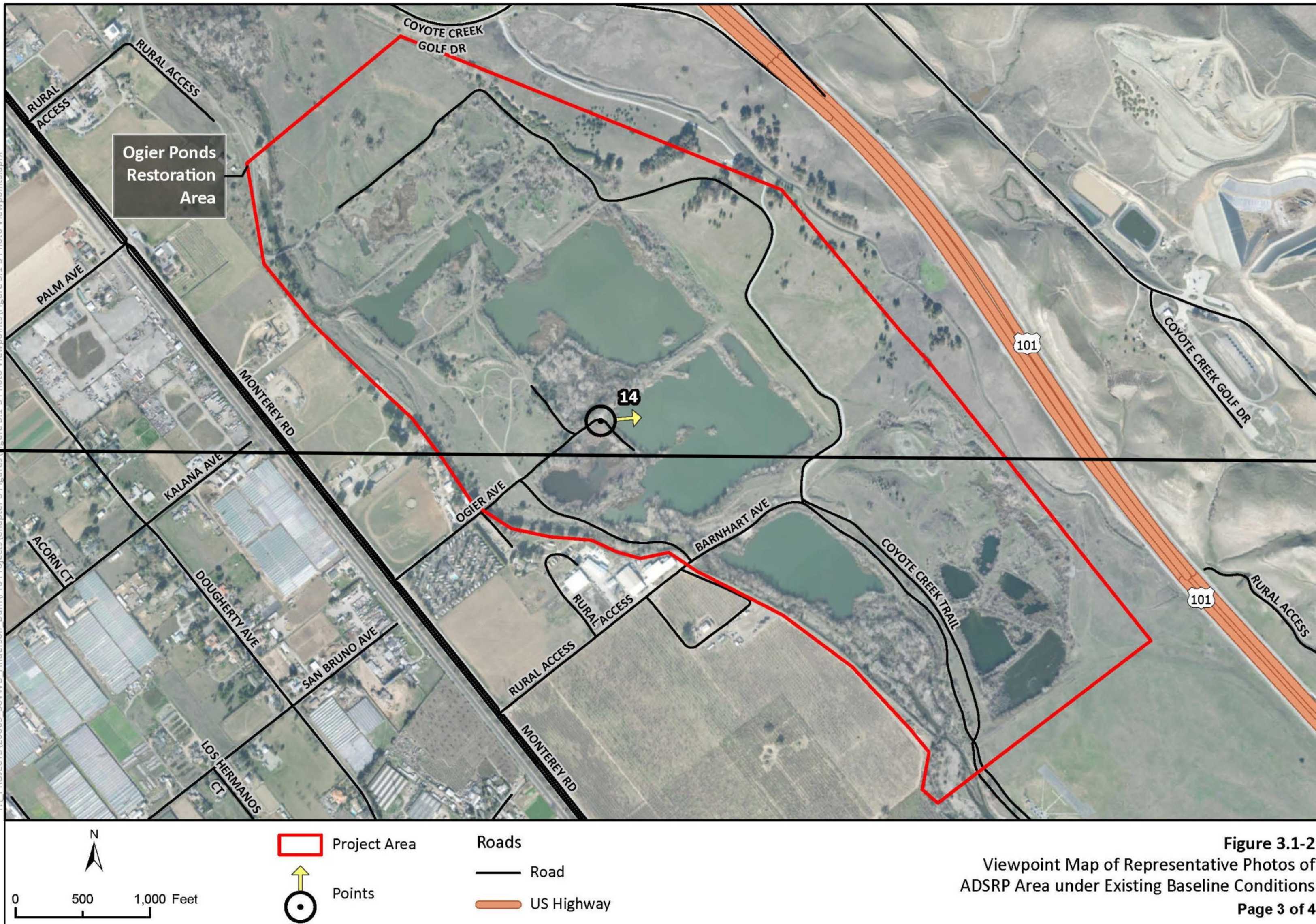

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Figure 3.1-2
Viewpoint Map of Representative Photos of ADSRP Area under Existing Baseline Conditions
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Anderson Dam Seismic Retrofit Project
Environmental Impact Report

N

0 500 1,000 Feet

Project Area

Points

Roads

Road

State Route

US Highway

Figure 3.1-2
Viewpoint Map of Representative Photos of ADSRP Area under Existing Baseline Conditions
Page 4 of 4

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

1

Figure 3.1-3 Representative Photos of Project Area Under Pre-FERC Order Baseline Conditions

PHOTO 1: West-facing view from Serpentine Trail crossing at Coyote Road near dam crest.

PHOTO 2: View from Serpentine Trail facing east toward Anderson Dam.

Figure 3.1-3
Representative Photos of Project Area under Pre-FERC Order Baseline Conditions
Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: HDR 2013, 2014, 2018

PHOTO 3: View from Live Oak Group Picnic Area facing east toward Anderson Dam.

PHOTO 4: View of the outlet works facing southeast from Toyon Group Picnic Area parking.

Figure 3.1-3
Representative Photos of Project Area under Pre-FERC Order Baseline Conditions
Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: HDR 2013, 2014, 2018

1

PHOTO 5: View of boat ramp and Anderson Reservoir from parking area looking northeast.

PHOTO 6: View of Anderson Reservoir and Dam from boat ramp facing west.

Figure 3.1-3
Representative Photos of Project Area under Pre-Order Baseline Conditions
Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: HDR 2013, 2014, 2018

PHOTO 7: View of Anderson Reservoir from dam crest near top of spillway.

PHOTO 8: View to northwest looking toward Anderson Dam from the intersection of Coyote Road and Cochrane Road.

Figure 3.1-3
Representative Photos of Project Area under Pre-FERC Baseline Conditions
Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: HDR 2013, 2014, 2018

PHOTO 9: View of Anderson Dam from Coyote Road near entrance to Toyon Group Picnic Area.

PHOTO 10: View of Anderson Reservoir, dam, boat ramp, parking area, and Basalt Hill Borrow Area facing southeast from Coyote Road along dam crest.

Figure 3.1-3
Representative Photos of Project Area under Pre-FERC Order Baseline Conditions
Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: HDR 2013, 2014, 2018

PHOTO 11: View of parking area and Basalt Hill Borrow Area looking southeast from parking area.

PHOTO 12: View of parking area and Basalt Hill Borrow Area looking south from parking area.

Figure 3.1-3
Representative Photos of Project Area under Pre-FERC Order Baseline Conditions
Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: HDR 2013, 2014, 2018

1

PHOTO 13: View of Anderson Dam and Basalt Hill Borrow Area facing east from Cochrane Road.

PHOTO 14: View of Anderson Dam and Basalt Hill Borrow Area facing east from adjacent residential area (located west of dam).

Figure 3.1-3
Representative Photos of Project Area under Pre-FERC Order Baseline Conditions
Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: HDR 2013, 2014, 2018

1

PHOTO 15: View of Anderson Dam and Basalt Hill Borrow Area facing east from adjacent residential area (west of dam).

PHOTO 16: View of outlet works looking east from Cochrane Road.

Figure 3.1-3
Representative Photos of Project Area under Pre-FERC Order Baseline Conditions
Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: HDR 2013, 2014, 2018

1 **Figure 3.1-4 Representative Photos of ADSRP Area Under Existing Conditions**

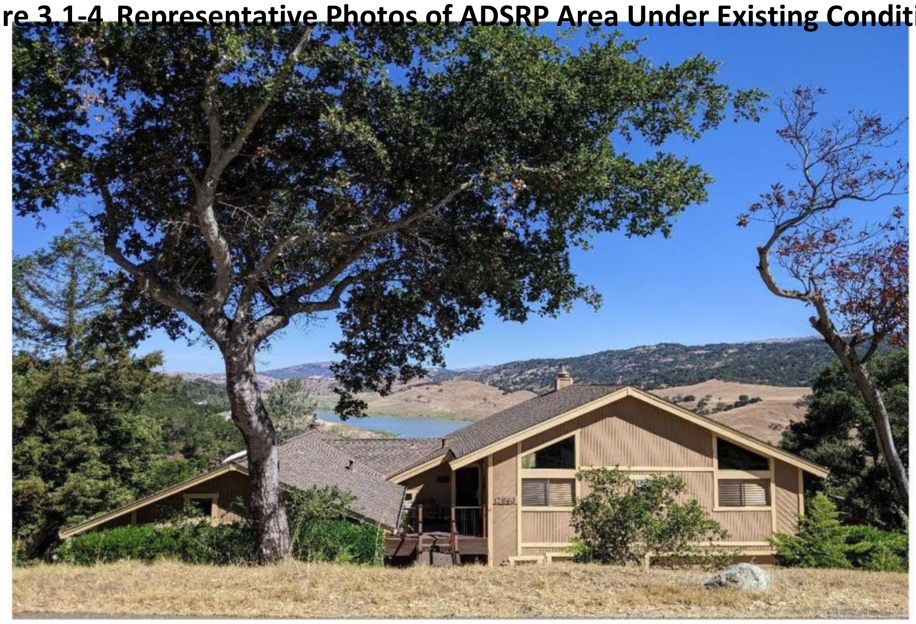

PHOTO 1: View from Holiday Drive looking north toward Anderson Reservoir.

PHOTO 2: View from Grey Pine Trail in Rosendin Park Area looking north toward Anderson Reservoir.

Figure 3.1-4
Representative Photos of ADSRP Area under Existing Conditions

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: Horizon Water and Environment 2022

PHOTO 3: View from Grey Pine Trail looking west toward Anderson Dam and Reservoir.

PHOTO 4: View from Grey Pine Trail looking southwest toward Basalt Hill Borrow Area.

Figure 3.1-4
Representative Photos of ADSRP Area under Existing Conditions

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: Horizon Water and Environment 2022

1

PHOTO 5: View from Cochrane Road and Barnard Road looking west toward Staging Area 2.

PHOTO 6: View from Cochrane Road near MH Vallée Vineyards looking north toward Anderson Dam.

Figure 3.1-4
Representative Photos of ADSRP Area under Existing Conditions

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: Horizon Water and Environment 2022

PHOTO 7: View from Cochrane Road looking east toward Staging Area 2.

PHOTO 8: View from Cochrane Road (just west of its intersection with Coyote Road) looking north toward Coyote Creek and Staging Area 4.

Figure 3.1-4
Representative Photos of ADSRP Area under Existing Conditions

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: Horizon Water and Environment 2022

1

PHOTO 9: View from Cochrane Road just west of its intersection with Coyote Road looking northeast toward Anderson Dam.

PHOTO 10: View from Live Oak Picnic Area looking east at Coyote Creek.

Figure 3.1-4
Representative Photos of ADSRP Area under Existing Conditions

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: Horizon Water and Environment 2022

1

PHOTO 11: View from Live Oak Picnic Area facing east toward Anderson Dam and Basalt Hill Borrow Area.

PHOTO 12: View from Via Sebastian looking east toward Anderson Dam and Basalt Hill Borrow Area.

Figure 3.1-4
Representative Photos of ADSRP Area under Existing Conditions

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: Horizon Water and Environment 2022

PHOTO 13: View from Burnett Avenue and Malaguerra Avenue looking west toward alternate staging area for Ogier Ponds Geomorphic and Habitat Restoration.

PHOTO 14: View from Ogier Avenue looking northeast toward Pond 2 of Ogier Ponds Geomorphic and Habitat Restoration.

Figure 3.1-4
Representative Photos of ADSRP Area under Existing Conditions

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: Horizon Water and Environment-2022

PHOTO 15: View from Coyote Creek Trail looking northeast toward Coyote Percolation Dam site.

PHOTO 16: View from access road on southern side of Coyote Percolation Pond facing east.

Figure 3.1-4
Representative Photos of ADSRP Area under Existing Conditions

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

Source: Horizon Water and Environment 2022

Conservation Measure Components

Conservation Measures that involve construction of facility improvements or enhancements at Ogier Ponds (Ogier Ponds CM), the Coyote Percolation Pond (Phase 2 Coyote Percolation Dam Fish Passage Enhancements), and Maintenance of the North Channel Reach ~~Extension~~ may result in impacts to aesthetics. The locations of other Conservation Measures involving construction of facility improvements or enhancements (e.g., location(s) for in-stream restoration, placement of woody debris, and/or sediment augmentation) would generally occur within Coyote Creek between Anderson Dam and Ogier Ponds and around the Coyote Percolation Pond. The settings for these Conservation Measure areas are described below. The discussions and representative photographs of these locations reflect the existing conditions baseline.

Ogier Ponds

Both Ogier Ponds and the Coyote Percolation Pond are located within the Coyote Creek Parkway, which is operated and maintained by the County Parks and Recreation Department. Ogier Ponds is located approximately 4 miles downstream of Anderson Dam. Public views of Ogier Ponds are accessible from the Coyote Creek Trail and other public use trails parallel to the pond complex and from Ogier Avenue to the south. A photo of Pond 2 of Ogier Ponds is shown in Photo 14 of **Figure 3.1-4** ~~**Figure 3.1-2**~~. As shown in the photo, the Ogier Ponds complex is characterized by open water habitat with mature trees located along the perimeter of the ponds and surrounding grassland and chaparral vegetation communities. The visual character and visual quality of this area are characteristic of the surrounding landscape and thus considered moderate.

Coyote Percolation Pond

The Coyote Percolation Pond is located approximately 11 miles downstream of Anderson Dam. The pond is just north of Metcalf Park in San José and is accessible from the Coyote Creek Trail, which provides recreational opportunities, including birding, hiking, and fishing. Typical public views of the Coyote Percolation Pond area from the Coyote Creek Trail are shown in Photos 15 and 16 of **Figure 3.1-4.** The visual setting of the Coyote Percolation Pond is characterized by the pond and existing bladder dam, mature trees along the Coyote Creek Trail, the playground and grassy field at Metcalf Park (south of the percolation pond), and low-density residential development to the south. From the Coyote Creek Trail (shown in Photo 15), the bladder dam and Coyote Percolation Pond are not visible. Close-up views of the site are visible from an access road that connects to the Coyote Creek Trail. Motorists traveling on US 101 and Metcalf Road also have fleeting views of the internal access roads leading to the Coyote Percolation Dam. The visual character and visual quality of this area are characteristic of the surrounding landscape and therefore considered moderate.

Coyote Creek and Coyote Creek Parkway Trail

Public views of Coyote Creek are primarily accessible from the Coyote Creek Trail, which parallels the creek, as well as other multi-use trails in the Coyote Creek Parkway (e.g., Coyote

Canal Trail, Burnett Trail). Public views of the creek are also accessible from picnic areas such as the Live Oak Picnic Area, Walnut Rest Area, and Eucalyptus Rest Area. Visibility of Coyote Creek varies due to intervening trees, vegetation, and topography. Recreators, including hikers, equestrians, bicyclists, birders, and picnickers are provided partial views of the creek, mature trees, and riparian vegetation along Coyote Creek, and the surrounding hills. The visual character and visual quality of this area are characteristic of the surrounding landscape and considered moderate.

Maintenance of the North Channel Reach ~~Extension~~

~~The~~ Maintenance of the North Channel Reach ~~Extension~~ extends ~~is located~~ approximately 0.27 miles downstream of the existing outlet of Anderson Dam. ~~During~~ As part of the FOCP, weirs were constructed to restore flows within the historic North Channel of Coyote Creek to provide capacity to split dam outlet flows between the North and South Channels, and the channel was graded and restored with a wetland bench and wetland/riparian plantings. This Conservation Measure involves maintenance of ~~extends the limits of~~ the North Channel Reach constructed as part of the FOCP to reconnect the historic North Channel with the South Channel. These activities ~~reconstructed North Channel~~ would occur on ~~extend through~~ County Parks and portions of private property. Public views of the North Channel Reach ~~Extension area~~ are limited to the Live Oak Picnic Area. The visual character and visual quality of this area are characteristic of the surrounding landscape and considered moderate.

Live Oak Restoration Reach

As part of the FOCP's HMMP, Valley Water implemented spawning gravel and rearing habitat improvements in the Live Oak Restoration Reach directly downstream of Anderson Dam. This Conservation Measure includes the maintenance and monitoring of the gravel and woody debris restoration areas within the Live Oak Restoration Reach. This Conservation Measure includes the placement of up to ~~approximately~~ 10 cy of spawning gravel in the South Channel every five years ~~coarse sediment into the Live Oak Restoration Reach~~. Additionally, as part of the Sediment Augmentation Program described below, up to 500 cy of sediment would be added every five years within the Live Oak Restoration Reach or Ogier Ponds Restoration Reach. The maintenance activities would occur along the South Channel of Coyote Creek. This area is surrounded by parklands and is largely undeveloped within an established riparian corridor. Similar to the North Channel, public views of the South Channel area are limited to the Live Oak Picnic Area. The visual character and visual quality of this area are characteristic of the surrounding landscape and considered moderate.

Sediment Augmentation Program

The Sediment Augmentation Program would consist of placing up to 500 cy of sediment/gravel materials in the Coyote Creek Channel at various locations within the Live Oak Restoration Reach ~~between Anderson Dam~~ or ~~and~~ Ogier Ponds Restoration Reach, with initial placement within the Live Oak Restoration Reach. Sediment loads would be delivered by trucks, transported on conveyer belts, and placed in the creek using standard construction equipment. Sediment placement locations would be selected depending on existing access routes to the creek for construction equipment (dump trucks), creek flows at the time of placement, and the minimization of impacts to the riparian corridor. The visual quality of the sediment placement locations would be characteristic of the surrounding landscape and considered moderate; these areas would include open water stream/creek, grasslands, and public trails.

Post-Construction Operations, Maintenance, and Adaptive Management for Anderson Dam Facilities and Conservation Measures

The Project Area for the post-construction phase includes Anderson Dam and Anderson Reservoir, the Conservation Measure components described above and approximately 11 miles of Coyote Creek downstream of Anderson Dam. Once construction is completed, the following recreation areas at Anderson Lake County Park would provide public views of the Seismic Retrofit components: the Live Oak Picnic Area, Serpentine Trail, Anderson Boat Ramp Parking Area, Coyote Road, and trails within the Rosendin Park Area (i.e., Lakeview Trail, Gray Pine Trail, Rosendin Trail, and Rancho Laguna Seca Trail). These recreation areas include varying degrees of views of scenic resources. Conditions include expansive and close-up views of Anderson Reservoir that are accessible from the Anderson Boat Ramp Parking Area and Rosendin Park area; and views of mature trees are accessible from the Live Oak Picnic Area and Serpentine Trail.

3.1.2.2 Views of the Viewer Groups

Seismic Retrofit Components

Resident Views from Public Roadways

As a viewer group, residents have a heightened sensitivity to the surrounding viewshed, because they have a high frequency of views of an area and views of long durations (high viewer exposure). They also have a heightened appreciation for the aesthetic environment (e.g., landforms, rock formations, water features, and vegetation patterns) surrounding their residences (high viewer concern). Typically, viewer concern and visual sensitivity of residents increases with higher visibility of and more frequent exposure to the visual resources.

In general, residents along roadways near the reservoir shoreline, particularly in the Holiday Lake Estates neighborhood, have views of the reservoir, although the visual character of these views has been substantially degraded (as necessitated by the FOCP), because the reservoir is presently maintained at deadpool ~~elev. 488 feet~~. This lowered water surface elevation has resulted in large expanses of dry reservoir bed. Because of distance, public views of FOCP staging areas, work areas, and construction vehicles and equipment are limited.

Viewer exposure from public roadways in residential areas is considered moderate to high because the number of viewers and landscape visibility are low to moderate, but the duration of views from roadways is potentially high. Viewer concern of and visual sensitivity to the area, including the Seismic Retrofit component, is assumed to be moderate. Because the visual character of the reservoir as altered under the existing conditions baseline is low, visual quality is low to moderate.

Pre-FERC Order Conditions Baseline

The Project Area for the Seismic Retrofit component is visible from public roadways located to the west of the dam, largely within the Borello Ranch Estates. Additional ranch-style residences are located along Cochrane Road, also west of the Project Area. Representative views from public roadways within residential developments located west of Anderson Dam and Reservoir are shown in **Figure 3.1-3** ~~**Figure 3.1-2**~~**,** Photos 13 through 15. These photos show typical Pre-FERC Order Conditions Baseline views of Anderson Dam and the BHBA from Cochrane Road.

Existing Conditions Baseline

Figure 3.1-4 ~~**Figure 3.1-2**~~, Photo 12, shows a typical view from the Borello Ranch Estates development on Via Sebastian, just south of Cochrane Road, under the existing conditions baseline. Under the existing conditions baseline, public roadways within the Borello Ranch Estates neighborhood, located immediately west of the dam Seismic Retrofit component, have varying degrees of views of the FOCP work areas including, but not limited to, staging areas, work areas, and construction vehicles and equipment.

South of and uphill from Borello Ranch Estates is the Holiday Lake Estates neighborhood, which offers public views of the reservoir from public roadways. This neighborhood is located immediately south of the central and eastern portions of Anderson Reservoir (see **Figure 3.1-4** ~~**Figure 3.1-2**~~, Photo 1 for a typical view of the reservoir from Holiday Drive under the existing conditions baseline).

Residents along roadways near the reservoir shoreline, particularly in the Holiday Lake Estates neighborhood, have views of the reservoir, although the visual character of these views has been substantially degraded (as necessitated by the FOCP) because the reservoir is presently maintained at deadpool ~~elev. 488 feet~~. This lowered water surface elevation has resulted in large expanses of dry reservoir bed. Because of distance, public views of FOCP staging areas, work areas, and construction vehicles and equipment are limited.

Residential viewer exposure is considered moderate to high, because the number of viewers and landscape visibility are low to moderate, but the duration of views from roadways is potentially high. Residential viewer concern of and visual sensitivity to the area, including the Seismic Retrofit component, is assumed to be moderate. Because the visual character of the reservoir as altered under the existing conditions baseline is low, visual quality is low to moderate.

3.1.2.3 Scenic Vistas

A *scenic vista* is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Scenic vistas are also typically designated by an agency or department that actively manages the scenic vista to maintain or protect the public view through the provision of public access, information, safety, and protection of resources (e.g., signage, parking area, and safety fencing/rails). The study area does not provide expansive views of a highly valued landscape for the benefit of the general public and is not designated as a scenic vista in Caltrans' Scenic Route Program (Caltrans 2024 ~~2018~~), Envision San José 2040 General Plan (City of San José 2023 ~~2011~~), City of Morgan Hill General Plan (City of Morgan Hill 2017 ~~2016~~), or the *Santa Clara County General Plan* (County 1994).

3.1.2.4 Scenic Highways and Corridors

There are no state-designated scenic highways near the Project (Caltrans 2021b). As described in the *Regulatory Setting* section, the closest locally designated scenic corridors or scenic routes to the Project Area include US 101 (from Metcalf Road to Burnett Avenue) (City of San José 2023

~~2011~~) and East Dunne Avenue (County 2008). While Anderson Dam is visible from US 101 from a distance, the Project Area for the Seismic Retrofit components is not visible from this highway. While East Dunne Avenue provides views of the eastern portion of Anderson Reservoir, the dam and Seismic Retrofit components are not visible from this road due to distance and intervening topography and vegetation. Gateways identified in Policy CNF-19.2 of the *City of Morgan Hill General Plan* are outside the study area.

3.1.2.5 Light and Glare

Nighttime lighting is necessary to provide and maintain safe, secure, and attractive environments. Light that falls beyond the intended area of illumination is referred to as "light trespass." The most common cause of light trespass is spillover light, which occurs when a lighting source illuminates surfaces beyond the intended area, such as when building security lighting or parking lot lights shine onto neighboring properties. Spillover light can adversely affect light-sensitive uses, such as residences at nighttime. Both light intensity and fixtures can affect the amount of light spillover emitted from a source. Modern energy-efficient fixtures that face downward, such as shielded light fixtures, are typically less obtrusive than older upward-facing light fixtures. Glare is caused by light reflections from pavement, vehicles, and building materials such as reflective glass, polished surfaces, or metallic architectural features. During daylight hours, the amount of glare depends on the intensity and direction of sunlight.

Throughout the Project vicinity, the primary sources of nighttime lighting and glare are associated with the urban areas of Morgan Hill. Within the Project Area, nighttime lighting and glare are less pronounced and typically associated with residential uses and safety lighting in parking areas.

3.1.3 Regulatory Setting

3.1.3.1 State Laws, Regulations, and Policies

California Scenic Highway Program

In 1963, the California State Legislature established the California Scenic Highway Program, a provision of the Streets and Highways Code, to preserve and enhance the natural beauty of California (Caltrans 2021a). The state highway system includes designated scenic highways and those that are eligible for designation as scenic highways. According to the California Scenic Highway Mapping System, there are no officially designated scenic highways within or with views of the study area (Caltrans 2021b).

3.1.3.2 Regional and Local Laws, Regulations, and Policies

Santa Clara County General Plan

The Santa Clara County General Plan (County 1994) lists strategies and polices related to scenic resources in its Parks and Recreation and Resource Conservation chapters (County 1994). In 2008, the County updated the Regional Parks and Scenic Highway Map Element of the General Plan (County 2008). According to the Santa Clara County General Plan, there are existing parks and trails that are designated scenic resources within the Project Area. Anderson Lake County Park and the Coyote Creek Parkway are shown as both "existing" and "proposed" parks on the

Regional Parks and Scenic Highway Map. However, both these recreational amenities have been fully constructed at the time of the publishing of the Draft ~~is~~ EIR. East Dunne Avenue is also identified as a scenic rural route on the Regional Parks and Scenic Highway Map (County 2008).

City of Morgan Hill 2035 General Plan

The City of Morgan Hill 2035 General Plan (City of Morgan Hill 2017 ~~2016~~) includes a goal and policy relevant to aesthetic and visual resources impacts from the Project (City of Morgan Hill 2017 ~~2016~~). The City of Morgan Hill 2035 General Plan goal and policy relevant to aesthetic impacts are stated below.

Natural Resources and Environment

Goal NRE-5: Preservation and reclamation of streams and riparian areas as open space.

> **Policy NRE-6.4**: Tree Preservation and Protection. Preserve and protect mature, healthy trees whenever feasible, particularly native trees, historically significant trees, and other trees which are of significant size or of significant aesthetic value to the immediate vicinity or to the community as a whole.

Envision San José 2040 General Plan

The Envision San José 2040 General Plan (City of San José 2023 ~~2011~~) contains goals and policies regarding visual resources. These goals, supporting policies, and actions are primarily addressing access to scenic resources (Goal CD-9) and maintaining attractive gateways within the city boundaries (Goal CD-10), particularly along "Grand Boulevards" and "Rural Scenic Corridors." According to the Envision San José 2040 General Plan's Scenic Corridors Diagram, US 101 (from Metcalf Road to Burnett Avenue) is designated as a rural scenic corridor (City of San José 2023 ~~2011~~).

3.1.4 Methodology and Approach to Impact Analysis

This impact analysis describes the visual changes that would occur from implementing the Project using the standards of visual quality, visual character, viewer exposure, and visual sensitivity typically used for a visual assessment. The analysis focuses on reasonably foreseeable effects of the Project related to aesthetics based on a review of the following maps, photographs, and plans:

- County Parks Department's guide maps of Anderson Lake County Park and Coyote Creek Parkway
- Scenic corridor maps from the Envision San José 2040 General Plan, Santa Clara County General Plan, and City of Morgan Hill General Plan
- Aerial maps (i.e., Google Earth and GIS maps) showing the study area and vicinity
- Pre-FERC Order Conditions Baseline photos (shown in **Figure 3.1-3** ~~**Figure 3.1-2**~~)
- Existing Conditions Baseline photos (shown in **Figure 3.1-4**)

Site photographs represent the Pre-FERC Order Conditions and Existing Conditions baselines following FOCP implementation. Prior to taking site photos, key viewpoints were selected based on reviewing Google Earth and Google Maps to determine where publicly accessible views of the study area were available, including areas with higher visual sensitivity (e.g., recreational trails, parks, scenic roads, etc.) and viewer exposure.

The analysis considers temporary impacts that may occur during the 7-year construction period, as well as permanent impacts that would be long-term and/or that would result from ongoing facility operations and maintenance activities.

The direct effects of the Project are described and evaluated according to significance criteria from Appendix G of the *CEQA Guidelines*, discussed below. Lead agencies have discretion to determine that only impairment of public views, and not private views from a few residences, would be considered visual impacts that could be significant. This impact analysis considers only public views.

The assessment of impacts for the purposes of this section has been divided into construction-related impacts and operation-related impacts by Project component, as identified in and described in **Table 2-1** of Chapter 2, *Project Description*. Each component has been analyzed to determine whether the construction or operation of that component would substantially damage scenic resources, substantially degrade the existing visual character or quality in non-urbanized areas, or create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

3.1.4.1 Seismic Retrofit Construction

Project construction associated with the Seismic Retrofit components would result in temporary disruptions to, and in some cases temporary closure of, existing recreational facilities or opportunities that provide views of the Project Area in and around Anderson Reservoir. In addition, the Project would result in permanent changes to views of the Project Area. The analysis for construction-related impacts focuses on evaluating the Project's effects on existing public views from which project construction activities would be publicly visible. This analysis also evaluates the effects on public views from changes in Anderson Reservoir elevation levels throughout the construction period. The analysis relies primarily onsite photos and tools, such as Google Maps and GIS analysis of the study area to locate public viewing opportunities of the dam. This analysis does not consider views from existing recreational facilities that would be closed throughout the Seismic Retrofit construction phase. The potential for seismic retrofit construction activities to result in a significant visual impact is evaluated.

As described in Section 3.0, *Introduction,* the baseline for evaluating Seismic Retrofit construction effects is the existing conditions baseline at the time of the EIR preparation modified by FOCP implementation.

3.1.4.2 Conservation Measures Construction

As part of the Project, the Conservation Measure component includes the Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Maintenance Activities at the Live Oak Restoration Reach, Sediment Augmentation Program, and Phase 2 Coyote Percolation Dam CM. Project construction associated with the Conservation Measures would result in temporary and permanent effects to aesthetic resources. A permanent effect on aesthetic resources would occur if the Conservation Measure involved aboveground elements that would substantially alter the visual character or quality of views in the area of a specific Conservation Measure. Similar to the methods described above, the analysis for construction-related impacts is based on the evaluation of the existing public views and changes to the existing views that would be publicly viewable due to Project construction. The analysis relies primarily on-site photos and tools, such as Google Maps and GIS analysis of the study area to locate public viewing opportunities along Coyote Creek downstream of Anderson Dam to Coyote Percolation Ponds, Ogier Ponds, and Coyote Percolation Ponds. As described in Section 3.0, *Introduction*, the baseline used for evaluating Conservation Measure construction effects is the existing conditions baseline at the time of the Draft EIR preparation modified by FOCP implementation.

3.1.4.3 Construction Monitoring

Construction monitoring activities are not considered in the impact analysis, as monitoring would involve data collection, and would not result in adverse changes to visual resources.

3.1.4.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

This analysis considers how post-construction reservoir operations would change the visual character and quality of views of Anderson Reservoir and Coyote Creek from non-emergency flow releases, following completion of the Seismic Retrofit construction. This analysis compares post-construction reservoir operations ~~(i.e., the future conditions baseline)~~ against both existing conditions baseline and the Pre-FERC Order Conditions Baseline.

Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP Program EIR prepared in January 2012 (Valley Water 2012). The DMP EIR includes mitigation measures to reduce impacts to visual resources, including the following:

- **Mitigation Measure AES-1**, which requires that fencing used be designed to blend in with the natural landscape and be non-reflective
- **Mitigation Measure AES-3**, which requires directing light downward and away from residences and reducing bulb wattage
- **Mitigation Measure GEO-1**, which requires removal and revegetation of temporary access roads when they are no longer needed

Aesthetic impacts associated with post-construction maintenance activities would not differ substantially from those impacts identified in the DMP EIR. Furthermore, the previously identified DMP impacts would not be exacerbated with implementation of the Seismic Retrofit components. Therefore, no new impacts would occur as a result of post-construction dam maintenance activities. For these reasons, post-construction dam maintenance activities are not discussed further in this section.

3.1.4.5 Post-Construction Conservation Measures Operations and Maintenance

The Conservation Measures focus on improving fish habitat (e.g., Maintenance Activities at the Live Oak Restoration Reach and Sedimentation Augmentation Program, separation of Coyote Creek from Ogier Ponds, ~~reopening~~ Maintenance of the North Channel Reach, and fish passage improvements at Coyote Percolation Dam). These Conservation Measures would operate passively, without mechanical or human intervention, and have been planned in accordance with Anderson Dam Reservoir flow releases. While data collection and assessment may indicate that individual Conservation Measures are not meeting success criteria specified for those measures, the modified Conservation Measure actions that would be undertaken to attain the prescribed success criteria would be similar to the original actions, and would not result in additional impacts. In the event that modified Conservation Measures would result in additional environmental impacts that are outside the scope of impacts analyzed in this EIR, the modified Conservation Measures would be subjected to additional CEQA at that time.

Maintenance of the Phase 2 Coyote Percolation Dam CM, Live Oak Restoration Reach, North Channel Reach ~~Extension~~, and groundwater recharge within Coyote Creek would be conducted in accordance with existing Valley Water maintenance programs (e.g., SMP for certain work activities within streams and DMP for Coyote Percolation Dam CM). BMPs and AMMs associated with these programs would be implemented to minimize potential aesthetics impacts during operations and maintenance activities. For activities included in the SMP, impacts from Conservation Measure operation and maintenance would be similar to those already disclosed in the SMP EIR. Therefore, operations and maintenance of Conservation Measures would not result in substantial adverse effects on scenic resources or the visual character or visual quality of the areas surrounding Conservation Measures. Therefore, this topic is not discussed further in this section.

3.1.4.6 Post-Construction Project and FAHCE Adaptive Management

The Project and FAHCE AMP would guide post-construction adaptive management of project flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because the monitoring activities would not physically alter the landscape within the viewshed on a temporary or permanent basis.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts of these adaptive actions are considered in this impact analysis at a programmatic level as the detailed characteristics, timing, and/or locations of the proposed adaptive measures are not known at the time of this EIR's preparation. Project-specific CEQA review would be undertaken in the future, as necessary, when specific projects are proposed and project-specific details are available.

3.1.4.7 Applicable Best Management Practices and VHP Conditions

As noted in Section 2.0, *Project Description*, Valley Water would incorporate Valley Water BMPs, VHP Conditions, and AMMs to avoid and minimize adverse effects on the environment that may result from the Project. All relevant BMPs for the Project are described in detail in Appendix A, *Best Management Practices and Santa Clara Valley Habitat Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures Incorporated in the Project*. VHP Condition 7 would apply to aesthetics. BMPs relevant to the aesthetics analysis include the following:

> **REVEG-1:** Seeding – would require that restored areas are planted with native seeds as soon as work activities are complete
>
> **REVEG-2:** Planting Material – would require that restored areas are replanted with locally collected native species and that species selection is based on surveys of natural areas on the same creek that have a similar ecological setting
>
> **BI-8:** Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes – would require that restored areas are planted with native species that are ecologically appropriate to the work area and help improve visual conditions post-construction
>
> **WQ-11:** Maintain Clean Conditions at Work Sites – would require that work areas and access roads are maintained in an orderly condition and that materials or equipment left on site overnight are stored as inconspicuously as possible

VHP conditions were developed to help covered activities meet regional avoidance and minimization goals. VHP Condition 7, Rural Development Design and Construction Requirements, describes requirements for any new development that occurs outside the urban service area at the time the development is permitted under the Plan and for capital projects implemented by Permittees outside the urban service area. Requirements under Condition 7 relate to vegetation planting, light and glare, and restoration of disturbed areas.

Table 3.1-1 shows the applicability of each BMP to each Project impact.

Table 3.1-1. Valley Water BMPs Applicable for each Project Impact Related to Aesthetics

BMP	AES-1	AES-2	AES-3
REVEG-1: Seeding		X ~~ü~~	~~–~~
REVEG-2: Planting Material		X ~~ü~~	~~–~~
BI-8: Choose Local Ecotypes of Native Plants and Appropriate Erosion Control Seed Mixes		X ü	
WQ-11: Maintain Clean Conditions at Work Sites		X ~~ü~~	~~–~~

Table 3.1-2 shows the applicability of the VHP Condition 7 to each Project impact.

Table 3.1-2. VHP Condition 7 Applicable for each Project Impact Related to Aesthetics

VHP Condition	AES-1	AES-2	AES-3
VHP Condition 7		X ~~ü~~	X ~~ü~~

Table 3.1-3 shows the applicability of each VHP AMM to each Project impact.

Table 3.1-3. VHP AMMs Applicable for Each Project Impact Related to Aesthetics

AMM	AES-1	AES-2	AES-3
Aquatic 40: Maintain native shrubs, trees and groundcover whenever possible and revegetate disturbed areas with local native or non-invasive plants		X ü	
Aquatic 71: Preserve existing vegetation to the extent possible		X ~~ü~~	_ ~~–~~
Aquatic 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.		X ~~ü~~	_ ~~–~~

3.1.4.8 Thresholds of Significance

For the purposes of this analysis, the Project would result in a significant impact on aesthetics if it would:

AES-1: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway (criterion b)

AES-2: In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point) (criterion c)

AES-3: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area (criterion d)

For AES-2 (criterion c), as described in **Section 3.1.5**, the Project is located in non-urbanized areas. For this reason, the impact analysis focuses on substantial adverse impacts of the existing visual character or quality of public views of the site and its surroundings. *CEQA Guidelines* criterion c also suggests that if a project is located in an urbanized area, then conflicts with applicable zoning and other regulations governing scenic quality may be a significant impact; however, since the Project is not in an urbanized area, Impact AES-2 does not analyze this part of the significance threshold.

Issues Dismissed from Further Review

CEQA Guidelines Appendix G suggests that a project may have a significant effect on aesthetics if it would have a substantial adverse effect on a scenic vista (criterion a). As described in the IS (Appendix B), a *scenic vista* is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Anderson Dam and Reservoir and the remainder of the study area may provide scenic views to people near the Project Area, but the dam and reservoir and the remainder of the study area do not include expansive, remarkable landscape elements that create scenic vistas. In addition, the Project Area is not designated as a scenic vista under Caltrans' Scenic Route Program (Caltrans 2024 ~~2018~~), Envision San José 2040 General Plan (City of San José 2023 ~~2011~~), City of Morgan Hill General Plan (City of Morgan Hill 2017 ~~2016~~), or the Santa Clara County General Plan (County 1994). Therefore, this impact would be less than significant, and it is dismissed from further analysis in this EIR.

Lead agencies have discretion to determine that only impairment of public views, and not private views from a few residences, would be considered visual impacts that could be significant. Therefore, this impact analysis does not consider changes to private views. ~~*CEQA Guidelines* criterion c suggests that if a project is located in an urban area, then conflicts with applicable zoning and other regulations governing scenic quality may be a significant impact; however, since the Project is not in an urbanized area, Impact AES-2 does not analyze this part of the significance threshold.~~

The Project would not result in substantial damage to rock outcroppings or to historic buildings. Impacts to these types of scenic resources are, therefore, not analyzed further in this impact analysis.

3.1.5 Impact Analysis

Impact AES-1: Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway **(Less than Significant)**

No highways located in the vicinity of the study area are designated as a State Scenic Highway (Caltrans 2021b). While East Dunne Avenue is identified as a scenic rural route on Santa Clara County General Plan's Regional Parks and Scenic Highways map (County of Santa Clara 2008), views from this road mainly consist of the southeastern portion of Anderson Reservoir, and the Project Area is not visible. Similarly, although US 101 is identified as a rural scenic corridor in the Envision San José 2040 General Plan (City of San José 2023 ~~2011~~), views of the Project Area from the roadway are largely obscured by vegetation, and are limited to the Coyote Percolation Dam CM. While Anderson Dam is visible from US 101 from a distance through south County, the Project Area for the Seismic Retrofit components is approximately two miles from the roadway and divided by the City of Morgan Hill development. The Project would not result in substantial damage to rock outcroppings or to historic buildings. Impacts to these types of scenic resources are, therefore, not analyzed further in this impact analysis.

Regarding the other types of scenic resources noted in the *Regulatory Setting*, the Santa Clara County General Plan considers existing parks and trails in the study area to be scenic resources; impacts to parks and trails are evaluated in Impact AES-2. Similarly, the Project's visual effects associated with excavating and restoring the BHBA, which includes rock and other earthen materials, are described below in Impact AES-2. Additionally, potential impacts to public views associated with removal of vegetation, and trees in the Project Area are evaluated in Impact AES-2.

Significance Conclusion Summary

Based on the above summary, Project impacts on scenic resources other than those evaluated in Impact AES-2 would be **less than significant.**

Mitigation Measures

No mitigation is required.

Impact AES-2: Substantial degradation of the existing visual character or quality of public views of the site and its surroundings (Significant and Unavoidable)

Project construction would result in both temporary and permanent impacts on the visual character and quality of public views of the Project Area and its surrounding landscapes, as described below. The Project Area is located in a non-urbanized area. Therefore, the following analysis focuses on the Project's effects on the existing visual character or quality of public views of the site and the surrounding landscapes.

Seismic Retrofit Construction

Seismic Retrofit construction activities would result in temporary aesthetic impacts affecting the existing visual character and quality of public views. Project construction activities associated with the Seismic Retrofit component would occur within Anderson Lake County Park. The Live Oak Picnic Area, former Toyon Group Picnic Area, Anderson Lake Boat Ramp and Parking Area, and other park areas located south, west, and east of the dam would be used for temporary construction staging. Views of these areas would include construction equipment, stockpiled materials, construction fencing, vehicles, and active work areas. Aside from the Rosendin Park Area, a~~A~~ll the park areas located within the study area would be closed to public use throughout the duration of Seismic Retrofit construction. The Rosendin Park Area would be fully closed for 3 to 4 months during the initial blasting phase of construction and would partially reopen following this period with the exceptions of Lakeview, Gray Pine, Cochrane, and Rosendin Trails, which would all remain closed for the duration of blasting in Years 4, 5, and/or 6. There would be no planned closures of Rosendin Park Area before Year 4 or after Year 6 of Project construction. Therefore, in most locations, ~~no~~ park users would not have public views of construction areas, aside from within the Rosendin Park Area, where park users would have limited views of construction areas during certain periods of construction.

Within the Borello Ranch Estates, located west of the Live Oak Picnic Area, motorist views from public roadways would include views of active construction on Anderson Dam, in addition to construction staging within the park. Within the Holiday Lake Estates community, sporadic motorist views from public roadways would include in-reservoir activities (i.e., transport and stockpiling of earthen materials). Motorists on Cochrane Road to the west of the dam would also have varying degrees of views of the Seismic Retrofit construction. Recreators near the construction area on Coyote Creek Parkway would also have varying degrees of views of the Seismic Retrofit construction.

In addition, Seismic Retrofit construction would result in permanent impacts on visual resources in areas where public views of visual resources would be permanently changed, and the visual character and quality would be negatively affected.

The Seismic Retrofit construction activities and associated visual impacts are described below.

Tree Removal (Year 1)

As described in Chapter 2, *Project Description*, tree and vegetation removal would be necessary within the Project Area, including the BHBA and Staging Area 1, which is located in the existing Live Oak Picnic Area. **Table 3.1-4** shows the approximate number of mature, healthy native trees that would be removed for construction of the Seismic Retrofit component by Project feature.

Table 3.1-4. Approximate Number of Mature, Healthy Native Trees to be Removed for the Seismic Retrofit Component

Project Feature	Number of Mature, Healthy Native Trees
Staging Area 1	290
BHBA	270
Coyote Road realignment and access road construction	50
Rosendin Park area trails	20
Between the dam face and the spillway and in the vicinity of the unlined portion of the spillway	40

Based on a site assessment and as shown in **Table 3.1-4**, approximately 270 mature, healthy native trees would be removed at the BHBA. (Rottenborn pers. comm., 2022). Since the portion of Coyote Road along the dam crest and the boat ramp parking lot would be closed, no close-up public views of the tree removal at the BHBA would be accessible from these areas during the Seismic Retrofit construction. The loss of trees and vegetation, among other construction activities at the BHBA, would be visible from the Rosendin Park Area and, from a distance, at the Live Oak Picnic Area and public roadways within residential developments to the south and west of Cochrane Road**,** as shown in **Figure 3.1-4** (Photos 2, 4, and 12). ~~The BHBA viewer exposure, viewer concern, and visual sensitivity from recreators. Views of the BHBA from the Rosendin Park area would be limited during construction because the Rosendin Park area would be largely closed to recreators (i.e., all trails except for the Rancho Laguna Seca Trail and the Cochrane Trail, which would be dead-end trails with a turnaround at the construction site).~~ After construction is complete, views of the former BHBA would be unrestricted from the Rosendin Park area. The visual character of the BHBA and the visual quality is moderate to high. Because of the visual quality rating and large number of mature, healthy native trees that would be removed from County-owned parkland, tree removal at the BHBA would result in a significant impact to a scenic resource. Because the Project would remove not only the trees but also the hill on which they are growing and pave over the resulting lowered elevation with parking, no mitigation is available to reduce the impact of this tree removal. The impact on visual character and public views of the BHBA would be significant and unavoidable.

As shown in **Table 3.1-4**, during the construction phase, approximately 290 mature, healthy native trees would be removed in the vicinity of Staging Area 1. (Rottenborn pers. comm., 2022). Since the Live Oak Picnic Area and Serpentine Trail would be closed throughout the construction period, removal of trees at these locations would not be visible from public vantage points within these recreational areas during the Seismic Retrofit component construction. Some tree removal work from County-owned parkland, among other construction activities at Staging Area

1 at Live Oak Picnic Area, would be visible from public roadways within residential developments near Cochrane Road. Valley Water would retain trees along the north bank of the South Channel of Coyote Creek, which would partially screen views of removed trees at Staging Area 1 from Cochrane Road. **Figure 3.1-4** (Photos 10 and 11) show typical views of mature trees under the existing conditions baseline within the Live Oak Picnic Area.

With implementation of Valley Water BMPs REVEG-1 (Seeding), REVEG-2 (Planting Material), and BI-8 (Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes) at Staging Area 1 and adherence to requirements of VHP Condition 7, and AMMs Aquatic 40, Aquatic 71, and Aquatic 103, restored areas would be planted with native species that are similar in size and type to those removed. Over time, these BMPs would improve visual conditions in areas where vegetation removal is required during Project construction. Once construction is completed, and the use of the Live Oak Picnic Area is restored to the public, the removal of mature healthy trees along the south bank of the Coyote Creek riparian corridor (as shown in Photo 10 of **Figure 3.1-4**) would be perceived as a substantial adverse effect on scenic resources. Recreators (e.g., picnickers) at this viewpoint have longer duration views of the creek and riparian trees. Viewer exposure, viewer concern, and visual sensitivity of recreators that would use this site are high, and the visual character of Live Oak Picnic Area is high. From this viewpoint, the visual quality is high.

Because of the visual quality rating and large number of mature, healthy native trees that would be removed from County-owned parkland, impacts on visual character and public views due to removal of mature, healthy native trees along Coyote Creek at the Live Oak Picnic Area would be significant. Implementation of **Mitigation Measure AES-1** would require native trees of similar size and type to be planted in the areas where removal of mature, healthy native trees has occurred and causes significant impacts on scenic resources. These plantings would occur near the areas where the trees are removed to the extent possible and in other locations near the Project Area. Implementation of this mitigation measure would reduce adverse impacts on scenic resources. However, because of the long period that it takes for young oak trees to grow to a size similar to the size of trees to be removed, even after implementation of this mitigation measure, the impact would be significant and unavoidable.

In addition to these tree removals, and as shown in **Table 3.1-4**, approximately 40 mature, healthy native trees would be removed the dam face and the spillway and near the unlined portion of the spillway, approximately 50 due to road realignment and construction of access roads, and approximately 20 at the Rancho Laguna Seca trail near the construction area. Some of these tree removals would be on County-owned parkland. In each of these separate areas, viewer exposure, viewer concern, and visual sensitivity are moderate to high, and visual character is moderate because the areas are typical of the Anderson Reservoir area. Visual quality is therefore moderate to high. The removal of these trees on County lands would be significant. Implementation of **Mitigation Measure AES-1** would require native trees of similar size and type to be planted in the areas where removal of mature, healthy native trees has occurred and causes significant impacts on scenic resources. These plantings would occur near the areas where the trees are removed to the extent possible and in other locations near the Project Area. Implementation of this mitigation measure would reduce adverse impacts on scenic resources. However, because of the long period that it takes for young oak trees to grow to a size similar to the size of trees to be removed, even after implementation of this mitigation measure, the impact would be significant and unavoidable.

The following sections describe visual impacts for selected activities occurring during construction aside from tree removal. The below analyses demonstrate that, aside from tree removal and activities at Staging Areas 1 and 4, tree removal and topography change at the BHBA, and tree removal at the Conservation Measure sites, construction activities would not cause substantial degradation of existing visual character or quality of public views.

Site Preparation (Year 1)

The first year of construction would include the mobilization and site preparation activities for staging areas, stockpile areas, and access roads. Based on the location of the staging and stockpile areas (most of which would be within the reservoir) (see **Figure 2-4**), construction equipment and site preparation activities within Anderson Lake County Park would not affect public recreator views from the Live Oak Picnic Area as these areas would be closed to the general public. However, recreator views from the Rosendin Park Area could be affected by site preparation activities, including the full dewatering of the reservoir, as discussed below.

The Live Oak Picnic Area (where Staging Area 1 would be viewable) and the boat parking lot (location of Staging Area 3) would be closed throughout the construction of the Project. No recreational views of these areas would be accessible. Construction equipment and site preparation activities within Staging Areas 1 and 4 would be partially visible from the public roadways within the Borello Ranch Estates and Cochrane Road, although mature trees retained would provide some visual screening. Pedestrians and residents along Cochrane Road may also have partial views of these three staging areas.

Full dewatering of the reservoir would expose recreators in the Rosendin Park Area to views of the lower water levels in the reservoir. However, under the Existing Conditions Baseline and typical reservoir operations during droughts, recreators using the Rosendin Park Area are already accustomed to similar conditions as a result of both the drought and construction of the FOCP, which required dewatering of the reservoir to deadpool. Views of barren banks and low water storage conditions would incrementally worsen during the Project's construction phase. Though views of the reservoir from the Rosendin Park Area would be degraded for the periods when recreators would have access to these views, these marginally modified views would be temporary until the Project activities are completed. Once the Project is completed, the reservoir water levels would return to normal operating conditions. Although viewer exposure, viewer concern, and visual sensitivity would be high, visual character is low, so visual quality would be low to moderate. Therefore, the impact from full dewatering of the reservoir on visual character and public views would be less than significant.

Site preparation activities at the Packwood Gravel Borrow Pit and the BHBA would also be visible to recreators in the Rosendin Park Area. Due to the temporary nature of these site preparation activities, there would be no substantial permanent change in visual character and public views and impacts would be less than significant. Additional construction activities that would be visible from the Rosendin Park Area, including excavation at the BHBA, are discussed further below under *Dam Excavation and Reconstruction (Including Excavation of Embankment Materials from Borrow Areas) and Raising Dam Crest (Years 2-6)* and *Completed Seismic Retrofit Components (Year 7).*

Staging Area 5 (located at 2100 San Pedro Avenue) would be used for construction worker parking. This area would be visible from San Pedro Avenue and Hill Road, both of which are public roadways used by residences.

Staging Area 6 (located at the Holiday Lake Estates Boat Ramp Parking Lot) would be used for mobilizing equipment, reservoir access, and stockpiling, and would be visible from Holiday~~s~~ Drive, a public roadway.

Construction equipment and worker vehicles using haul routes leading to the Project's staging areas would be visible to pedestrians and motorists located along Cochrane Road, Peet Road, and Half Road, as well as other smaller side streets near these roadways.

Stockpile areas~~, and~~ the use and construction of access roads, and the Reservoir Disposal Area would be largely unseen from public roadways throughout the construction of the Project. All Project staging areas are described in **Table 2-4**. Views from public roadways would be limited to the access road on the downstream slope of the dam connecting to the Anderson Dam Trail, continuing into Staging Area 1. This access road would be visible from Cochrane Road and roadways within the Borello Estates development. However, the viewer groups, pedestrians and motorists, that would have views of the access roads would have low viewer exposure, viewer concern, and visual sensitivity. Visual character of these visual resources varies from low to high. Visual quality would therefore be low to moderate. The impact on visual character and public views would be less than significant.

Construction of Temporary Water Diversion System (Year 2)

Due to the location of the temporary water diversion infrastructure, including the cofferdam, sediment check dams, reservoir bypass pipe, and temporary bypass pumping system, and the temporary closure of Anderson Lake County Park ~~and Rosendin Park~~, construction of the temporary water diversion system would largely be out of public view and obscured by existing mature vegetation and topography of the surrounding area. However, public views of limited portions of the temporary water diversion system, including the low-level outlet tunnel entrance, lake tap, and trash rack, would be visible from trails within the Rosendin Park Area, including the Lakeview Trail and Gray Pine Trail which would be open during Year 2 of Seismic Retrofit construction. Although viewer exposure, viewer concern, and visual sensitivity at these locations would be high, visual character is low due to the intervening topography and vegetation that would partially obstruct views of the temporary water diversion system, so visual quality would be low to moderate. Furthermore, views of the temporary water diversion system would be temporary and there would be no permanent change to recreator views. Therefore, the impact on visual character and public views from the Rosendin Park Area would be less than significant.

Similar to other construction phases, pedestrians and motorists using Cochrane Road, Peet Road, and Half Road would have views of construction equipment using the haul roads leading to the temporary water diversion system work area. However, the viewer groups that would have views of construction equipment on the haul roads would have low viewer exposure, viewer concern, and visual sensitivity. The visual quality would be low. The impact on visual character and public views would be less than significant.

Full Dewatering of the Reservoir (Years 2-6)

The full reservoir dewatering would involve dewatering activities that would reduce reservoir levels from deadpool to an elev. 450 feet, exposing approximately 1,420,000 cy of additional sediment. Due to the partial closure of Anderson Lake County Park during the construction period, public views of the dewatered reservoir would largely not be accessible (e.g., from the dam crest or boat launch) (Valley Water 2021 ~~2023~~). The Rosendin Park Area would be ~~largely~~ fully closed for 3 to 4 months during the initial blasting phase of construction and would partially reopen following this period with the exceptions of Lakeview, Gray Pine, Cochrane, and Rosendin Trails, which would all remain closed for the duration of blasting ~~(as described above under *Tree Removal [Year 1])* during Seismic Retrofit construction~~. Recreators using the ~~these~~ open trails in the Rosendin Park Area, ~~namely~~ which would include all the trails in Years 2 and 3, as well as the Rancho Laguna Seca Trail outside the 3 to 4 month initial blasting period in Year 4, 5, or 6, and any reopened sections of the Cochrane Trail after blasting during Years 4 through up to Year 6, would have views of the reservoir's lower water levels.

However, as discussed above, under the existing conditions baseline and typical reservoir operations during droughts, recreators using Rosendin Park are already accustomed to similar conditions as a result of both the drought and construction of the FOCP, which required dewatering of the reservoir to deadpool. Views of barren banks and low water storage conditions would incrementally worsen during the Project's construction phase. Though views of the reservoir from these trails would be degraded for ~~approximately 4 years of construction~~ the periods when recreators would have access to these views, these marginally modified views would be temporary until the Project activities are completed and they are typical of the existing conditions baseline. Once the Project is completed, the reservoir water levels would return to normal operating conditions. Although viewer exposure, viewer concern, and visual sensitivity would be high, visual character is low, so visual quality would be low to moderate. The impact from full dewatering of the reservoir on visual character and public views would be less than significant.

Dam Excavation and Reconstruction (Including Excavation of Embankment Materials from Borrow Areas) and Raising Dam Crest (Years 2-6)

As described in Chapter 2, dam excavation would begin during the dry season (April through November) of Year 2, and would continue throughout Years 3 and 4, followed by the reconstruction of the dam over Years 5 and 6. Excavation of the dam would involve substantial earth movement and vegetation removal and the hauling of excavated materials from the dam to in-reservoir stockpile areas and the Reservoir Disposal Area (see **Table 2-9** through **Table 2-14** in Chapter 2). During the dam excavation phase, a temporary tie-back wall would be installed along a 400-foot-long segment of Cochrane Road at the toe of the dam. This wall would be a soil nail[1] and shotcrete wall[2] that would rise 50 feet high above the Stage 1B Excavation grade.

Reconstructing the dam would require using material stored in the stockpile areas and material excavated from both the Packwood Gravel Borrow Pit and BHBA. The Packwood Gravel Borrow Pit is located on the eastern side of the reservoir and would ~~only~~ be visible from trails within the Rosendin Park Area, which would be partially ~~largely~~ closed during blasting in Years 4, 5, and/or 6 ~~throughout Project construction (as described above under *Tree Removal (Year 1)*.~~ The BHBA is located southeast of the parking area at the left end of the existing dam. As described in Chapter 2, *Project Description,* approximately 1,420,000 cy of material would be excavated from the BHBA using drilling and blasting methods to break up the rock. **Figure 2-4** shows the area of material that would be excavated.

With the exception of the Rosendin Park Area, which would be fully closed for 3 to 4 months during the initial blasting phase of construction and would partially reopen following this period with the exceptions of Lakeview, Gray Pine, Cochrane, and Rosendin Trails, which would all remain closed for the duration of blasting ~~largely closed throughout Project construction~~, construction equipment and activities associated with these work phases would not be visible within most of Anderson Lake County Park due to park closure (**Figure 3.1-4,** Photo 1 and Photo 2). From trails within the Rosendin Park Area, recreators would have limited views of excavation activities at the dam and the Packwood Gravel Borrow Pit (**Figure 3.1-4**, Photo 3), haul trucks transporting material to and from stockpile areas and the Reservoir Disposal area, and dam reconstruction. Recreators would have more immediate views of construction activities at the BHBA (**Figure 3.1-4**, Photo 4). While recreators in the Rosendin Park Area would be accustomed to viewing construction activities associated with the FOCP, proposed construction activities would further degrade these views as the Project would result in more extensive ground-disturbing activities. Recreators in the Rosendin Park Area may also have temporary views of ~~Stockpile Area D and~~ the Reservoir Disposal Area throughout the dam excavation phase. Implementation of BMP WQ-11 (Maintain Clean Conditions at Work Sites) would require these work areas are kept clean to help reduce adverse effects on views from the Rosendin Park Area. Most of these activities would not have a substantial change in visual character and public views. However, excavation at the BHBA would remove the hill that is currently at that location and pave over it with parking. This change is discussed below under *Completed Seismic Retrofit Components (Year 7)*.

Excavation of the existing dam; blasting, drilling and excavation activities conducted at BHBA; and reconstruction of the new dam embankment would be visible from areas located outside the park to the west of the dam. Distant views of these activities and large equipment including large bulldozers, graders, loaders, and dump trucks may be seen by motorists from US 101, Cochrane Road, Peet Road, and residential side streets to the west of the dam. Most of these views are 0.5 miles or greater from the dam itself and may also be limited by existing vegetation

[1] Soil nail wall construction is a technique typically used to stabilize soils in an area where landslide is a concern. Soil nail walls can prevent landslides by inserting steel reinforcement bars into the soil and anchoring them into the soil strata.
[2] Shotcrete wall construction is a technique involving wet- or dry-mix concrete that is pneumatically projected at high velocity through a hose and nozzle on a surface to achieve consolidation.

and intervening terrain. Due to distance, views of such construction activities would not result in a substantial visual disruption from these areas. The changes in views from these areas outside of the park would be temporary, although the changes would span approximately 6 years. Following project implementation, the Project Area other than BHBA would appear similar to under the existing conditions baseline; therefore, Project implementation would not substantially degrade the visual character or quality of public views.

The temporary tie-back wall along Cochrane Road would be visible from motorists on Cochrane Road. However, motorist views would be fleeting. Accordingly, motorists have low viewer concern, viewer exposure, and visual sensitivity. Visual quality would also be low. Therefore, Project implementation would not substantially degrade the visual character or visual quality of public views.

Other than removal of the hill at the BHBA, which would constitute a substantial permanent change to the local topography and which is discussed below, dam excavation and reconstruction activities would not result in a substantial change to visual character and quality of public views. Therefore, impacts on visual character and public views from dam excavation and reconstruction would be less than significant.

Construction of New Outlet Works and Spillway Modifications (Years 2-6)

Construction of the HLOW and LLOW on the northern side of the dam and spillway modifications would occur within Anderson Lake County Park. Views of these construction activities by the public would be largely obstructed due to mature vegetation and the natural topography of the area, as the park itself would be largely closed to public use. Partial views of construction activities associated with the new outlet works system may be visible from areas of the Rosendin Park Area during the periods in which the park would be open to recreators. ~~however, the park would also be largely closed throughout construction activities (as described above under *Tree Removal [Year 1]).*~~ Although viewer exposure, viewer concern, and visual sensitivity at these locations would be high, visual character is low due to the intervening topography and vegetation that would partially obstruct views of the HLOW and LLOW, so visual quality would be low to moderate. Furthermore, views of the construction of the HLOW and LLOW would be temporary and there would be no permanent change to recreator views as a result of the construction of the HLOW and LLOW. Therefore, the impact on visual character and public views from the Rosendin Park Areas would be less than significant. Views of the outlet structures downstream of the dam would be visible from Cochrane Road by motorists. Viewer exposure, viewer concern, and visual sensitivity would be low and visual character would be moderate. Therefore, visual quality would be low to moderate. Accordingly, impacts on visual character and public views from construction of new outlet works and spillway modifications would be less than significant.

Permanent Roads, Modifications to Boat Ramp Parking Lot and Other Recreational Facilities, and Site Restoration (Year 7)

Near the end of construction, permanent modifications would be made to Coyote Road along three segments, including (1) from the entrance kiosk to the dam crest, (2) across the dam crest, and (3) along the south side of the spillway. Access from Cochrane Road to the Anderson Dam toe would also be relocated. The Anderson Dam boat ramp parking area would be replaced and enlarged, and the existing boat ramp would be replaced and extended. Other recreational improvements that would be constructed include restoration of the Live Oak Picnic Area and replacing the Serpentine Trail with an access path extending from the Live Oak Picnic Area to the crest of Anderson Dam. Improvements at the Serpentine Trail would mostly follow the current alignment ~~but would include a pedestrian bridge crossing over the North Channel~~, where the North Channel weir that was installed during the FOCP would be visible. Lastly, site restoration activities would generally involve removing temporary facilities and restoring disturbed areas to their preconstruction conditions, including, but not limited to, stockpile areas, access roads, the check dams, staging areas. Activities would include regrading and vegetation planting. Because of borrow activities during construction, the BHBA would be greatly reduced in size, covered in concrete to provide slope stability, and paved for parking. This change at the BHBA would amount to a substantial change in topography and is discussed below under *Completed Seismic Retrofit Components (Year 7)*. Views of these Year 7 project components would not be visible to a large number of viewers, as the facilities would still be close to access. Viewer exposure, viewer concern, and visual sensitivity would be low and visual character would be moderate. Therefore, visual quality would be low to moderate. Accordingly, impacts on visual character and public views from construction of new outlet works and spillway modifications would be less than significant.

Similar to the other Seismic Retrofit components and work phases, recreators using trails in the Rosendin Park Area, which would be <u>partially</u> ~~largely~~ closed <u>during blasting in Years 4, 5, and/or 6</u> ~~(as described above under *Tree Removal (Year 1)*),~~ would have partial views of in-reservoir restoration activities and associated equipment, including the grading of stockpile areas. Recreators in the Rosendin Park Area would also have views of restoration activities that take place at the BHBA (e.g., placing soil on the benches and hydroseeding with grasses and shrubs, concrete placement). Downstream of the dam, motorists and pedestrians along Cochrane Road and other nearby residential side streets may have partial and distant views of the BHBA restoration activities and restoration activities occurring at Staging Areas 1 and 4. The Project's road, recreational facility modifications, and site restoration activities would be visible at varying degrees from the Rosendin Park <u>Area</u> and public roadways within residential developments downstream of the dam. Implementation of Valley Water BMPs REVEG-1 (Seeding), REVEG-2 (Planting Material), BI-8 (Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes), and VHP Condition 7, and AMMs Aquatic 40 Aquatic 71 and Aquatic 103 would require seeding and revegetation of disturbed areas and that an ecologically appropriate seed mix is applied to revegetated areas. With adherence to requirements of applicable VMPs and VHP AMMs, the impact from degradation of visual character or quality of public views from permanent roads, modifications to boat ramp parking lot and other recreational facilities, and site restoration would be less than significant.

Completed Seismic Retrofit Components (Year 7)

Following the completion of the Seismic Retrofit construction activities, Anderson Lake County Park would be <u>fully</u> open to the public. Several of the post-construction operations would be visible to sensitive viewers, but the Project would not substantially degrade the visual character or quality of public views of the Project Area, as the area would return to near pre-FOCP conditions (i.e., Pre-FERC Order Conditions Baseline) over time. Specific Project components that would result in permanent visual changes include the replaced dam embankment, raised dam crest, spillway replacement, the new outlet works system, the BHBA, permanent roadway modifications, and recreational facility modifications. The long-term and/or permanent visual changes associated with these project components are described in the paragraphs below.

Replaced Dam Embankment, Raised Dam Crest, and Spillway

Once Project construction is completed, the replacement dam would be larger than the existing facility. As described in Chapter 2*, Project Description*, the dam crest would be raised by approximately 9 feet and the length would be approximately 280 feet longer than the existing dam. The new spillway would be located within the same footprint occupied by the existing spillway and would have the same crest elevation. In general, while the new dam would be slightly taller and longer, these modifications would be similar in nature to the existing dam and would not appear substantially different from the existing facilities. Views of the dam embankment would not be substantially different than those shown in Pre-FERC Order Conditions Baseline photos (**Figure 3.1-3** ~~**Figure 3.1-2**~~). Furthermore, the replacement dam and spillway would not substantially degrade public views or the visual character or quality of views within Anderson Lake County Park or the surrounding area. The impact on visual character and public views would be less than significant.

Outlet Works

The new outlet works system would replace the existing outlet works and be comprised of the HLOW and LLOW facilities. The HLOW system's outlet structure would be comprised of two 11-foot-diameter fixed-cone valves and an energy dissipation structure. The outlet structure associated with the LLOW outlet system would include a 42-inch-diameter sleeve and valve, a 54-inch-diameter cone valve with a concrete-enclosed dissipation chamber and stilling basin, and riprap slope on the north bank of Coyote Creek. The LLOW would be approximately 200 feet downstream of the current outlet to Coyote Creek in the former Toyon Group Picnic Area. This facility may be partially visible from Cochrane Road and, while these facilities would be larger than the existing outlet works, these facilities would be visually consistent with the existing outlet works and therefore would not substantially degrade public views or the visual character and quality of this particular area. The impact on visual character and public views would be less than significant.

Basalt Hill Borrow Area

As described in the *Dam Excavation and Reconstruction (Including Excavation of Embankment Materials from Borrow Areas)* analysis above, the Project would involve removing a large portion of the hill at the BHBA (western side) within a 0.9-acres area. The final grade of the borrow area would be elev. 670 (the same level as the current boat launch parking lot). The excavated portion of the BHBA would be graded, and the lower portion would be terraced, fronted by a combination of rock dowels and shotcrete along the excavated surface. The lower portion would have a steeper slope of 0.8:1 (horizontal : vertical) and a more gradual slope of 1.6:1 near the top of the hill. Additionally, the benches would be restored with 1-2 feet of loose soil material and hydroseeding. A portion of the area would also be paved for parking. The shotcrete wall segments (which would have a gray or brown tone) and benches along the excavated slope would be most clearly visible to recreators using the boat ramp parking lot, and partially visible from the Rosendin Park Area. Immediate views of the restored BHBA would be visible to recreators, who have high viewer exposure, viewer concern, and visual sensitivity. More distant views of the restored BHBA would be accessible from local public roads to the west of the dam, though visibility would vary outside of the park due to viewing distance, existing terrain, and vegetation. These viewers would have low viewer exposure, viewer concern, and visual sensitivity.

After construction is completed, the shotcrete may appear more pronounced as this would introduce a more developed component to the overall landscape. Over time, as the grasses and shrubs within the restored slope mature, the hillside would appear more natural and visually consistent with the hills surrounding the Project Area.

However, removal of the hill at the BHBA would constitute a substantial permanent change to the local topography in an area where viewer concern, viewer exposure, and visual sensitivity are high (to recreators), visual character is moderate, and visual quality is moderate to high. Therefore, impacts on visual character and public views from changes in topography at the BHBA would be significant. No mitigation is available to reduce the level of mitigation; therefore, the impact would be significant and unavoidable.

Permanent Roadway and Recreational Facility Modifications

As described in Chapter 2*, Project Description,* and in the section above, existing roadways throughout the Project Area would be permanently modified. Permanent roadway modifications would occur from Coyote Road through the boat ramp parking area, Coyote Road across the dam crest, Coyote Road along the spillway, access roads leading to the parking areas at the base of the dam, and a permanent access road to the left bank of the North Channel downstream of the dam. Coyote Road across the dam crest would be publicly accessible by pedestrians but not vehicles following Seismic Retrofit construction ~~in these areas would be no longer be publicly accessible~~.

As part of the Project, several of the recreation areas and facilities within Anderson Lake County Park would be permanently closed or modified. Recreational facilities that would be modified as part of the Project include Anderson Lake boat ramp and parking area, Live Oak Picnic Area, and Serpentine Trail. During Years 1 through 7 ~~8~~ of Seismic Retrofit construction, the existing Anderson Lake Boat Ramp and Parking Lot would be temporarily closed and improved. The improved Anderson Boat Ramp and Parking Area would be larger than the existing facilities. The parking area would be constructed up to 10 feet above the existing parking area over the former BHBA (discussed above under “Basalt Hill Borrow Area”). Restoration of the boat ramp parking area would include grading, replacement of curb and gutter, repaving, restriping, reinstallation of lighting, planters, irrigation, revegetation, and the replacement or refurbishment of the park bathroom facility.

Other recreational improvements include restoring the Live Oak Picnic Area and replacing the Serpentine Trail with an access path extending from the Live Oak Picnic Area to the crest of Anderson Dam. Following Project construction, all impacted park features would be replaced onsite and in-kind (40 picnic tables, eight BBQ grills, a fee station, a pay phone, a pet waste station, ~~a pedestrian bridge,~~ a 0.25 miles walking loop, 78 regular parking spaces, five ADA parking spaces, restrooms, and a group picnic area with eight tables, a large BBQ, and a food preparation table). Post-construction restoration of the Live Oak Picnic Area would also include park enhancements in the areas of the park adjacent to Coyote Creek. Views of the modified roads would be consistent with those under the existing conditions baseline and would exhibit design qualities and characteristics similar to the existing roads. While the re-configured Serpentine Trail would be different from under the existing conditions baseline, these recreational facilities would be visually consistent with existing facilities. As restored vegetation that is installed at these areas matures, the visual character would return and be consistent with the surrounding landscape; however, this would take several years. Changes to Live Oak Picnic

Area are discussed above under *Tree Removal (Year 1)*. Because, other than Live Oak Picnic Area, the areas would be restored to a condition near the existing conditions baseline over time, these components would not substantially degrade the visual character or quality of public views. The impact on visual character and public views would be less than significant.

Summary of Seismic Retrofit Construction Activities Impacts

Viewers near the study area have become accustomed to the FOCP construction activities occurring within the Project Area; therefore, their viewer concern and visual sensitivity relating changes due to FOCP would be low. However, the extent of Seismic Retrofit construction activities would encompass a larger area and occur over a longer duration than FOCP, temporarily disrupting public views from the Rosendin Park Area and from local public roadways to the west of the dam, including Cochrane Road. The dewatered reservoir and Stockpile Area K would also be visible from roads in the Holiday Estates development. Implementation of BMP WQ-11 (Maintain Clean Conditions at Work Sites) would require that work areas and access roads are maintained in an orderly condition to the extent feasible and that materials or equipment left onsite overnight are stored as inconspicuously as possible. Valley Water BMPs REVEG-1 (Seeding), REVEG-2 (Planting Material), BI-8 (Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes), and VHP Condition 7, and AMMs Aquatic 40, Aquatic 71, and Aquatic 103 would require seeding and revegetation of disturbed areas and that an ecologically appropriate seed mix is applied to revegetated areas.

While these measures would help reduce temporary adverse effects on views of the Project Area, as noted above in the discussion of the Seismic Retrofit Construction, *Tree Removal (Year* 1*)*, the removal of mature, healthy native trees that occur along Coyote Creek at the Live Oak Picnic Area~~, Ogier Ponds, and the North Channel Extension~~ would create visual disruption that would not be fully restored for a period of 20 years or more as the replacement trees mature. Also, the high visibility of Staging Areas 1 and 4 to recreators, coupled with the activity and change in topography at the BHBA would also create strong permanent visual disruption. These impacts would be significant because public views of portions of these areas would be substantially degraded. Implementation of **Mitigation Measure AES-1** would require replacement of mature, healthy trees that are removed along Coyote Creek at the Live Oak Picnic Area ~~and North Channel Extension.~~ Although this mitigation measure would reduce the impact, it would not reduce to less than significant. Therefore, the impact would be significant and unavoidable.

The BHBA would appear largely modified as a result of extensive excavation. Mature, healthy native trees would be removed, and the topography would be substantially changed when the hilltop is removed during excavation of the borrow materials. The restored hill at the BHBA would be stabilized by a combination of shotcrete and rock dowels and grasses and shrub plantings installed on the benches. Despite the restoration, the topography of the hillside would appear different than under the existing conditions baseline, and trees would have been removed. Because public views of the restored hillside would include recreator views from the Rosendin Park Area ~~area~~, the changed topography would result in a significant impact on visual character and public views. No mitigation is available to reduce the impact, so that impact would be significant and unavoidable.

In addition, implementation of **Mitigation Measure AES-2** would screen portions of Staging Areas 1 and 4 from pedestrians and motorists using Cochrane Road and would prevent the substantial degradation of public views of these staging areas. This measure would reduce this impact to a less than significant level with mitigation.

Based on the discussions above, most Seismic Retrofit components, including the replaced dam embankment, raised dam crest and spillway, new outlet works, permanent roadway and recreational facility modifications would be similar in character to the existing facilities and would not substantially degrade visual character and public views of the Project Area. However, tree removal at Live Oak Picnic Area~~, the North Channel Extension~~, and the BHBA, and changes in topography at the BHBA would substantially degrade visual character and public views.

In summary, even with implementation of **Mitigation Measure AES-1 and AES-2**, construction and completion of the Seismic Retrofit components would result in a significant and unavoidable impact on the existing visual character and quality of public views.

Conservation Measures Construction

Impacts related to the visual character and quality of public views near the Ogier Ponds CM, the Phase 2 Coyote Percolation Dam CM, Maintenance of the North Channel Reach ~~Extension~~, and the Live Oak Restoration Reach Project Area are described below. The visual character and quality of public views associated with other Conservation Measures involving construction of habitat enhancements (e.g., in-stream restoration, placement of woody debris, and/or gravel augmentation) are also provided at the end of this section.

Several of the Conservation Measures would involve removal of mature, healthy native trees. **Table 3.1-5** shows the approximate number of mature, healthy native trees that would be removed for construction of the Conservation Measures component by Project feature. Conservation Measures not described in **Table 3.1-5** would not involve removal of mature, healthy native trees.

Table 3.1-5. Approximate Number of Mature, Healthy Native Trees to be Removed for the Conservation Measures Component

Project Feature	Number of Mature, Healthy Native Trees
Ogier Ponds	40
~~North Channel Extension~~	~~30~~

Ogier Ponds CM

As described in Chapter 2, *Project Description*, the Ogier Ponds CM would separate Coyote Creek from Ogier Ponds. The construction activities associated with this Conservation Measure would include the staging of equipment and materials, removal of trees, including approximately 40 mature, healthy native trees (see **Table 3.1-5**), and operation of equipment near Coyote Creek Trail. Viewer exposure, viewer concern, and visual sensitivity to the Ogier Ponds resource would be moderate to high. As described in *Environmental Setting*, visual character and visual quality are moderate.

Since the Coyote Creek Trail offers scenic viewing opportunities for recreators, these construction activities may be visible from the Coyote Creek Trail; however, these activities would be temporary and limited to the 3-year construction period (occurring primarily between

June and October annually). ~~However, portions of the Coyote Creek Trail adjacent to the work area would be closed throughout the duration of the construction phase. Therefore, recreators using Coyote Creek Trail would not have close-up views of work activities. Trail detours would be provided for recreators around the Project Area; therefore, views of the study area from a distance would be possible.~~ Once Ogier Ponds construction activities are completed, open water habitat would be reduced by filling Ponds 1 and 5 ~~(15 acres)~~ and partially filling Ponds 2 ~~(4 acres of fill)~~ and 4 ~~5 (1 acre of fill)~~, converting approximately 19 acres of existing open water and wetlands habitat at Ponds 1, 2, 4, and 5 to creek channel and connected floodplain habitat. About 25 acres of existing uplands would be converted to channel and floodplain habitat. ~~This Conservation Measure would also restore~~ Coyote Creek and the adjoining floodplain would be ~~with~~ planted with native vegetation, trees, and aquatic features, including large woody debris structures. Recreators accustomed to viewing open water from the Coyote Creek Trail would notice the reduction in open water habitat with the removal of approximately 40 mature native trees from County-owned parkland for this work. As discussed above under *Tree Removal*, removal of mature trees in areas that are publicly viewable by recreators would be perceived as a substantial adverse effect on scenic resources. Therefore, removal of mature trees required during construction of the Ogier Ponds CM would degrade the visual character and quality of the visual resource and would accordingly constitute a significant impact. Implementation of **Mitigation Measure AES-1** would replace mature, healthy trees that are removed for CM construction with similar but younger trees. Views of riparian vegetation and planted trees would mature over time and appear visually consistent with riparian vegetation commonly seen throughout the Coyote Creek Parkway. Implementation of this mitigation measure would reduce adverse impacts on scenic resources. However, because of the long period that it takes for young oak trees to grow to a size similar to the size of trees to be removed, even after implementation of this mitigation measure, the impact would be significant and unavoidable.

Phase 2 Coyote Percolation Dam CM

As described in Chapter 2, *Project Description*, the Phase 2 Coyote Percolation Dam CM would require the temporary closure of work areas near the Coyote Percolation Dam. Viewer exposure, viewer concern, and visual sensitivity to the Phase 2 Coyote Percolation Dam CM resource would be moderate. As described in *Environmental Setting*, visual character and visual quality are moderate.

Views of the construction work area and equipment would be visible from the Coyote Creek Trail. This construction would also be visible from the access point along Metcalf Road. Within the construction area, enhancements would occur on the concrete foundation sill of the dam itself, as well as within a portion of the downstream approach of the channel. Vegetation removal would be limited, as the work area is largely within the creek channel, and construction vehicles have previously accessed the work area through FOCP construction activities. No removal of mature, healthy native trees is anticipated. Following construction, the enhanced channel would appear similar to the existing conditions baseline. Therefore, construction would not substantially degrade the visual character or quality of public views of this area. Impacts would be less than significant.

Maintenance of the North Channel Reach ~~Extension~~

As part of the Project, the wetland bench in the North Channel area would be maintained, restoration plantings would be conducted and flow capacity in the North Channel Reach would be maintained. These maintenance activities would occur during Project construction but would involve limited changes to public views as they would preserve existing conditions within the North Channel Reach during Project construction.

~~As part of the Project, the North Channel Extension would be constructed to restore the historic North Channel of Coyote Creek. Construction of the North Channel Extension would involve grading a new channel from downstream of the North Channel weir to the historic confluence of the North Channel with the South Channel of Coyote Creek. The grading process would require removal of vegetation and 30 mature, healthy native trees (see **Table 3.1-5**) from County-owned parkland, removal of placed boulder material to create the existing break in the North Channel, and restoration of the historic channel to support the flow of the creek downstream. Viewer exposure, viewer concern, and visual sensitivity to the Ogier Ponds resource would be moderate to high. As described in *Environmental Setting*, visual character and visual quality are moderate.~~

~~As described in Chapter 2, *Project Description*, construction activities associated with the North Channel Extension and habitat enhancement would occur during the dry season of Construction Year 1, when Live Oak Park has been prepared for construction staging for Seismic Retrofit of Anderson Dam. Because the staging area would shield views of construction of the North Channel Extension, its construction would not be visible to recreators on Coyote Creek Trail or motorists on Cochrane Road, because views of this work would be screened through the staging area occupying Live Oak Picnic Area.~~

~~After construction is complete, there would be public views of the North Channel Extension from Cochrane Road and Live Oak Picnic Area. Following grading activities, the work area would be restored along the banks with native trees and vegetation, in accordance with Valley Water BMPs REVEG-1 (Seeding), REVEG-2 (Planting Material), BI-8 (Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes), and VHP Condition 7, and AMMs Aquatic 40, Aquatic 71, and Aquatic 103, which would require the seeding and revegetation of disturbed areas, and that an ecologically appropriate seed mix is applied to revegetated areas and native vegetation and trees are planted according to tree replacement ratios presented in **Mitigation Measure AES-1**. However, despite revegetation that would take place under Valley Water BMPs and VHP conditions, and AMMs, recreators using Live Oak Park after construction is complete would have a view of the area at the North Channel Extension site where approximately 30 mature, healthy native trees had been removed. As discussed above under *Tree Removal (Year 1)*, removal of mature trees in areas that are publicly viewable by recreators would be perceived as a substantial adverse effect on scenic resources. Therefore, removal of mature trees required during construction of the North Channel Extension would degrade the visual character and quality of the visual resource and would accordingly constitute a significant impact. Implementation of **Mitigation Measure AES-1** would require native trees to be planted in areas where removal of mature, healthy native trees has occurred and caused significant impacts on scenic resources. Implementation of this mitigation measure would reduce adverse impacts on scenic resources. However, because of the long period that it takes for young oak trees to grow to a size similar to the size of trees to be removed, even after implementation of this mitigation measure, the impact would be significant and unavoidable.~~

Maintenance Activities at the Live Oak Restoration Reach and Sediment Augmentation Program

Conservation Measures related to spawning gravel and rearing habitat improvements, including implementation of the Sediment Augmentation Program and the installation of large woody debris in Coyote Creek, may require short-term closures of the Coyote Creek Trail, limiting views of those work areas. The visual disruptions to recreators during the construction phase would be temporary and short in duration. Depending on the public visibility of the sites, placement of spawning gravel and improvement of rearing habitat would incrementally improve viewing conditions or would not result in a substantial visual change as natural habitats along the creek corridor are restored. For these reasons, Conservation Measures involving habitat enhancements on Coyote Creek would have a less-than-significant impact on public views and the visual character and quality of the sites and surrounding areas.

Post-Construction Anderson Dam Facilities Operations

Once the Seismic Retrofit components are complete, water levels in Anderson Reservoir would return to unrestricted capacity, which would be higher under the post-construction reservoir operations ~~future conditions baseline~~ than the water levels under the Pre-FERC Order Conditions Baseline. As described in Chapter 2 *Project Description*, once the reservoir has been re-filled, the surface area would be approximately 1,250 acres at spillway crest level. Accordingly, under the post-construction reservoir operations ~~future conditions baseline~~, the visual character and quality of public views of the reservoir would improve. The viewer exposure and viewer concern of recreators of the reservoir are moderate to high, and as described in *Environmental Setting*, the visual character and quality of the reservoir are low to moderate. The viewer exposure and viewer concern of recreators of the Live Oak Picnic Area are high, and as described in *Environmental Setting*, the visual character and quality are moderate to high.

Recreational views of the reservoir would improve from multiple vantage points, including, but not limited to, the boat ramp and boat ramp parking lot, dam crest, Lakeview and Rancho Laguna Seca trails, and on-water users (e.g., boaters). Future reservoir levels would be higher than~~l~~ levels under the Pre-FERC Order Conditions Baseline, as shown in Photos 5 through 7 and 10 in **Figure 3.1-3** ~~**Figure 3.1-2**~~.

In addition, as noted in Chapter 2 *Project Description*, operational activities would involve providing winter base flows, pulse flows, and summer flows to support multiple life stages of steelhead trout and salmon. These operational flow releases would support and maintain riparian vegetation growth and thus have a beneficial effect on multiple public vantage points looking toward Coyote Creek, including the Live Oak Picnic Area and Coyote Creek Trail, and would improve the Project Area’s visual character relative to the existing conditions baseline. As described in Chapter 3 *Introduction*, historical water releases were made year-round, but were generally higher in the summer months. Compared to Pre-FERC Order Conditions Baseline, operational Project flow releases would also support and maintain riparian vegetation growth. This increase in operational flows would have a beneficial effect on views from multiple public vantage points looking toward Coyote Creek and would have a similar visual character relative to Pre-FERC Order Conditions Baseline of the Project Area. Because post-construction Anderson Dam facilities operations would not degrade visual character or quality of public views, the impact would be less than significant.

Conservation Measure Operations

Ogier Ponds CM

Similar to conditions under the existing conditions baseline found throughout Coyote Creek, water levels in the creek and Ponds ~~1,~~ 2, 3, and 4 ~~5~~ would fluctuate and vary on a seasonal basis. Operations and maintenance activities for the Ogier Ponds CM would include vegetation management, routine inspections and repairs to the berms, access roads, spillways, fish screens, habitat enhancements, rock slope protection, and trash and graffiti removal. These operations and maintenance activities are not expected to result in visual impacts, as these activities would be temporary and conducted within a short timeframe. these reasons, operations and maintenance of the Ogier Ponds CM would not substantially degrade the visual character or quality of public views of this area. Impacts would be less than significant.

Phase 2 Coyote Percolation Dam CM

Maintenance activities for the Phase 2 Coyote Percolation Dam would include periodic sediment removal, vegetation management, rock slope protection, and routine inspection and repairs to the roughened channel and habitat enhancements. Operational activities associated with the Coyote Percolation Dam would include raising, lowering, and deflating the dam during specific flow events (as described in Chapter 2 *Project Description*). These operational activities would be consistent with existing operations with Coyote Percolation Dam. Operations and maintenance activities for the Phase 2 Coyote Percolation Dam CM would not result in a substantial visual change, because these activities would be temporary within a short timeframe. Therefore, operation and maintenance would not substantially degrade the visual character or quality of public views of this area. Impacts would be less than significant.

North Channel Reach ~~Extension~~

Maintenance ~~and operations~~ of the ~~activities for the~~ North Channel Reach ~~Extension CM~~ would include routine monitoring and inspection, and clearing the channel of debris or repairing the wetland bench, if necessary ~~vegetation management, and regrading and dewatering activities if needed~~. These ~~operations and~~ maintenance activities are covered in the SMP, and impacts would be similar to those disclosed in the in the SMP EIR. Impacts associated with the North Channel Reach ~~Extension operations and~~ maintenance would not substantially degrade the visual character or quality of public views of this area. Therefore, impacts related to maintenance ~~and operations~~ of the North Channel Reach ~~Extension~~ would be less than significant.

Spawning Gravel and Rearing Habitat Improvements

Maintenance Activities at the Live Oak Restoration Reach and implementation of the Sediment Augmentation Program along Coyote Creek may require short-term closures of the Coyote Creek Trail, limiting views of those work areas. The visual disruptions to recreators would be temporary and short in duration and limited to the period of placement of sediments. Depending on the public visibility of the specific sites, maintenance of rearing habitat improvements would incrementally improve viewing conditions or would not result in a substantial visual change as natural habitats along the creek corridor are restored. For these reasons, Maintenance Activities at the Live Oak Restoration Reach would have a less-than-significant impact on public views and the visual character and quality of the sites and surrounding areas.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive management actions as part of the Project and FAHCE Adaptive Management Program may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek watershed, such as exotic species removal, replacement riparian plantings, or additional sediment augmentation. These actions would occur when Dam flow releases or Conservation Measures are not functioning as intended, or not meeting Project or FAHCE measurable objectives. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Implementation of Valley Water BMPs and VHP Conditions, and AMMs, as described for Seismic Retrofit components above, would reduce the effects on the visual character and quality of views from the Coyote Creek Trail and other publicly accessible trails in Coyote Creek Parkway. Adaptive actions would be minor in nature and, in some cases, improve visual conditions through removal of exotics species and installation of replacement plantings. Because post-construction Project and FAHCE AMP actions would not substantially degrade the visual character or quality of public views, impacts would be less than significant.

Significance Conclusion Summary

During the Project's construction phase, implementation of Valley Water BMPs WQ-11, REVEG-1, REVEG-2, BI-8, and VHP Condition 7, and AMMs Aquatic 40, Aquatic 71, and Aquatic 103 would require that work areas are kept clean, disturbed areas are reseeded, ecologically appropriate seed mixes are applied to revegetated areas to help improve visual conditions post-construction, and mature vegetation is replanted with native species. Given the high visibility of Staging Areas 1 and 4 from Cochrane Road and the visibility of Staging Area 1 and the BHBA post-construction from the Rosendin Park area, the Project's construction impacts would be significant. **Mitigation Measure AES-1** would require replacement of mature, healthy native trees that are removed along Coyote Creek at the Live Oak Picnic Area, BHBA, and other County-operated parklands to compensate for the removal of mature, healthy native trees that occurs along this creek corridor. However, because of the long time period until the replanted trees mature, a period of up to 20 years, the impact significance threshold would be exceeded, and this impact would be **significant and unavoidable**.

Motorist and pedestrian views of Staging Areas 1 and 4 would be accessible from Cochrane Road during Project construction. Implementation of **Mitigation Measure AES-2** would screen portions of these areas from pedestrians and motorists using Cochrane Road; because the existing visual character or quality of public views of the staging areas would not be substantially degraded and the impact significance threshold would not be exceeded, this impact would be **less than significant with mitigation**.

Limited tree and vegetation removal may also be necessary for select Conservation Measures, including, but not limited to, the Ogier Ponds CM~~,~~ and the Phase 2 Coyote Percolation Dam CM~~,~~ ~~and North Channel Extension~~. Only the Ogier Ponds CM ~~and North Channel Extension~~ would include substantial removal of mature, healthy native trees. This tree removal would degrade the visual resources at these sites, and the impact would be significant. Implementation of

Mitigation Measure AES-1 would require native trees to be planted in areas where removal of mature, healthy native trees has occurred and caused significant impacts on scenic resources. **Mitigation Measure AES-1** would also require replacement of mature, healthy trees that are removed from County-owned parklands at the Ogier Ponds ~~and the North Channel Extension~~ work area to compensate for the removal of mature, healthy native trees. Implementation of this mitigation measure would reduce adverse impacts on scenic resources. However, because of the long period that it takes for young oak trees to grow to a size similar to the size of trees to be removed, even after implementation of this mitigation measure, the impact at these sites would be **significant and unavoidable**.

As described above, post-construction operation of the Seismic Retrofit components and Conservation Measure components would have a less-than-significant impact on the visual character and quality of public views of affected areas. In addition, operating the reservoir at full capacity would improve overall visual conditions of the reservoir, compared to the existing conditions baseline, as higher water levels and open water have high aesthetic value. This impact would be **less than significant**.

Lastly, since adaptive actions implemented as part of the FAHCE AMP would be minor in nature and may improve the aesthetics due to exotic removal activities and installation of replacement plantings, these actions would have a **less-than-significant impact** on visual character and visual quality of public views.

Mitigation Measures

AES-1 Replacement Trees on Santa Clara County Parkland

Consistent with the approach in section C16-7 of the County's Tree Preservation and Removal Ordinance, Valley Water will prepare a replanting and/or re-vegetation plan for all County ordinance-sized trees to be removed on County-owned parkland. Replacement trees will be of a like kind and species of tree removed, if native and feasible, or of a kind and species to be determined by Valley Water in coordination with the County. The replacement trees will be replaced in same location of the tree removed, unless otherwise specified by the County Department of Parks and Recreation. Replacement tree planting size and ratio will be as follows, unless the County Department of Parks and Recreation requests a lower replacement ratio:

- For the removal of each small tree (12 to 18 inches): two 24-inch boxed trees or three 15-gallon trees
- For the removal of each medium tree (18 to 24 inches): three 24-inch boxed trees or four 15-gallon trees
- For the removal of each tree larger than 24 inches: four 24-inch boxed trees or five 15-gallon trees

AES-2 Visual Screening of Construction Staging Areas

Throughout the construction period, Valley Water will require contractor(s) to install and maintain visual screening around portions of construction Staging Areas 1 and 4 that would be publicly visible to nearby pedestrians and motorists. Specifically, contractor(s) will install visual screening along the southern perimeter of Staging Area 1 and southwestern perimeter of Staging Area 4, which abut Cochrane Road. Visual screening materials typically used on construction sites may include chain-link fencing with privacy slats, fencing with windscreen material, or wood or other similar barriers, approximately 6 to 8 feet tall, comprised of natural colors (e.g., green, brown, tan) found in the surrounding area.

Impact AES-3: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area (Less than Significant with Mitigation)

Seismic Retrofit Construction

As described in Chapter 2, *Project Description,* Seismic Retrofit construction activities would routinely occur during daytime hours between 6:00 a.m. and 6:00 ~~4:00~~ p.m. During the daytime hours, the sun's reflection on equipment may create a new source of glare. However, due to the combination of distance from work areas and the nearest sensitive viewers and intervening topography, daytime construction activities would not create a substantial source of light or glare.

Earthwork resulting from the excavation of the existing dam and construction of the replacement dam and spillway, conversion of the Stage 1 Diversion System to the Stage 2 Diversion System, tunneling for the HLOW and LLOW, communications/paving activities on Cochrane Road and support production (e.g., concrete placement) would require work during early mornings, evening, and nighttime hours, and therefore, construction lighting would be necessary during these times. Given delivery vehicles could occur on the Project site until 8:00 p.m., these vehicles may introduce light after sunset during winter, but this effect is minor since they are present only briefly along public roadways. The work requiring construction lighting is anticipated to occur throughout Seismic Retrofit construction, including on Saturdays and select Sundays, as necessary. Additionally, in the event of an emergency, some additional nighttime work and associated lighting may be needed. Due to distance, topography and/or intervening vegetation, most nighttime, evening, and early morning construction activities would not be visible from nearby public roads or vantage points. However, depending on where nighttime, evening, and morning activities occur, limited construction lighting may be temporarily visible from nearby public roads, which would be a substantial new source of substantial nighttime lighting adversely affecting public views. This would be a significant impact.

Implementation of **Mitigation Measure AES-3** and VHP Condition 7 would reduce adverse effects on nighttime, evening, and morning views due to construction lighting to a level that is less than significant with mitigation.

Conservation Measure Construction

Construction activities associated with the Conservation Measures, other than the Ogier Ponds CM, would largely occur during daytime hours, while the sun's reflection could generate glare. These activities would largely occur in areas where the construction activities are at least partially screened from public view points by mature vegetation, or are located in areas that are obscured by the natural topography and distance from large numbers of sensitive viewers. For these reasons, construction of the Conservation Measures would not introduce a new substantial source of light or glare that would adversely affect day or nighttime views of the Conservation Measures work areas.

Throughout the construction of the Ogier Ponds CM, similar to the other Conservation Measures, any light or glare coming from the work area would be largely obscured due to mature vegetation that is present surrounding and within the work area, the natural topography of the site, and/or the distance of the work area to public vantage points. However, trucks would be required to deliver materials to the work area to support pond filling activities 24 hours a day. This would result in the addition of light sources on access roads from delivery trucks and work area lighting in the staging area where materials would be deposited and stored. This additional source of light in the existing setting would be considered a nuisance, as currently access roads and Project area do not support substantial sources of lights. Therefore, through creating a substantial new source of nighttime lighting adversely affecting public views, the delivery of project materials throughout the nighttime hours would result in a significant impact. Implementation of **Mitigation Measure AES-3** and VHP Condition 7 would reduce adverse effects on nighttime views due to truck lighting to a level that is less than significant with mitigation.

Post-Construction Anderson Dam Facilities Operations

Following construction of Seismic Retrofit components, existing lighting (e.g., lighting at the Anderson Dam boat ramp parking lot) would be replaced with new permanent lighting. This lighting would not differ substantially from current lighting systems and lighting systems used in the past throughout the study area. Therefore, operation of the Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views of the Project Area. Therefore, impacts would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

As noted above, implementation of adaptive management actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek watershed such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These activities would occur during daytime hours. The sun's reflection could generate a source of glare from construction equipment; however, work activities would be largely screened by mature vegetation and/or away from large numbers of sensitive viewers, and work would be relatively limited in scale. As such, adaptive management actions, as part of the FAHCE AMP, would not introduce a new substantial source of light or glare that would adversely affect day or nighttime views in the Coyote Creek watershed. Therefore, this impact would be less than significant.

Significance Conclusion Summary

Use of lighting during early morning, evening, and nighttime construction activities, materials delivery, and emergency activities may create a new source of substantial light adversely affecting nighttime views of nearby motorists traveling on public roads near the Seismic Retrofit and Ogier Ponds CM construction areas. Views of such lighting would be a significant impact; however, **Mitigation Measure AES-3** and VHP Condition 7 would require that lighting from the construction areas is shielded, directed downwards and/or away from public roadways and motorists. With this measure implemented, substantial new sources of light and glare would not adversely affect nighttime views of construction areas, and this impact would be **less than significant with mitigation.**

Once construction of Seismic Retrofit components are completed, existing lighting would be replaced with permanent lighting, as needed (e.g., at the Anderson Dam boat ramp parking area, safety lighting). Replacement lighting would not be substantially different from current lighting throughout the Project Area. Therefore, this impact would be **less than significant.**

With respect to construction of Conservation Measures, outside of the Ogier Ponds CM, work activities would be small in scale and conducted during the daytime. These activities would mostly be screened by mature vegetation and/or occur away from large numbers of sensitive viewers. These components would not introduce a new substantial source of light or glare, and this impact would be **less than significant.**

Based on the summary above, Project impacts on light and glare would be **less than significant with mitigation.**

Mitigation Measures

AES-3 Construction Lighting

Valley Water will require contractor(s) to shield construction lighting used during nighttime construction to implement construction activities associated with the Seismic Retrofit and Ogier Ponds CM. A *light shield* is a product, generally of metal, that blocks the direction of light. The contractor(s) will determine the precise light shield(s) to be used. Installing light shields will minimize the amount of nuisance light that is visible from public roadways throughout the Project Area <u>and the amount that illuminates sensitive habitats and natural lands outside of the construction area</u>. Direct lighting will also be focused downward or oriented such that the light sources are not directed toward nearby public roadways and motorists<u>, or toward sensitive habitats and natural lands outside of the construction area.</u> This will be accomplished through the use of lighting fixtures that are manufactured to limit the candle width for which light is generated from each fixture. The addition of screens (e.g., fencing, vegetation, boards) will also be used if light is highly visible from public roadways, as determined by Valley Water. Additional barriers (i.e., fencing) will also be constructed along access roads that would be used for 24-hour delivery of project materials, such as those required for the construction of the Ogier Ponds CM. The height and materials used for these barriers will be determined by the contractor and approved by Valley Water, depending on the location, light source, and timeline that the barriers will be required to minimize light impacts from the site.

3.1.6 Cumulative Aesthetic Impacts

The geographic study area for the cumulative impact analysis for aesthetics encompasses the future Project Areas and local public viewsheds. The primary sources of nighttime lighting and glare in the County are associated with urban areas; within open space areas, nighttime lighting and glare are less pronounced and associated with residential uses.

This section describes the Project's contribution to cumulative aesthetic impacts, as summarized in **Table 3.1-6**.

Cumulative impact thresholds for aesthetics are the same as the impact thresholds presented in Section 3.1, *Aesthetics*.

Table 3.1-6. Summary of Project Impact Contribution to Cumulative Aesthetic Impacts

Impact	Cumulatively Considerable with FOCP?	Cumulatively Considerable with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact AES-1: Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	No	No	NCC	N/A	No
Cumulative Impact AES-2: Substantial degradation of the existing visual character or quality of public views of the site and its surroundings	Yes	No	CC	MM AES-1 MM AES-2	Yes
Cumulative Impact AES-3: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	No	Yes	CC	MM AES-3	No

Key: CC = cumulatively considerable; FOCP = FERC Order Compliance Project; MM = Mitigation Measure; N/A = not applicable; NCC = not cumulatively considerable

***Cumulative Impact AES-1: Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway* (Not Cumulatively Considerable)**

As noted in the analysis under Impact AES-1 above, Project impacts to scenic resources within state scenic highway would be less than significant because there are no state scenic highways with the Project's study area. East Dunne Avenue and US 101 are identified by the Santa Clara County and San Jose General Plans, respectively, as local scenic corridors. Construction of the Seismic Retrofit components of the Project would not adversely affect rock outcroppings or historic buildings within a state scenic highway. While tree removal would affect local scenic resources, such as parks, trails, and scenic corridors, by removing a substantial number of mature trees, this impact is addressed in Cumulative Impact AES-2. Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction, restoration, or operational timeframes overlap within the same viewsheds of elements of the Project and affect similar scenic resources.

Cumulative Effects of Project with the FOCP

The FOCP will remove trees at the Toyon Group Picnic Area and require some minor vegetation removal as part of the construction of the tunnel outlet at Anderson Dam, bladder dam installation at the Coyote Percolation Pond, and levee and floodwall elements of the Coyote Creek Flood Management Measures; cumulative aesthetics impacts of tree removal impacts are evaluated in Cumulative Impact AES-2. The FOCP would be completed before Project-related construction activities begin. There are no state scenic highways in the Project study area. Therefore, there would be no cumulative effect with regard to the Project with the FOCP.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur outside the viewshed of Project's construction and operational activities (as described in Section 3.1). Certain future projects, such as the SMP and County Parks Planning Projects and Natural Resource Management, could have temporary impacts to scenic resources along Coyote Creek in the same areas as Project activities, but effects from these projects would be minor and conducted with the goal of beneficial effects long-term on scenic resources in the cumulative study area. Other future projects, such as Valley Water's other seismic retrofit, dam improvement, and flood protection projects, as well as development projects in the County, would result in temporary and long-term impacts on scenic resources. Probable future projects would be required to comply with tree preservation policies and other development standards that would reduce their impacts on scenic resources. However, these impacts would not be cumulatively considerable because they would largely occur in different viewsheds. The cumulative impact on scenic resources resulting from the Project in combination with other probable future projects would not be significant and the Project's contribution would not be cumulatively considerable. Cumulative aesthetics impacts of tree removal impacts are evaluated in Cumulative Impact AES-2.

Significance Conclusion Summary

There are no state scenic highways in the Project study area and the impacts attributable to probable future projects would not be cumulatively considerable because they would occur in different viewsheds (i.e., outside the viewshed of Project construction and operational activities). The cumulative impact on scenic resources resulting from the Project in combination with other probable future projects would not be significant, and the project's contribution would **not be cumulatively considerable**. Cumulative aesthetics impacts of tree removal impacts are evaluated in Cumulative Impact AES-2.

Mitigation Measures

No mitigation is required.

Cumulative Impact AES-2: Substantial degradation of the existing visual character or quality of public views of the site and its surroundings **(Cumulatively Considerable)**

In addition to the removal of mature trees, the extent of Project construction activities would encompass a large area over a temporary, but extended period (7 years), temporarily disrupting public views from the Rosendin Park Area and from local roads to the west of the dam, including Cochrane Road. The dewatered reservoir and Stockpile Area K would also be visible from the Holiday Estates neighborhood. Once construction is completed, most Project components would be similar in character to the existing facilities, although the BHBA would permanently appear different as a result of major excavation.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they degrade the visual character of same public views as elements of the Project.

Cumulative Effects of Project with the FOCP

Reservoir drawdown and the lowering of water levels during the FOCP will result in adverse effects to the surrounding viewshed. Specifically, views from nearby residences, the Holiday Lake Estates, and recreationists would be adversely affected. Trails within the Rosendin Park Area, located southeast of the Project site and ~~would remain open,~~ including the Lakeview ~~Lake View~~, Gray Pine, Rosendin, Cochrane, and Rancho Laguna Seca trails, would remain open except for blasting activities during Years 4, 5, and/or 6. In addition, the visual character in and around the reservoir would be impacted by staging areas and construction activities from both projects. Because of the duration of time the reservoir would be maintained at deadpool and subject to construction activities (e.g., through both the FOCP and the Project), adverse effects on the visual character will be a significant cumulative impact, and the Project's contribution would be cumulatively considerable.

The FOCP would also remove trees at the Toyon Group Picnic Area and require retaining walls and buttressing of potential landslide areas on the south arm of the reservoir. Although the FOCP would be completed before Project-related construction activities begin, the Bank and Rim Stability Improvements along the reservoir and tree removal at the Toyon Group Picnic Area for construction staging would not be fully restored, such that the additional loss of tress around the Anderson Lake County Park from the Project in addition to permanent changes to the BHBA would result in significant cumulative effects to the visual character around Anderson Reservoir, and the Project's contribution would be cumulatively considerable.

Other elements of the FOCP are at discrete and separate locations and/or time from Project activities that would not create a cumulative effect on visual character.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur outside the viewshed of Project's Seismic Retrofit construction. Certain future projects, such as the Santa Clara Valley Habitat Restoration Program and County Parks Planning Projects and Natural Resource Management, are focused on long-term restoration of existing open space areas, leading to improvement of visual character and quality of public views in the Project Area. Other future projects, such as Valley Water's other seismic retrofit, dam improvement, and flood protection projects, as well as development projects in the County, would result in temporary and long-term impacts on visual character, particularly to construction-related tree removal. Probable future projects would be required to comply with tree preservation policies and other development standards that would reduce their impacts on visual resources. However, these impacts would not be cumulatively considerable, because they would occur in different viewsheds. The cumulative impact on visual character resulting from the Project in combination with other probable future projects would not be significant, and the Project's contribution would not be cumulatively considerable.

Significance Conclusion Summary

Valley Water would reduce the Project's proportion of impacts on visual character and public views through implementation of BMP WQ-11 would require that work areas are kept tidy and clean to the extent possible; BMP BI-8 would help ensure that an ecologically appropriate seed mix is applied to revegetated areas. **Mitigation Measure AES-2** requires that portions of these staging areas must be screened from views by pedestrians and motorists using Cochrane Road. These measures would reduce the severity of the impact to visual character as observed from Cochrane Road from an extended construction period and drawdown of water levels at Anderson Reservoir. However, Project activities at the BHBA would have a permanent change on public views accessible from the Rosendin Park Area. Therefore~~, but~~ the cumulative impact would ~~still~~ be significant, and the Project's contribution is **cumulatively considerable.**

Valley Water would reduce the Project's incremental contribution to cumulative impacts on the loss of mature trees in the park through implementation of BMPs REVEG-1 (Seeding), REVEG-2 (Planting Material), and BI-8 (Choose Local Ecotypes of Native Plants and Appropriate Erosion-Control Seed Mixes), which would incorporate ecologically appropriate plants at restored work areas following construction of proposed Conservation Measures. However, because users of the Anderson Lake County Park have higher expectation of scenic views, removal of mature trees along the Coyote Creek riparian corridor within the Live Oak Picnic Group Area would be a significant and cumulatively considerable impact before mitigation. **Mitigation Measure AES-1** requires replanting trees where mature trees greater than 18 inches in diameter at breast height would be removed. Implementation of this mitigation measure would reduce the severity of the impact but given the time that would be necessary for replacement trees to grow to maturity, the Project's contribution to cumulative impacts on visual character is still **cumulatively considerable**.

Mitigation Measures

AES-1 Replacement Trees on Santa Clara County Parkland

AES-2 Visual Screening of Construction Staging Areas

Cumulative Impact AES-3: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area **(Not Cumulatively Considerable)**

Project construction activities would occur primarily during daytime hours; however, earthwork on the excavation of the existing dam and construction of the replacement dam and spillway, conversion of the Stage 1 Diversion System to the Stage 2 Diversion System, tunneling for the HLOW and LLOW, communications/paving activities on Cochrane Road and support production (e.g., concrete placement) would require work during early morning, evening, and nighttime hours. Therefore, early morning, evening, and nighttime construction lighting would be necessary during these work phases.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they create light or glare in the same Project Area and at the same time as the Project.

Cumulative Effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; these two projects would not result in cumulative impacts related to light and glare. There would be no cumulative effect.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Many of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, when combined with impacts of the Project (as described in Section 3.1), could result in new sources of substantial light and glare. Construction activities related to Valley Water's other seismic retrofit, dam improvement, and flood protection projects, for example, would result in similar impacts in the event of nighttime work, as would other development projects in the County. Although the other probable future projects would be required to comply with lighting requirements and other development standards, during both construction and operation/maintenance, that would reduce their lighting impacts, the cumulative impact related to light and glare resulting from the Project in combination with these other probable future projects would be significant.

Significance Conclusion Summary

Project construction activities would routinely occur during daytime hours; however, earthwork on the excavation of the existing dam and construction of the replacement dam and spillway, conversion of the Stage 1 Diversion System to the Stage 2 Diversion System, tunneling for the HLOW and LLOW, communications/paving activities on Cochrane Road and support production (e.g., concrete placement) would require work during early morning, evening, and nighttime hours. Therefore, early morning, evening, and nighttime construction lighting would be necessary during these work phases. Additionally, in the event of an emergency, some nighttime work and associated lighting may be needed. Due to distance, topography, location in other viewsheds, and/or intervening vegetation, it is anticipated that most early morning, evening, and nighttime construction activities would not be visible from nearby public roads or residences. However, depending on where these activities occur, early morning, evening, and nighttime construction lighting could be temporarily visible from nearby residences and public roads, which could be a nuisance to nearby residents and motorists traveling on local roads. This is a significant cumulative impact when added to the impacts of other probable future projects, and the Project's contribution would be cumulatively considerable. **Mitigation Measure AES-3** requires that lighting is shielded and directed downward and/or away from residential areas. Through implementation of **Mitigation Measure AES-3**, the Project's contribution to cumulative impacts related to light and glare would be **not cumulatively considerable**.

Mitigation Measures

AES-3 Construction Lighting

3.1.7 References

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3.2 Agriculture and Forestry Resources

This section evaluates the Project's impacts on the study area that has been defined for agricultural resources. The CEQA guidelines significance criteria for agricultural resources address impacts related to conflicts with Williamson Act contracts or existing zoning for agricultural use and the conversion of agricultural land to nonagricultural uses.

The study area used to assess impacts to agricultural resources consists of all active and inactive agricultural lands and farmlands within a 1-mile radius of the Project area; this includes the construction limits of the Seismic Retrofit and Conservation Measure components (**Figure 2-3** in Chapter 2, *Project Description*) that are located within the County, San José, or Morgan Hill. Several of these areas are identified as Prime and Non-Prime Farmland, or are lands under Williamson Act contracts. Existing conditions for the agricultural setting, including agricultural designations and zoning for these areas, are described below.

Note that no designated forest lands would be affected by the Project as there are no designated forest lands or lands used for commercial timber production in the Project Area. Therefore, forestry resources are not addressed in this section.

3.2.1 Environmental Setting

3.2.1.1 Local Agricultural Context

From the mid-1900s to the present day, the County has been actively transitioning from an agricultural area to a significantly urbanized region, driven by the growth of the technology industry (County 1994). Today, most of the agricultural land and farmlands in the northern end of the Santa Clara Valley have already been converted from agricultural to urban uses. However, the southern end of the valley (including Morgan Hill, part of which is within the study area) has an active agricultural industry.

3.2.1.2 Santa Clara County

According to the California Department of Conservation's (CDOC's) Farmland Mapping and Monitoring Program (FMMP), agricultural lands (farmland and grazing land) accounted for 50 percent of the total land area in the County in 2018 (CDOC 2021a ~~2021d~~). Based on statistics for 2020, the gross agricultural production value of the County was over $321 million (County Department of Agriculture 2022).

When the County's General Plan was prepared in 1994, the County had approximately 457,000 acres of agricultural land, of which most (approximately 405,000 acres) was rangeland (County 1994). As of 2018, the County had 14,370 acres of Prime Farmland, 3,293 acres of Farmland of Statewide Importance, and 2,236 acres of Unique Farmland, most of which is located in the southern portion of the County (CDOC 2021a ~~2021d~~).

3.2.1.3 City of Morgan Hill

The southern portion of the study area is located within Morgan Hill. Agriculture has been important to Morgan Hill as an industry and employment generator throughout the City's history and has contributed to its rural character. The City of Morgan Hill 2035 General Plan

Draft EIR identifies a total of 7,686 acres of agricultural land within the Morgan Hill Sphere of Influence (SOI) (City of Morgan Hill 2014), most of which is grazing land. Prime Farmland is largely located east of US 101, in the southern portion of the City. **Table 3.2-1** lists the acreage of each Important Farmland category within the Morgan Hill SOI (City of Morgan Hill 2014).

Table 3.2-1. Agricultural Acreage within Morgan Hill SOI

Farmland Classification	Within City Limits (acres)	Total Area (acres)
Prime Farmland	315	1,386
Farmland of Statewide Importance	22	196
Farmland of Local Importance	153	346
Unique Farmland	30	234
Grazing Land	1,265	7,686
Total	1,785	9,848

Source: City of Morgan Hill 2014, based on Farmland Mapping and Monitoring Program GIS data, 2012.

The City of Morgan Hill has active Williamson Act contracts on both Prime and Non-Prime Farmland (**Table 3.2-1**) (City of Morgan Hill 2014). In 2015, 1,703 acres of land were under ongoing Williamson Act contracts within city limits, with 765 acres in non-renewal. Of the lands under Williamson Act contracts, 586 acres were designated as Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, Unique Farmland, or Grazing Land by the FMMP.

3.2.1.4 City of San José

The northwest portion of the Project Area is located within San José. The Envision San José 2040 General Plan (City of San José 2023a ~~2012~~) addresses agricultural land use designations within the City; generally, the City of San José and County share the goal of maintaining non-urban land uses. Currently, the portion of the Project Area that is located within San José is zoned in residential districts (see **Figure 3.15-1** in section 3.15, *Land Use and Planning*) (City of San José 2021a, 2023b ~~2021b~~), and is not considered agricultural land or farmland. Furthermore, the land is not designated as Important Farmland but rather Urban and Built-up Land and Grazing Land (County 2021). Therefore, San José's agricultural land use is not discussed further in the EIR.

3.2.1.5 Agricultural Resources in the Project Area

CDOC Farmland Designations

CDOC's Important Farmland Finder shows that the Project Area does not contain any lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (**Table 3.2-2**) (County 2021). The agricultural land use designations within the Project Area contains primarily Grazing Land (88 acres) and Urban and Built-up Land (27.5 acres). **Table 3.2-3** indicates that Grazing Land (6,290.5 acres) and Urban and Built-up Land (1,491.3 acres) are also the predominant agricultural land use designations within a 1-mile radius of the Project Area.

Figure 3.2-1a-c shows Important Farmland designations and other agricultural land designations within a 1-mile radius of the study area. One parcel west of the study area, located along

Cochrane Road near the base of the dam, contains Farmland of Local Potential, as defined above (County 2021). Several parcels southwest of Ogier Ponds area are designated as Prime Farmland or Farmland of Statewide Importance, and parcels designated as Farmland of Local Potential are located east of Ogier Ponds, adjacent to US 101.

Most of the land within the study area and within a 1-mile radius is classified as Non-Williamson Act Urban and Built-Up Land, with a few parcels enrolled as Williamson Act Non-Prime Agricultural Land. This includes several parcels with active or non-renewed Williamson Act contracts west of the Ogier Ponds that are outside of the Project Area but within a 1-mile radius. Williamson Act Non-Prime Agricultural Land is enrolled under the California Land Conservation Act contract and does not meet any of the criteria for classification as Prime Agricultural Land but is rather defined as Open Space Land of Statewide Significance (County 2021).

Table 3.2-2. Agricultural Land Designations within the Project Area

Designation	Total Area (acres)	Percent of Project Area
Prime Farmland	0	0
Farmland of Statewide Importance	0	0
Unique Farmland	0	0
Grazing Land	88.0	15
Farmland of Local Importance	0.4	~0
Farmland of Local Potential	16.9	3
Other Land	1.2	~0
Urban and Built-up	27.5	5
Water	433.8	76
Total	567.8	100

Source: Santa Clara County 2021

Table 3.2-3. Agricultural Land Designations within a 1 Mile Radius of the Project Area

Designation	Total Area (acres)	Percent of Area within 1 Mile
Prime Farmland	169.2	2
Farmland of Statewide Importance	4.2	~0
Unique Farmland	39.3	~0
Grazing Land	6,390.5	62
Farmland of Local Importance	397.6	4
Farmland of Local Potential	87.3	1
Other Land	574.6	6
Urban and Built-up	1,491.3	14
Water	1,145.5	11
Total	10,299.5	100

Source: Santa Clara County 2021

Agricultural Land Use and Zoning Designations

Land uses in the Project Area include parcels classified as grazing lands, single-family rural residences, and parklands on privately owned, Valley Water-owned, and County-owned property. The Project Area does not include land currently in active grazing or large-scale agricultural production. Most of the study area is located within the jurisdiction of the County or the City of San José, with a small portion located within the City of Morgan Hill. General plan land use and zoning designations within each jurisdiction are described in detail in section 3.15, *Land Use and Planning* and shown in **Figure 3.15-1**; the information is summarized here as applicable to evaluating the Project impacts on agricultural resources.

There are three parcels within the Seismic Retrofit component Project Area that are zoned for agricultural use. One privately owned property on Cochrane Road (APN 728-34-010) supports small-scale agricultural activity. The other privately owned property along Cochrane Road (APN 728-34-011) is zoned for agricultural use, but there currently are no agricultural activities on the property. A third parcel in the Project Area (APN 728-34-018), located immediately downstream of the dam, is zoned for agricultural use but the existing land use is open space/utility; the property contains outlet works and an undeveloped portion of Coyote Creek. In addition, the Ogier Ponds CM area is currently zoned for exclusive agriculture, although the site is currently occupied by seasonal wetland ponds and used for recreational purposes.

3.2.2 Regulatory Setting

This section summarizes laws, regulations, policies, and plans pertinent to the evaluation of the Project's impacts on agricultural resources. No specific federal laws, regulations, or policies related to agricultural resources are applicable to the Project.

3.2.2.1 State Laws, Regulations, and Policies

Farmland Mapping and Monitoring Program

The CDOC established the FMMP to document changes in agricultural land use since 1984. The non-regulatory program provides a consistent and impartial analysis of agricultural land use and land use changes throughout California. Agricultural land is rated according to soil quality and irrigation status and is described in different categories below. The maps are updated every 2 years with the use of a computer mapping system, aerial imagery, public review, and field reconnaissance. The FMMP defines Important Farmland in the following categories (CDOC 2021b ~~2021a~~):

> **Prime Farmland:** Prime Farmland is land that has the best combination of physical and chemical characteristics for the long-term production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustainable high yields of crops when treated and managed, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops at one point in time during the 4 years prior to the mapping date.

> **Farmland of Statewide Importance:** Farmland of Statewide Importance is land other than Prime Farmland that has a good combination of physical and chemical characteristics for the production of crops but has minor shortcomings, such as greater slope or less ability to store

soil moisture. It must have been used for the production of irrigated crops at one point in time during the 4 years prior to the mapping date.

Unique Farmland: Unique Farmland is land of lesser quality soils that has been used for the production of the state's leading agricultural crops at one point in time during the 4 years prior to the mapping date. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers.

Farmland of Local Importance: Farmland of Local Importance is land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee. In some counties, confined animal agriculture facilities are part of Farmland of Local Importance, but they are shown separately.

Farmland of Local Potential: In a few counties, including the County, the local advisory committee has elected to additionally define areas of Farmland of Local Potential. The County defines Farmland of Local Potential to be all lands having Prime and Statewide soil mapping units that are not irrigated, regardless of cropping history or irrigation water availability (CDOC 2018). For reporting purposes, Farmland of Local Potential and Farmland of Local Importance are combined in the FMMP acreage tables but are shown separately on the Important Farmland Map.

California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965—commonly referred to as the Williamson Act—enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use (CDOC 2021c~~b~~). In return, landowners receive property tax assessments that are much lower than normal, because they are based on farming and open space uses as opposed to full market value. The Open Space Subvention Act of 1971 provides for the partial replacement of local property tax revenue foregone as a result of participation in the Williamson Act and other enforceable open space restriction programs (CDOC 2021d ~~2021c~~). Lands under the jurisdiction of the Williamson Act are tracked by the County (County 2021).

3.2.2.2 Regional and Local Laws, Regulations, and Policies

Santa Clara County General Plan

The Santa Clara County General Plan sets forth the following goals and policies relevant to agricultural resources in the Project study area (County 1994):

Policy R-RC 57: Agriculture shall be encouraged and prime agricultural lands retained for their value to the overall economy and quality of life of the County, including:

a. local food production capability;

b. productive use of lands not intended or suitable for urban development; and

c. preservation of a diminishing natural resource, prime agricultural soils.

Policy C-RC 37: Agriculture should be encouraged and agricultural lands retained for their vital contributions to the overall economy, quality of life, and for their functional importance to the County, in particular:

a. local food production capability;

b. productive use land not intended for urban development; and

c. protection of public health and safety.

Morgan Hill 2035 General Plan

The Natural Resources and Environment Element of the Morgan Hill 2035 General Plan sets forth the following goals and policies relevant to agricultural resources in the study area (City of Morgan Hill 2017 ~~2016~~).

Goal NRE-4: A viable agricultural industry.

Policy NRE-4.1: Agriculture Retention and Transition to Urban Uses. Support programs and techniques, including conservation easements and purchase of development rights to encourage the retention of agricultural activities and to minimize conflicts in the transition from agriculture to urban uses.

Policy NRE-4.11: Agricultural Mitigation. Enforce the agricultural mitigation requirement of requiring the preservation of a minimum of 1 acre of agricultural land for each acre of agricultural land changed to a nonagricultural use, consistent with the City's Agricultural Lands Preservation Program.

Policy NRE-4.12: Permanent Preservation of Agriculture. Establish areas for the permanent preservation of agricultural lands and programs to accomplish that objective, such as exclusive agricultural zoning, transfer of development rights (TDR) programs, and right-to-farm legislation. (South County Joint Area Plan 14.03)

Policy NRE-4.16: Prioritization of Agricultural Land. Prioritize protection of existing agriculture lands in the Sphere of Influence, outside the Urban Growth Boundary.

Morgan Hill Agricultural Lands Preservation Program

In 2014, the City of Morgan Hill established an Agricultural Lands Preservation Program (City of Morgan Hill 2014) to promote continued and viable agricultural activities in and around Morgan Hill. The program established land use policies and an implementation program to preserve agricultural lands within the Morgan Hill SOI to protect an adequate agricultural land use supply and promote continued and viable agricultural activities in and around Morgan Hill. The agricultural preservation program focuses on the use of agricultural land use easements and in-lieu fees supported by agricultural preservation land use policies.

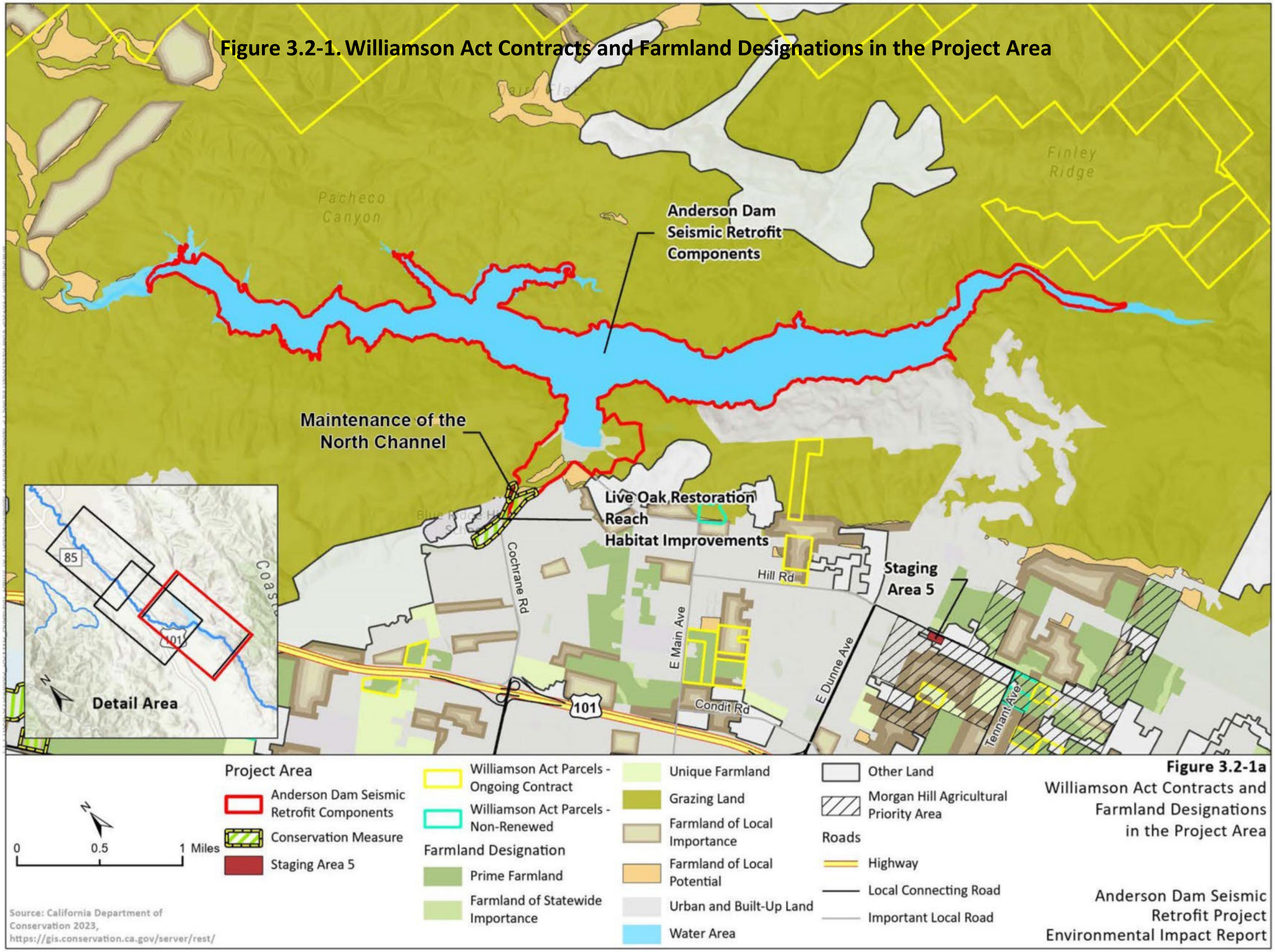
In particular, the program established an Agricultural Priority Area in the City's Southeast Quadrant as the first priority for acquiring agricultural land conservation easements (**Figure 3.2-1**a-c). This area was selected, because it is the area within the Morgan Hill SOI where agriculture is considered to be the most viable over the long term. Staging Area 5 would be located within this Agricultural Priority Area.

All new private and public development projects under the jurisdiction of the City of Morgan Hill that would directly result in the conversion of agricultural lands are required to mitigate for the loss of agricultural land under the preservation program.

City of Morgan Hill Agricultural Mitigation Ordinance

The City of Morgan Hill adopted an Agricultural Mitigation Ordinance (Ordinance ZA-14-11) in 2015 that established several mechanisms for funding agricultural mitigation.

Figure 3.2-1. Williamson Act Contracts and Farmland Designations in the Project Area



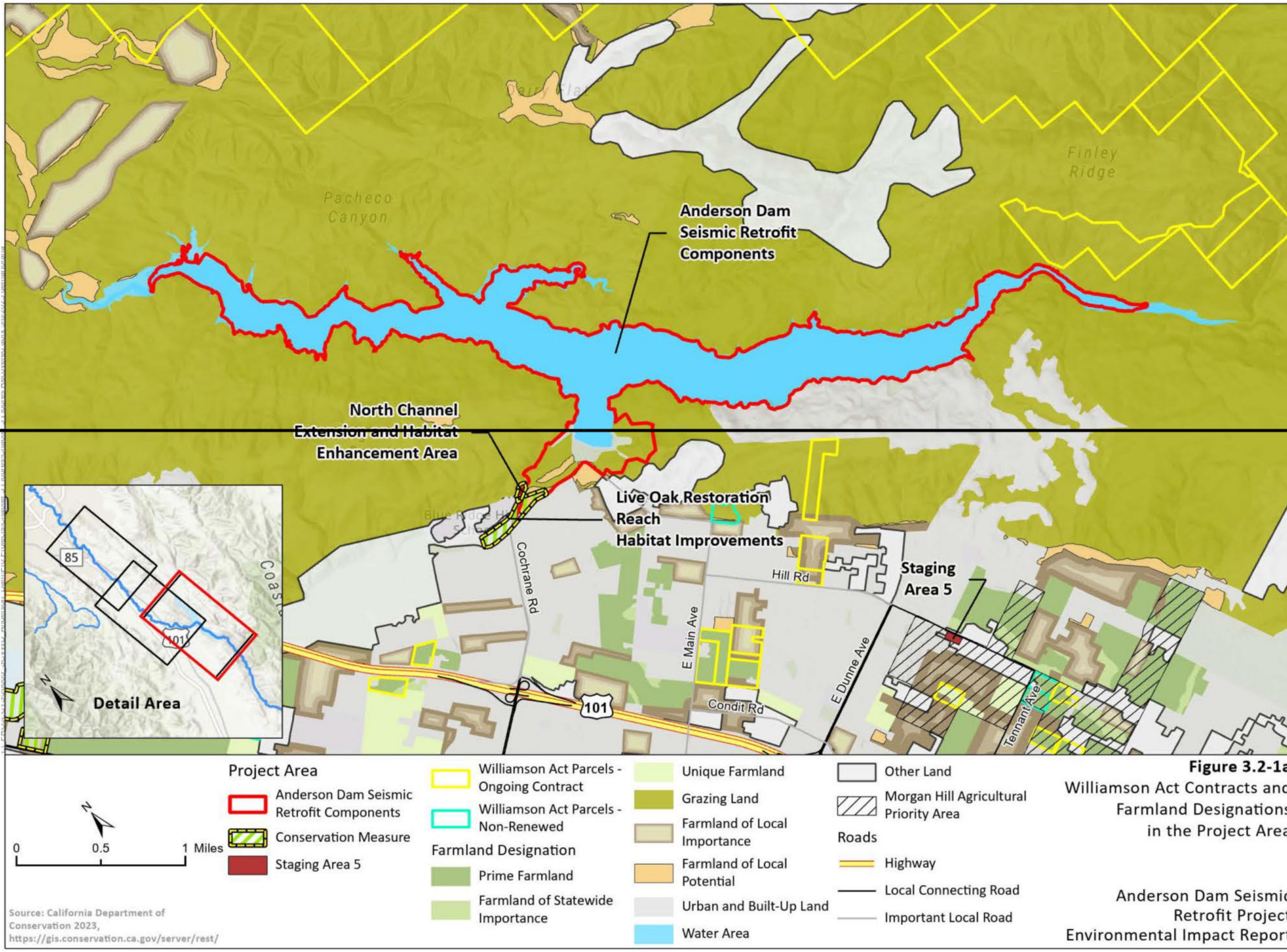
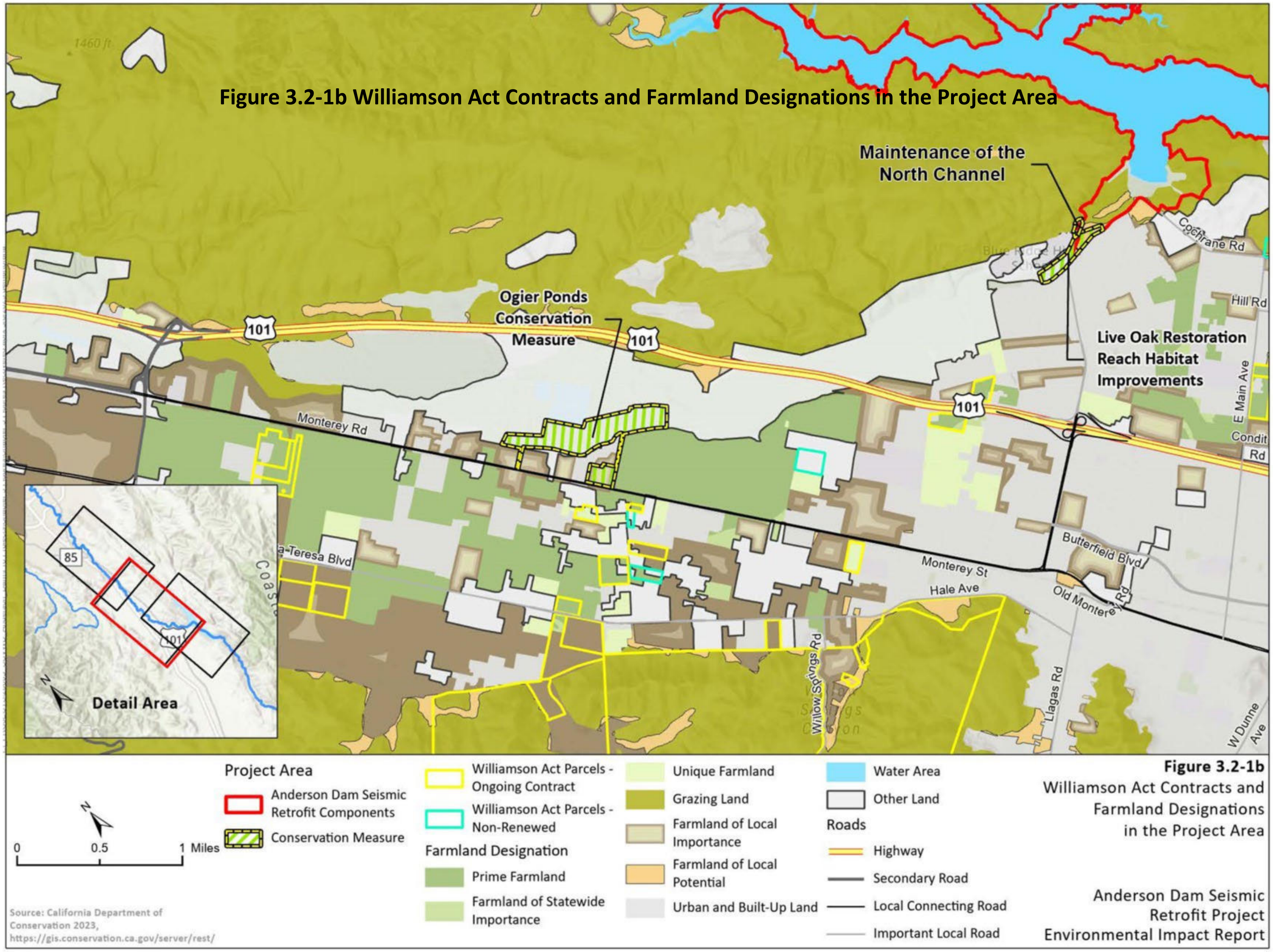


Figure 3.2-1a
Williamson Act Contracts and Farmland Designations in the Project Area

Figure 3.2-1b Williamson Act Contracts and Farmland Designations in the Project Area



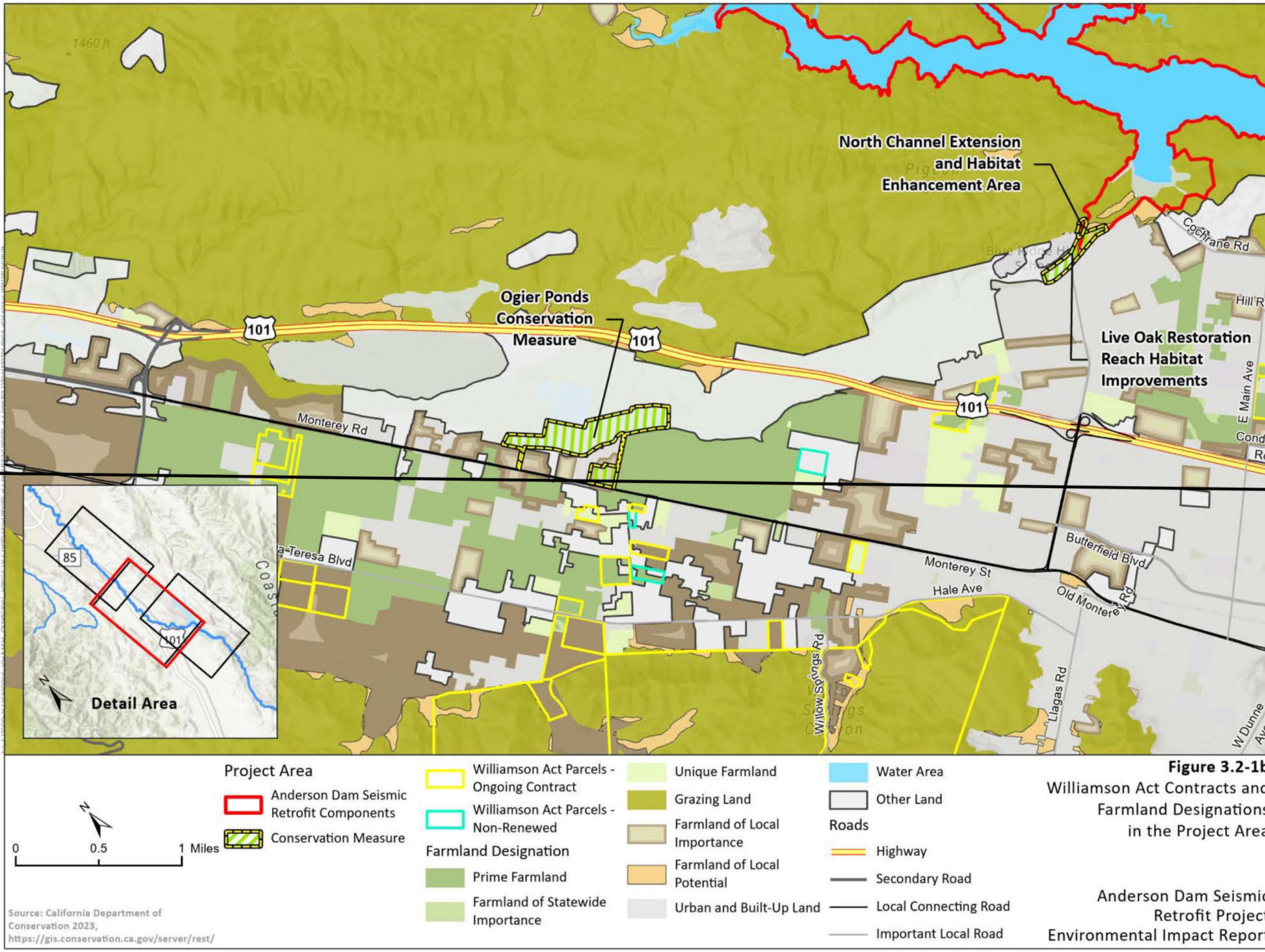


Figure 3.2-1b
Williamson Act Contracts and Farmland Designations in the Project Area

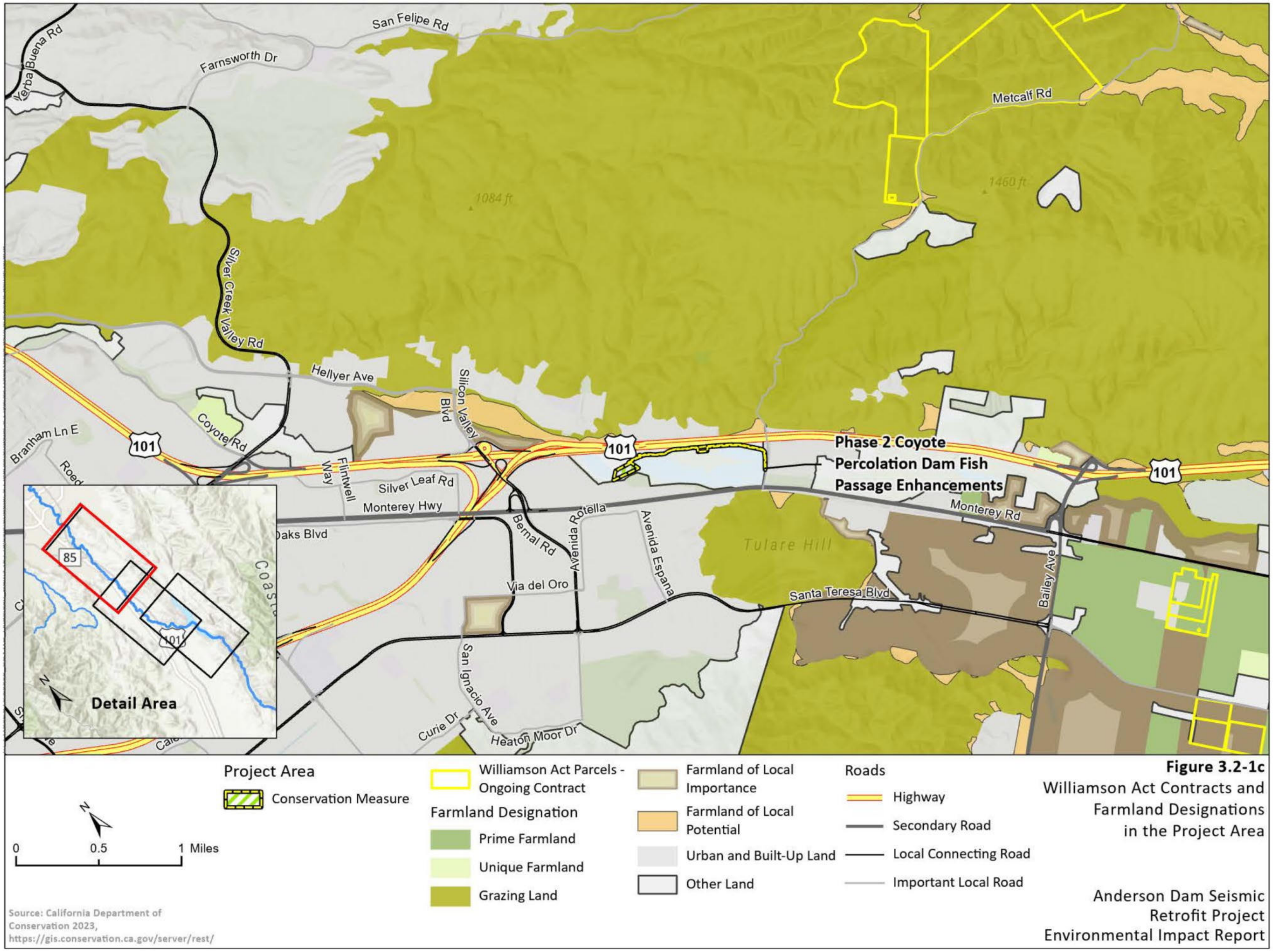


Figure 3.2-1c
Williamson Act Contracts and Farmland Designations in the Project Area

Anderson Dam Seismic Retrofit Project Environmental Impact Report

1

Envision San José 2040 General Plan

The Envision San José 2040 General Plan sets forth the following policy relevant to agricultural resources in the Project study area (City of San José 2023a ~~2011~~).

> **Policy LU-20.1:** Protect and preserve the remaining farmlands within San José's sphere of influence that are not planned for urbanization in the timeframe of the Envision San José 2040 General Plan, such as mid- and south Coyote Valley, through the following means:
>
> 1. Strongly discourage conversion of agricultural lands outside the Urban Growth Boundary to nonagricultural uses.
> 2. Limit residential uses in agricultural areas to those which are incidental to agriculture.
> 3. Prohibit subdivision of agricultural lands, unless it can be established that the subdivision would not reduce the overall agricultural productivity of the land and that viable agricultural operations would be sustained.
> 4. Encourage contractual protection for agricultural lands, such as Williamson Act contracts, agricultural conservation easements, transfers of development rights, or other property tax relief measures as incentives for preservation of these lands.
> 5. Restrict land uses within and adjacent to agricultural lands that would compromise the agricultural viability of these lands. Require new adjacent land uses to mitigate any impacts on the use of agricultural lands.
> 6. Require ancillary nonagricultural land uses on agricultural lands to be ancillary to and compatible with agricultural land uses, agricultural production, and the rural character of the area, and to enhance the economic viability of agricultural operations.

3.2.3 Methodology and Approach to Impact Analysis

This impact analysis considers whether construction and operation of the Project would result in significant adverse impacts to the environment related to agricultural resources. This analysis focuses on a review of data that has been collected of the study area from relevant general plans, existing farmland mapping of the study area from the CDOC (**Figure 3.2-1**), and results of the desktop evaluations performed using a GIS analysis of this information. The analysis considers temporary impacts, or short-term impacts, that may occur during the 7-year construction period, and permanent impacts, or impacts considered to be long-term and/or those that would result from ongoing operations, maintenance, or adaptive management activities.

The effects of the study area described and evaluated according to significance criteria from Appendix G of the *CEQA Guidelines*, discussed below.

The assessment of impacts for this section has been divided into construction-related impacts and operations-and-maintenance-related impacts by project component, as identified and described in **Table 2-1** of Chapter 2, *Project Description*. Each project component has been analyzed to determine if construction, operation, maintenance, or adaptive management of that component would impact agricultural resources.

3.2.3.1 Seismic Retrofit Construction

As described in Chapter 3.0, *Introduction to Environmental Analysis,* the baseline for evaluating the Seismic Retrofit components construction effects is the existing conditions baseline. The existing conditions baseline consists of conditions at the time of EIR preparation modified by the FOCP implementation, as FOCP activities did not impact agricultural or farmlands. The existing conditions baseline for the impact analysis assumes implementation of the FOCP, which began in 2020. The location and nature of the Seismic Retrofit construction activities are analyzed by determining the effects to existing agricultural land uses within the Project Area. The potential for the Seismic Retrofit components construction activities to conflict with these agricultural land uses are evaluated below.

3.2.3.2 Conservation Measures Construction

As described in Chapter 3.0, *Introduction to Environmental Analysis*, the baseline for evaluating the Conservation Measure components construction impacts is the existing conditions baseline. The existing conditions baseline consists of conditions at the time of EIR preparation modified by the FOCP implementation, as FOCP activities did not impact agricultural or farmlands. This baseline assumes conditions with the implementation of the FOCP, which began in 2020. Similar to the Seismic Retrofit components construction, the location and nature of the Conservation Measure components construction activities are analyzed to determine the effects of the Project on existing agricultural land uses within the Project Area. The potential for the Conservation Measure component construction activities to conflict with these activities is evaluated below.

Conservation Measures components that have been included in the Project and require construction activities and long-term operations include:

- Ogier Ponds CM
- Maintenance of the North Channel Reach ~~Extension~~
- Maintenance Activities at the Live Oak Restoration Reach
- Sediment Augmentation Program
- Phase 2 Coyote Percolation Dam CM

3.2.3.3 Construction Monitoring

Construction monitoring activities are not considered in the agricultural resources impact analysis, as monitoring would involve data and information collection and assessment and would not result in direct or indirect adverse impacts to agricultural resources. Therefore, construction monitoring is not discussed further in this section.

3.2.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

Operations of Anderson Dam following construction of the Seismic Retrofit component would involve implementation of the FAHCE rule curves and pulse flows, which may have the potential to result in impacts to agricultural land uses compared to the existing conditions baseline. As described in 3.0, *Introduction to Environmental Analysis,* the baseline for evaluating post-construction operations related to agricultural resources are the existing conditions at the time of EIR preparation modified by the FOCP implementation, as FOCP activities did not impact agricultural or farmlands. This analysis considers impacts to agricultural land uses that would result from operational changes proposed for nonemergency flow releases, following the completion of the Seismic Retrofit construction, as described in Chapter 2, *Project Description*. This analysis considers impacts to agricultural land uses that would result from operational changes proposed for nonemergency flow releases, following the completion of the Seismic Retrofit construction, as described in Chapter 2, *Project Description*.

Additionally, as described in Chapter 2, *Project Description,* Valley Water would maintain the newly retrofitted Anderson Dam and associated infrastructure per the existing Valley Water DMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP Program EIR prepared in January 2012 (State Clearinghouse [SCH] No. 2011082077, Valley Water 2012) that concluded that the DMP would not impact agricultural resources. Impacts to agricultural resource related to post-construction maintenance activities would not differ from the DMP EIR analysis related to agricultural resources, and no new agricultural impacts would result that were not previously disclosed in the DMP EIR. Therefore, post-construction dam maintenance activities are not discussed further in this section.

3.2.3.5 Post-Construction Conservation Measures Operations and Maintenance

The Conservation Measures component consists of improving fish habitat (e.g., gravel augmentation, and the separation of Coyote Creek from Ogier Ponds), and fish passage enhancement. Operations and maintenance of the Conservation Measure components would occur within reaches of Coyote Creek, which are located outside designated farmlands (see **Figure 3.2-1**). The Conservation Measures component would largely operate passively, without mechanical or human intervention, with the exception of the Coyote Bladder Dam that would be actively inflated and deflated, and have been planned in accordance with Anderson Dam Reservoir flow releases. Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain Coyote Percolation Dam per Valley Water's existing DMP. Maintenance of Coyote Percolation Dam facilities were previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). Because there are no designated farmlands within the Project area, impacts to agricultural resources during operations and maintenance activities associated with Post-Construction Conservation Measures Operations and Maintenance would not occur. Therefore, these impacts are not discussed further in this section.

3.2.3.6 Post-Construction Project and FAHCE Adaptive Management

The Project and FAHCE AMP would guide post-construction adaptive management of project flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because they would not result in impacts to agricultural lands or farmlands.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts of these adaptive actions are not evaluated in the impact analysis because they would not result in impacts on agricultural lands or farmlands.

3.2.3.7 Applicable Best Management Practices and VHP Conditions

As noted in Chapter 2, *Project Description*, Valley Water would incorporate BMPs and AMMs to avoid and minimize adverse effects on the environment that may result from the Project. AMMs are project-specific measures that have been identified to supplement the standard Valley Water BMPs to minimize impacts from Project construction and implementation. All relevant BMPs and AMMs for the study area included in Appendix A ~~B~~, *Best Management Practices and Santa Clara Valley Habitat Plan Conditions Avoidance and Minimization Measures, and Mitigation Measures ~~Incorporated in the Project~~*. There are no relevant VHP conditions or AMMs that would apply to agricultural resources.

BMPs relevant to agricultural resources include the following:

AQ-1: Use Dust Control Measures – would reduce the potential for construction-related dust to damage or reduce the productivity of agricultural activities nearby.

BI-11: Minimize Predator-Attraction – would reduce the potential for pests to be attracted to the Project Area, causing damage to agricultural operations.

WQ-4: Limit Impacts from Staging and Stockpiling Materials – would reduce the potential for equipment at staging areas and stockpiled materials to damage soils in agricultural production.

WQ-11: Maintain Clean Conditions at Work Sites – would reduce the potential for debris to attract pests to the Project Area, causing damage to agricultural operations.

TR-1: Use Suitable Public Safety Measures – would reduce the potential for safety impacts on traffic.

3.2.3.8 Thresholds of Significance

For the purposes of this analysis, the Project would result in a significant impact on agricultural resources if it would:

AG-1: 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 nonagricultural use (criterion a);

AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract (criterion b).

Issues Dismissed from Further Review

CEQA Guidelines Appendix G also suggests that projects may have a significant effect if they conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC section 12220[g]), timberland (as defined by PRC section 4526), or timberland zoned Timberland Protection (as defined by Government Code section 51104(g) (criterion c); result in the loss of forest land or conversion of forest land to non-forest use (criterion d); or involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use (criterion e).

The IS circulated with the NOP for the Project dismissed criteria (c) and (d) from further analysis, because no designated forest lands would be affected by the Project. There are no designated forest lands or lands used for commercial timber production in the Project Area. In addition, the IS dismissed criterion (e) from further analysis, because the Project would not involve other changes in the existing environment that could result in the conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use. Therefore, the Project would have no impacts related to these criteria.

During the public scoping period, the public expressed concern about the conversion of Grazing Land and Farmland of Local Potential. These topics are addressed in the analysis of Impact AG-1 below.

3.2.4 Impact Analysis

Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use (Less than Significant)

Seismic Retrofit Construction

As depicted in **Figure 3.2-1**, no portion of the Seismic Retrofit Project Area would be located on land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance ("Farmland"). Staging Area 5, however, is located within a Morgan Hill Agricultural Priority Area (defined above), at a site which is not classified as "Farmland." The use of the Morgan Hill Agricultural Priority Area at this location would be temporary, lasting no more than approximately 7 years. This area would also be restored to its pre-existing condition and land use following construction. Based on the preceding analysis, the Seismic Retrofit component would not result in the permanent conversion of Farmland to nonagricultural use.

In addition, BMPs implemented during the Seismic Retrofit components construction would also protect agricultural lands from direct damage or indirect disturbance that could result in conversion or loss of productivity. BMPs AQ-1 (dust control), BI-11 (minimize predator-attraction), and WQ-11 (maintain clean work sites) would require that work sites remain clean and do not attract pests or predators that could alter the agricultural environment. BMP WQ-4 (limit impacts from staging and stockpiling) would minimize impacts on staging and stockpiling areas. BMP TR-1 (public safety measures) would require safety measures to assist agricultural producers and their equipment in avoiding traffic conflicts during construction. These BMPs would minimize the potential for Seismic Retrofit construction to convert Farmland in and within the general vicinity of the Project Area.

Throughout the construction of the Seismic Retrofit component, high flows that may occur within Coyote Creek may flood lands adjacent to the creek, and would have the potential to impact Farmland though the temporary inundation of these lands. Temporary inundation may lead to increased erosion or the destruction of crops within these Farmlands. Because the area of Farmlands located within a mile radius of the Seismic Retrofit component is limited to grazing lands, these impacts would be minimal in nature. Therefore, these impacts would be minimal and short-term in nature, and would not permanently convert Farmland to a non-agricultural use.

Conservation Measure Construction

Construction of most of the Conservation Measures components, including Maintenance of the North Channel Reach ~~Extension~~, Maintenance Activities at Live Oak Restoration Reach, Sediment Augmentation Program, and the Phase 2 Coyote Percolation Dam CM, would not be located on land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

Implementation of the Ogier Ponds CM would not require the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural land use. It would, however, require the temporary use of 3.8 acres of Farmland of Local Potential (which is not included in the definition of "Farmland") on the southwest side of Coyote Creek near Pond 1 for staging of construction equipment and import materials (see **Figure 3.2-1b**). As noted above, Farmland of Local Potential does not account for whether the land is currently irrigated, the history of cropping on the land, or the feasibility of future irrigation. It is identified by the County due to its agricultural soil mapping characteristics but is not identified as locally important agricultural land. The use of Farmland of Local Potential at this location would be temporary, lasting approximately 3 years. The land would be leased from the property owner during that time and would be restored to pre-existing condition and land uses following construction. Based on the preceding analysis, this temporary use would not result in the permanent conversion of Farmland to nonagricultural uses.

In addition, BMPs implemented during construction of the Ogier Ponds CM would protect agricultural land from direct damage or indirect disturbance that could result in conversion or loss of productivity. BMPs AQ-1 (dust control), BI-11 (minimize predator-attraction), and WQ-11 (maintain clean work sites) would require that work sites remain clean and do not attract pests or predators that could alter the agricultural environment. BMP WQ-4 (limit impacts from staging and stockpiling) would minimize impacts on staging and stockpiling areas. BMP TR-1 would require safety measures to assist agricultural producers and their equipment in avoiding traffic conflicts during construction. These BMPs would minimize the potential for construction of Conservation Measures to permanently convert Project Area Farmland to nonagricultural uses.

Throughout the construction of the Conservation Measures component, high flows that may occur within Coyote Creek may flood lands adjacent to the creek, and would have the potential to impact Farmland though the temporary inundation of these lands. Temporary inundation may lead to increased erosion or the destruction of crops within these Farmlands. Because the area of Farmlands located within a mile radius of the Conservation Measures component includes Prime Farmland, and Farmland of Local Importance, there may be a temporary conversion of these lands until waters recede. Therefore, these impacts would be minimal and short-term in nature, and would not permanently convert Farmland to a non-agricultural use.

Post-Construction Anderson Dam Facilities Operations

Following construction of the Project, Anderson Reservoir capacity would be restored to its existing (unrestricted) capacity and allowed to withstand a normal operational range of water levels in the reservoir. Post-construction releases from Anderson Reservoir into Coyote Creek would conform to FAHCE *Settlement Agreement* operating rule curves, as described in Chapter 2, *Project Description*. Furthermore, improved reliability of the dam structure would reduce the risk of a catastrophic failure that could affect the availability of agricultural water supplies throughout the region.

Table 3.11-8 in Section 3.11, *Hydrology*, shows that, under FAHCE conditions, the potential exists for increased frequency of minor flooding during 2-, 5-, and 10-year rainfall events, which could affect agricultural land, including Farmland, near the Project Area (Valley Water 2023). Flows would be lower than under existing conditions during greater-than-10-year rainfall events, however, and no modeling results indicated an exceedance of the 100-year flood level (15,000 cfs). The increased flow levels would be temporary and would not cause permanent conversion of Farmland. In addition, reservoir operations would utilize newly established access roads within the Seismic Retrofit component footprint, which would be located outside agricultural lands. Therefore, post-construction operations of Anderson Reservoir would not result in the conversion of Farmland to nonagricultural use.

Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek Watershed, such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These actions would occur when Conservation Measures components are not functioning as intended or not meeting measurable FAHCE measurable objectives. Adaptive actions would occur within Anderson Reservoir and Dam, and the Coyote Creek floodplain and would not be located on lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

Significance Conclusion Summary

As described above, areas of Farmlands are located outside the study area; however, 3.8 acres of Farmland of Local Potential southwest of the Ogier Ponds would be temporarily used for materials and equipment staging during the construction of the Ogier Ponds CM. Implementation of BMPs AQ-1 (dust control), BI-11 (minimize predator-attraction), WQ-4 (limit impacts from staging and stockpiling), WQ-11 (maintain clean work sites), and TR-1 (public safety measures) would help prevent permanent conversion of Farmland of Local Potential at this site. Post-construction operations associated with the retrofitted dam could result in minor flooding in some Farmland areas but would not rise to the level of conversion. Adaptive management actions, if required, would not take place in Farmland. Thus, the Project would not permanently convert areas of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural uses. The impact would therefore be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract **(Less than Significant)**

Seismic Retrofit Construction

Although the Project Area includes land that is currently zoned for grazing or agriculture, none of those lands are currently in active grazing or support large-scale agricultural production. Seismic Retrofit components construction would involve temporary construction activities (e.g., equipment and materials staging) on lands zoned for grazing and agricultural uses, specifically two parcels on Cochrane Road and one parcel along Coyote Creek immediately downstream of the dam, and temporary construction activities would not conflict with existing agricultural zoning. Therefore, construction of the Seismic Retrofit components would not result in the permanent conversion of land zoned agriculture to nonagricultural use or conflict with existing agricultural zoning.

BMPs implemented during Seismic Retrofit construction would also protect land zoned agriculture from direct damage or indirect disturbance that could result in conversion or loss of productivity. BMPs AQ-1 (dust control), BI-11 (minimize predator-attraction), and WQ-11 (maintain clean work sites) would require that work sites remain clean and do not attract pests or predators that could alter the agricultural environment. BMP WQ-4 (limit impacts from staging and stockpiling) would minimize impacts on staging and stockpiling areas. BMP TR-1 (public safety measures) would require safety measures to assist agricultural producers and their equipment in avoiding traffic conflicts during construction. These BMPs would minimize the potential for Seismic Retrofit construction to conflict with existing agricultural zoning in the study area.

In addition, there are no parcels under Williamson Act contract located within the Seismic Retrofit component Project Area, as shown in **Figure 3.2-1**. Therefore, Seismic Retrofit construction would not conflict with existing zoning for agricultural use or Williamson Act contracts.

Throughout the construction of the Seismic Retrofit component, high flows that may occur within Coyote Creek may flood lands zoned for agriculture or under Williamson Act Contracts adjacent to the creek. The inundation of these lands would conflict with agricultural land uses present in these areas. This temporary inundation may lead to increased erosion or the destruction of crops within these areas. However, these impacts would be minimal and short-term in nature, and would not permanently conflict with existing zoning for agricultural use or a Williamson Act contract.

Conservation Measures Construction

The Ogier Ponds CM area is currently zoned for exclusive agriculture, although the site is currently occupied by seasonal wetland ponds and used for recreational purposes; it is not under Williamson Act contract. Implementation of the Ogier Ponds CM would require the temporary use of 3.8 acres on the southwest side of Coyote Creek near Pond 1 for staging of construction equipment and import materials (**Figure 3.2-1b**). However, the use of lands at this location would be temporary, lasting approximately 3 years. The farmland would be leased from the property owner during that time and would be restored to its pre-existing condition following construction. Therefore, this temporary use would not conflict with existing zoning for agricultural use. In addition, implementation of BMPs AQ-1 (dust control), BI-11 (minimize predator-attraction), WQ-4 (limit impacts from staging and stockpiling), WQ-11 (maintain clean work sites), and TR-1 (public safety measures) would protect agricultural land in the study area from direct damage or indirect disturbance that could result in conflict with existing agricultural zoning.

Furthermore, the other Conservation Measures components, including the Maintenance of the North Channel Reach ~~Extension~~, Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach, Sediment Augmentation Program, and the Phase 2 Coyote Percolation Dam CM are not in areas currently zoned for agriculture and are not on parcels with Williamson Act contracts. Therefore, the use of these areas for Conservation Measure construction would not conflict with existing agricultural zoning or Williamson Act contracts.

Throughout the construction of the Conservation Measures component, high flows that may occur within Coyote Creek may flood lands zoned for agriculture or under Williamson Act Contracts adjacent to the creek. The inundation of these lands would conflict with agricultural land uses present in these areas. This temporary inundation may lead to increased erosion or the destruction of crops within these areas. However, these impacts would be minimal and short-term in nature, and would not permanently conflict with existing zoning for agricultural use or a Williamson Act contract.

Post-Construction Anderson Dam Facilities Operations

Project operations, described in the analysis of Impact AG-1 above, would occur within the Project Area outside agriculturally zoned areas or on lands under Williamson Act contracts. Proposed operational changes at Anderson Dam would not result in changes to agricultural zoning or affect the ability of parcels under Williamson Act contract to continue as a viable agricultural enterprise. Therefore, post-construction operations of Anderson Dam facilities would have no conflict with existing agricultural zoning or Williamson Act contracts.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek Watershed, such as exotic species removal, replacement riparian plantings, or additional sediment augmentation. These actions would occur when post-construction dam operations or Conservation Measures are not functioning as intended or not meeting measurable FAHCE objectives. Adaptive actions would occur within Anderson Dam and Reservoir and the Coyote Creek floodplain, and would be located on lands zoned for agricultural use or under Williamson Act contract. Ogier Ponds is located in areas zoned as agricultural land use, and would be adaptively managed. However, there would be no conflict with existing agricultural zoning or Williamson Act contracts.

Significance Conclusion Summary

No lands under a Williamson Act contract are present within the study area; therefore, there would be no impacts to Williamson Act lands during construction or operation of the Project. Temporary construction activities within the Seismic Retrofit Project Area would not conflict with existing agricultural zoning. Lands zoned for agricultural use would be temporarily used for materials and equipment staging during the construction of the Ogier Ponds CM, but implementation of BMPs would minimize the potential for temporary impacts to conflict with existing zoning. Adaptive management actions, if required, would take place in agricultural areas. Ogier Ponds is located in area zoned as agricultural land uses and would be adaptively managed. However, the Project would not conflict with existing agricultural zoning or Williamson Act contracts, this impact would therefore be **less than significant**.

Mitigation Measures

No mitigation is required.

3.2.5 Cumulative Agricultural Resources

The geographic study area for the cumulative impact analysis for agricultural resources encompasses Santa Clara County. Most of the agricultural land in the northern end of the Santa Clara Valley has been converted from agricultural to urban uses. However, the southern end of the valley, including Coyote Valley has an active agricultural industry.

This section describes the Project's contribution to cumulative agricultural impacts, as summarized in **Table 3.2-4.**

Table 3.2-4. Summary of Project Impact Contribution to Cumulative Impacts on Agricultural Resources

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use	No	Yes	NCC	N/A	No
Cumulative Impact AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract	No	No	NCC	N/A	No

Key: N/A = not applicable; NCC = not cumulatively considerable

***Cumulative Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use* (Not Cumulatively Considerable)**

The Project would temporarily use 3.8 acres of Farmland of Local Potential southwest of the Ogier Ponds for materials and equipment staging during the construction of the Ogier Ponds CM. The Seismic Retrofit and other Conservation Measure components would not occur on farmland.

Cumulative projects, plans, and programs, such as Valley Water's other seismic retrofit, dam improvement, and flood protection projects, could result in incrementally adverse impacts if their construction or operations would reduce the amount, or effectiveness, of Prime or Unique Farmland, or Farmland of Statewide Importance within Santa Clara County.

Cumulative Effects of Project with the FOCP

The FOCP would involve modifications to the existing structures surrounding Anderson Dam and Reservoir but would not impact farmland. The FOCP combined with the Project would not result in cumulative impacts on agricultural resources.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Some private developments identified in Section 3.0.5, *Approach to Cumulative Impacts*, and other future projects to accommodate growth in south Santa Clara County, when combined with impacts of the Project, would result in impacts on Farmland. Because of the magnitude of agricultural land that has been converted in Santa Clara County and the ongoing pressure of farmland conversion in the state of California, the Project in combination with other probable future projects would result in a significant cumulative impact on agricultural resources.

Areas of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance are located outside of the Project area, except Prime Farmland located southwest of the Ogier Ponds that would be temporarily used for materials and equipment staging during the construction of the Ogier Ponds CM. After the completion of construction (about three years), the land would be restored to its original conditional and be available for agricultural uses. Valley Water would reduce the Project's incremental, short-term, contribution to cumulative impacts on Farmland through implementation of BMPs AQ-1 (dust control), BI-11 (minimize predator-attraction), WQ-4 (limit impacts from staging and stockpiling), WQ-11 (maintain clean work sites), and TR-1 (public safety measures), which would help prevent permanent conversion of Farmland at this site. The Project would have a minimal and less than significant impact on Farmland, and a less than cumulatively considerable contribution to cumulative impacts related to conversion of Farmland.

Significance Conclusion Summary

The total number of acres in agricultural production has been significantly reduced in Santa Clara historically. The Project would take 3.8 acres of farmland out of production during construction, but this land would not be permanently converted and would become available for agricultural use in the future. Cumulative impacts on Farmland would not be significant, and the Project's contribution to the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use is **not cumulatively considerable.**

Mitigation Measure

No mitigation is required.

Cumulative Impact AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract **(Not Cumulatively Considerable)**

No lands under a Williamson Act contract are present within the study area; therefore, there would be no impacts to Williamson Act lands during construction or operation of the Project. There would be minimal potential for Seismic Retrofit and Ogier Pond Conservation Measure construction to conflict with agricultural zoning. The cumulative impact would not be significant, and the Project's contribution would not be cumulatively considerable.

Significance Conclusion Summary

No lands under a Williamson Act contract are present within the Project area, therefore the Project would not contribute to the cumulative impact. Cumulative impacts on land zoned agriculture would not be significant. The Project's contribution to cumulative impacts on Williamson Act contracts on land zone agriculture would be **not cumulatively considerable.**

3.2.6 References

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3.3 Air Quality

This section provides information about applicable regulations related to air quality and the local air quality setting and evaluates air quality Project impacts, including pollutant emissions, health risks, and odors. The information in this section is based in part on the Anderson Dam Seismic Retrofit CEQA Air Quality, Greenhouse Gas and Health Risk Assessment Technical Report prepared by Ramboll US Consulting, Inc (Ramboll) in 2023 and updated in 2024, which is included in Appendix E[1].

The study area for air quality focuses on the portions of the County, San José, and Morgan Hill that comprise the Project Area, including the construction limits of the Seismic Retrofit and Conservation Measures components and the surrounding sensitive receptors, as well as the regional San Francisco Bay Area Air Basin (SFBAAB).

3.3.1 Environmental Setting

3.3.1.1 Air Pollutants

Several air pollutants of concern in the study area are described below. Two main categories of air pollutants are described: criteria air pollutants and toxic air contaminants (TAC). Criteria air pollutants are those air pollutants with national and/or state air quality standards that define allowable concentrations of these substances in the ambient air and typically affect air quality in terms of smog levels. TACs are those air pollutants identified that may lead to serious illness or increased mortality, even when present in relatively low concentrations.

Criteria Air Pollutant Types, Sources, and Effects

The following descriptions are of sources and effects of the primary criteria air pollutants.

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that is highly toxic. CO is formed by the incomplete combustion of fuels and is emitted directly into the air. Ambient CO concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. CO concentrations are also influenced by wind speed and atmospheric mixing. Under inversion conditions, CO concentrations may be distributed more uniformly over an area to some distance from vehicular sources. CO binds with hemoglobin, the oxygen-carrying protein in blood, and reduces the blood's capacity for carrying oxygen to the heart, brain, and other parts of the body. At high concentrations, CO can cause heart difficulties in people with chronic diseases, impair mental abilities, and cause death.

Ozone

Ozone is a reactive gas consisting of three oxygen atoms. In the troposphere (the lowest region of the atmosphere), it is a product of the photochemical process involving the sun's energy. It is a secondary pollutant that is formed when nitrogen oxides (NO_x) and reactive organic gases

[1] Appendix E has been revised in support of the Final EIR.

(ROG) react in the presence of sunlight. Ozone at the earth's surface causes numerous adverse health effects and is a criteria pollutant. It is a major component of smog. In the stratosphere, ozone exists naturally and shields the Earth from harmful incoming ultraviolet radiation. High concentrations of ground-level ozone can adversely affect the human respiratory system and aggravate cardiovascular disease and many respiratory ailments. Ozone also damages natural ecosystems, such as forests and foothill communities, agricultural crops, and some man-made materials, such as rubber and plastics.

Nitrogen Oxides

NO_x are a family of gaseous nitrogen compounds and are precursors to the formation of ozone and particulate matter (PM). The major component of NO_x, nitrogen dioxide (NO_2), is a reddish-brown gas that is toxic at high concentrations. NO_x result primarily from the combustion of fossil fuels under high temperature and pressure. On-road and off-road motor vehicles and fuel combustion are the major sources of this air pollutant. NO_2 can decrease lung function and may reduce resistance to infection.

Reactive Organic Gases

ROGs are hydrocarbon compounds that exist in the ambient air. ROGs contribute to the formation of smog and/or may themselves be toxic. ROG emissions are a major precursor to the formation of ozone. Individual ROGs can be TACs.

Particulate Matter

PM is a complex mixture of extremely small particles and liquid droplets. PM is made up of a number of components, including acids, organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to the potential for causing health problems. PM particles that are smaller than 10 micrometers in diameter, called PM_{10}, are of most concern because these particles pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. PM_{10} particles are typically found near roadways and dusty industries. PM_{10} particles are deposited in the thoracic region of the lungs. Fine particles, called $PM_{2.5}$, are particles less than 2.5 micrometers in diameter and are found in smoke and haze. $PM_{2.5}$ particles penetrate deeply into the thoracic and alveolar regions of the lungs.

PM can be emitted directly from primary sources or formed secondarily from reactions in the atmosphere. Primary sources include windblown dust, grinding operation, smokestacks, and fires. Secondary formation of PM occurs from reactions of gaseous precursors within the atmosphere, such as the formation of nitrates from NO_x emissions from combustion activities.

PM can accumulate in the respiratory system and aggravate health problems. These health effects include cardiovascular symptoms; cardiac arrhythmias; heart attacks; respiratory symptoms; asthma attacks; bronchitis; alterations in lung tissue, lung structure, and respiratory tract defense mechanisms; and premature death in people with heart or lung disease. Those at particular risk of increased health decline from exposure to PM include people with preexisting heart or lung disease, children, and seniors.

Sulfur Dioxide

Sulfur dioxide (SO_2) is a colorless, irritating gas with a “rotten egg” smell formed primarily by the combustion of sulfur-containing fossil fuels. Suspended SO_2 particles contribute to the poor visibility that occurs in the SFBAAB and are a component of PM_{10}. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine PM, and reduces visibility and the level of sunlight.

Lead

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. The health effects of lead poisoning include loss of appetite, weakness, apathy, and miscarriage. Lead poisoning can also cause lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract.

Gasoline-powered automobile engines were a major source of airborne lead using leaded fuels. The use of leaded fuel has been mostly phased out, which has resulted in dramatic drops in ambient concentrations of lead.

Hydrogen Sulfide

Hydrogen sulfide (H_2S) is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations. H_2S is extremely hazardous in high concentrations and can cause death.

Sulfates

Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

California Air Resources Board’s (CARB) sulfate standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, since they are usually acidic, can harm ecosystems and damage materials and property.

Toxic Air Contaminant Types, Sources, and Effects

Sources of TACs include stationary sources, area-wide sources, and mobile sources. The USEPA maintains a list of 187 TACs, also known as hazardous air pollutants. These hazardous air pollutants are included on CARB’s list of TACs (CARB 2021). TAC emissions include diesel PM (DPM) from diesel-fueled vehicles and various TACs contained in gasoline exhaust and evaporative emissions, including 1,3-butadiene, acetaldehyde, acrolein, benzene, ethylbenzene, formaldehyde, hexane, methanol, methyl ethyl ketone, naphthalene, propene, styrene, toluene, and xylenes. Various metals that are TACS are contained in the fugitive dust that can be generated from blasting, including arsenic, barium, beryllium, cadmium, cobalt, hexavalent chromium, copper, mercury, molybdenum, nickel, lead, silver, vanadium, and zinc. According to the California Almanac of Emissions and Air Quality (CARB 2013), many researchers consider DPM to be a primary contributor to health risk from TACs, because particles in the exhaust carry many harmful organics and metals rather than being a single substance as are other TACs. Unlike many TACs, outdoor DPM is not monitored by CARB, because no routine measurement method exists. However, using the CARB emission inventory's PM_{10} database, ambient PM_{10} monitoring data, and results from several studies, CARB has made preliminary estimates of DPM concentrations throughout the state (California Office of Environmental Health Hazard Assessment [OEHHA] 2001). Naturally occurring asbestos (NOA) is discussed in Section 3.10, *Hazards and Hazardous Materials*.

Hundreds of different types of TACs exist, with varying degrees of toxicity. Many TACs are confirmed or suspected carcinogens or are known or suspected to cause birth defects or neurological damage. For some chemicals, such as carcinogens, no thresholds exist below which exposure can be considered risk-free.

3.3.1.2 Regional Air Quality

Local control in air quality management is provided by CARB through county-level or regional (multi-county) air districts. CARB establishes statewide air quality standards and is responsible for control of mobile emission sources, while the local air districts are responsible for enforcing standards and regulating stationary sources. CARB has established 15 air basins statewide. The Project Area is located in the SFBAAB, which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD).

San Francisco Bay Area Air Basin – Santa Clara Valley Subregion

The SFBAAB geographic area is characterized by a complex terrain consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Ranges split, resulting in a western coast gap (the Golden Gate) and an eastern coast gap (the Carquinez Strait), both of which allow air to flow into and out of the SFBAAB and the Central Valley.

BAAQMD divides the SFBAAB into subregions with distinct climates and topographic features. The Project Area is located in the Santa Clara Valley Subregion of the SFBAAB. The Santa Clara Valley Subregion is bounded by the San Francisco Bay to the north and by mountains to the east, south, and west. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are fairly mild. At the northern end of the valley, mean maximum temperatures are in the low 80s (all temperatures are in degrees Fahrenheit [°F]) during the summer and the high 50s during the winter, and mean minimum temperatures range from the high 50s in the summer to the low 40s in the winter. Further inland, where the moderating effect of the Bay is not as strong, temperature extremes are greater.

Winds in the Santa Clara Valley are greatly influenced by the terrain, resulting in a prevailing flow that roughly parallels the Valley's northwest–southeast axis. A north-northwesterly sea breeze flows through the Valley during the afternoon and early evening, and a light south southeasterly flow occurs during the late evening and early morning. In the summer, the southern end of the Valley sometimes becomes a "convergence zone," when air flowing from Monterey Bay is channeled northward into the southern end of the Valley and meets with the prevailing north-northwesterly winds.

Wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning hours frequently have calm winds in all seasons, while summer afternoons and evenings are breezy. Strong winds are rare, associated mostly with the occasional winter storm.

The air pollution potential of the Santa Clara Valley is high. High summer temperatures, stable air, and mountains surrounding the valley combine to promote ozone formation. Ozone is an air pollutant that is not typically emitted directly from sources but is formed in the atmosphere from the interaction of light, oxygen, and ozone precursors, such as NO_x and ROGs. In addition to the many local sources of pollution, ozone precursors from San Francisco, San Mateo, and Alameda Counties are carried by prevailing winds to the Santa Clara Valley. The Valley tends to channel pollutants toward the southeast, where the Project Area is located. In addition, on summer days with low-level inversions, ozone can be recirculated by southerly flows in the late evening and early morning and by the prevailing northwesterly winds in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of CO and PM. This movement of the air up and down the valley substantially increases the impact of air pollutant emissions (BAAQMD 2017a ~~2017c~~).

Pollution Sources in the Santa Clara Valley Subregion

Pollution sources are complex in the Santa Clara Valley subregion. The Santa Clara Valley has a high concentration of industrial activities in the northern area known as Silicon Valley. Some of these industrial activities are sources of TACs and criteria air pollutants. In addition, the Santa Clara Valley's large population and many work-site destinations generate the highest mobile-source emissions of any subregion in the SFBAAB (BAAQMD 2017a ~~2017c~~).

Air Pollutant Attainment Designations for SFBAAB

Both the USEPA and CARB use ambient air quality monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. “Attainment” status refers to those regions that are meeting federal and/or state standards for a specified criteria pollutant. “Nonattainment” refers to regions that do not meet federal and/or state standards for a specified criteria pollutant. “Unclassified” refers to regions where there is not enough data to determine the region’s attainment status for a specified criteria air pollutant.

Table 3.3-1 shows the current attainment status for National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) in the SFBAAB. The SFBAAB, including the Santa Clara Valley subregion and Project Area, is currently designated as a state and federal non-attainment area for ozone and $PM_{2.5}$, and a state nonattainment area for PM_{10} (BAAQMD 2017b ~~2017a~~). The SFBAAB is unclassified or classified as attainment for all other pollutant standards.

Table 3.3-1. State and Federal Ambient Air Quality Standards and SFBAAB Attainment Status

Pollutant	Averaging Time	State (CAAQS A)		Federal (NAAQS B)	
		Standard	**Standard**	**Standard**	**Attainment Status**
Ozone	1-hour	0.09 ppm	N	NA	See Note C
	8-hour	0.070 ppm	N	0.070 ppm [D]	**N**; see Note E
Carbon Monoxide (CO)	1-hour	20 ppm	A	35 ppm	A
	8-hour	9 ppm	A	9 ppm	A
Nitrogen Dioxide (NO_2)	1-hour	0.18 ppm	A	0.100 ppm	A; see Note F
	Annual	0.030 ppm	U	0.053 ppm	A
Sulfur Dioxide (SO_2)	1-hour	0.25 ppm	A	0.075 ppm	U/A; see Note G
	24-hour	0.04 ppm	A	0.14 ppm	U/A; see Note G
	Annual	NA	NA	0.03 ppm	U/A; see Note G
Particulate Matter (PM_{10})	24-hour	50 $\mu g/m^3$	N	150 $\mu g/m^3$	U
	Annual [H]	20 $\mu g/m^3$	N [I]	NA	NA
Fine Particulate Matter ($PM_{2.5}$)	24-hour	NA	NA	35 $\mu g/m^3$	N; see Note M
	Annual	12 $\mu g/m^3$	N [I]	12 $\mu g/m^3$ [O]	U/A
Sulfates	24-hour	25 $\mu g/m^3$	A	NA	NA
Lead[K]	30-day	1.5 $\mu g/m^3$	A	NA	A
	Cal. Quarter	NA	NA	1.5 $\mu g/m^3$	A
	Rolling 3-month average	NA	NA	0.15 –	U; see Note J
Hydrogen Sulfide	1-hour	0.03 ppm	U	NA	NA
Vinyl Chloride[K] (chloroethene)	24-hour	0.010 ppm	No information available	NA	NA
Visibility-Reducing Particles	8-hour	See Note L	U	NA	NA

Sources: BAAQMD 2017b ~~2017a~~, USEPA 2020.

Notes:

[A] CAAQS for ozone, CO (except Lake Tahoe), SO_2 (1 hour and 24 hour), NO_2, PM, and visibility reducing particles are values that are not to be exceeded. All other state standards shown are values not to be equaled or exceeded.

[B] NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than 1. The 8-hour ozone standard is attained when the 3-year average of the fourth highest daily concentration is 0.070 ppm or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than the standard. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of the 98th percentile is less than the standard.

[C] The USEPA revoked the national 1-hour ozone standard on June 15, 2005.

[D] This federal 8-hour ozone standard was approved by USEPA in October 2015 and became effective on December 28, 2015.

[E] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over 3 years, is equal to or less than 0.070 ppm. USEPA made recommendations on attainment designations for California by October 1, 2016, and issued final designations on June 4, 2018, classifying the San Francisco Bay Area Air Basin as being in nonattainment (Federal Register Vol. 83, No. 107, pp. 25776-25848). Nonattainment areas will have until 2020 to 2037 to meet the health standard, with attainment dates varying based on ozone level in the area.

[F] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

[G] On June 2, 2010, the USEPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS however must continue to be used until one year following USEPA initial designations of the new 1-hour SO_2 NAAQS. USEPA classified the San Francisco Bay Area Air Basin as being in attainment/unclassifiable in January 2018 (Federal Register Vol. 83, No. 6, pp. 1098-1172).

[H] State standard = annual geometric mean

[I] In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.

[J] National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

[K] CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure below which there are no adverse health effects determined.

[L] Statewide visibility reducing particle standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

[M] On January 9, 2013, USEPA issued a final rule, determining that SFBAAB has attained the 24-hour $PM_{2.5}$ national standard. This rule suspends key State Implementation Plan requirements as long as monitoring data continues to show that SFBAAB attains the standard. Despite this USEPA action, SFBAAB will continue to be designated as "nonattainment" for the national 24-hour $PM_{2.5}$ standard until BAAQMD submits a "redesignation request" and a "maintenance plan" to USEPA, and USEPA approves the proposed redesignation.

[O] On February 7, 2024, USEPA lowered the NAAQS for fine particle pollution (PM2.5) by revising the level of the primary (health-based) annual PM2.5 standard to 9.0 µg/m3. The effective date of the new standard was May 6, 2024. However, the 12.0 µg/m3 standard was the standard at the time of Draft EIR preparation.

Key: A = Attainment; CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; N = Non-attainment; U = Unclassified; NA = Not Applicable, no applicable standard; ppm = parts per million; µg/m3 = micrograms per cubic meter

TACs in the SFBAAB

The BAAQMD prepares a detailed annual inventory of TAC emissions from permitted stationary sources. The BAAQMD's Community Air Risk Evaluation (CARE) program provides toxicity-weighted estimates of total TAC emissions from all sources, including on-road and off-road mobile sources, and this program provides a better understanding of the contributions to public health impacts from TACs than the detailed annual inventory. The BAAQMD estimated that 50 percent of the Bay Area population is estimated to have an ambient background inhalation cancer risk of less than 500 cases in 1 million (BAAQMD 2023a). DPM is the most impactful TAC in the Bay Area, accounting for roughly 85 percent of the cancer risk from air toxics in the region (BAAQMD 2023a).

3.3.1.3 Valley Water and Anderson Dam

Ambient Air Quality Monitoring Data

The USEPA, CARB, and local air districts (including the BAAQMD) operate an extensive air monitoring network to measure progress toward attainment of the NAAQS and CAAQS. **Table 3.3-2** shows the most recent 3 years of available data available at the time of Draft EIR preparation. The closest station to the Project Area with data for all six criteria pollutants is the San José-Jackson Street station.

Table 3.3-2. Ambient Air Quality Monitoring Data for 2019-2021 ~~2017-2019~~, San José-Jackson Street Monitoring Station

Pollutant	State/Federal Standards	2019		2020		2021	
		No. Exceed[1]	Max Conc	No. Exceed[1]	Max Conc	No. Exceed[1]	Max Conc
PM_{10} 24-hour	50/150 μg/m^3	4/0	77 μg/m^3	*/0	137.1 μg/m^3	0/0	45.1μg/m^3
$PM_{2.5}$ 24-hour	NA/35 μg/m^3	NA/0	27.6 μg/m^3	NA/12	120.5 μg/m^3	NA/1	38.1 μg/m^3
Ozone 8-hour	0.070 ppm	2/2	0.081 ppm	2/2	0.085 ppm	4/4	0.084 ppm
Ozone 1-hour	0.09 ppm/NA	1/NA	0.095 ppm	1/NA	0.106 ppm	3/NA	0.098 ppm
CO 1-hour	20/35 ppm	0/0	1.7 ppm	0/0	1.859 ppm	0/0	1.703 ppm
NO_2 1-hour	0.18/0.1 ppm	0/0	0.060 ppm	0/0	0.052ppm	0/0	0.048 ppm
SO_2 24-hour	0.04 ppm/NA	0/NA	0.0015 ppm	0/NA	0.001 ppm	0/NA	0.001 ppm

Pollutant	State/Federal Standards	2019		2020		2021	
		No. Exceed[1]	Max Conc	No. Exceed[1]	Max Conc	No. Exceed[1]	Max Conc
SO_2 1-hour	NA/0.075 ppm	NA/0	0.0145 ppm	NA/0	0.003 ppm	NA/0	0.002 ppm

Source: BAAQMD 2021, CARB 2020 ~~2023a~~, 2023a ~~2023b~~.

Notes:

[1.] Indicates the number of exceedance days recorded annually at this monitoring station for a particular constituent compared to that constituent's CAAQS and NAAQS, respectively. The first number is the state value, and the second number is the federal value if they are different.

*Key: CO = carbon monoxide; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter of 2.5 micrometers or less; PM_{10} = particulate matter of 10 micrometers or less; SO_2 = sulfur dioxide; NA = not available; ppb = parts per billion; ppm = parts per million; µg/m³ = micrograms per cubic meter; * = insufficient data available to determine the value.*

Odors

Odors in the study area are generally not a concern. Based on a public records data request, the area within 1,000 feet of the Project Area has no odor complaints (BAAQMD 2023b ~~2023a~~).

Air Pollution Sensitive Receptors

The term "sensitive receptors" refers to those segments of the population most susceptible to poor air quality and various air pollutants: children, the elderly, and individuals with pre-existing, serious health problems affected by such air pollutants (CARB 2005). Examples of sensitive receptor locations are residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities.

Existing land uses within and adjacent to the Project Area include Coyote Creek, parkland and hiking trails, the Anderson Reservoir boat ramp, the Anderson Lake County Park Visitor's Center, the Santa Clara County Justice Training Center, the William F. James Boys Ranch, an orchard, and private residences. As such, sensitive receptor locations in the Project Area include residential communities, a high school, and public parkland, where sensitive receptors may reside or regularly visit.

Sensitive receptors in the Project Area are described below by Project component, with haul routes described separately.

Anderson Dam

Anderson Dam is located in the midst of the Anderson Lake County Park. Sensitive receptors flank the western and southern portions of Anderson Dam, while the areas north and east of Anderson Dam are undeveloped. Receptors located near where seismic retrofit construction work would occur include the residential community along Holiday Drive immediately adjacent to Anderson Dam to the southwest, the residential community south of Anderson Lake County Park, located south and west of Cochrane Road, and receptors at Anderson Lake County Park and Rosendin Park, both located south of the seismic retrofit construction areas. Blue Ridge High School and the William F. James Boys Ranch, a juvenile detention center, are located immediately north of the Project's construction area downstream of Anderson Dam, across Coyote Creek. The William F. James Boys Ranch serves as both a residence and school and is therefore identified as a sensitive receptor location. Live Oak High School is approximately 1 mile south of Anderson Dam, located along East Main Street in Morgan Hill. The closest licensed elder care facility is the Westmont of Morgan Hill care facility, which is approximately 1 mile southwest of Anderson Dam along Cochrane Road (Community Care Licensing Division [CCLD] 2021). The nearest medical facility is Morgan Hill Medical Associates, approximately 1 mile south of the Project Area along Depaul Drive in Morgan Hill. The CCLD website also identifies multiple child and infant care centers in Morgan Hill. Most of these facilities are located west of US 101, approximately 1.3 miles west of the Project Area.

Ogier Ponds

The Ogier Ponds are situated in the midst of an underdeveloped area that is predominantly industrial with pockets of residential uses. The closest sensitive receptor to the Ogier Ponds CM area is the Parkway Lakes Recreation Vehicle (RV) Park located southwest of the Ogier Ponds along the east side of Monterey Highway, adjacent to the Project Area. Other notable sensitive receptors include Sobrato High School, located approximately 1.2 miles to the southeast along the north side of Burnett Avenue.

Maintenance of the North Channel ~~Extension~~ Reach and Live Oak Restoration Reach

Maintenance of the ~~The~~ North Channel ~~Extension~~ Reach and Live Oak Restoration Reach are located downstream of Anderson Dam along Coyote Creek. Nearby sensitive receptors include residential communities adjacent to Coyote Creek to the south of Cochrane Road and Malaguerra Avenue.

Sediment Augmentation Program

The Sediment Augmentation Conservation Program spans the length of Coyote Creek downstream of Anderson Dam to Ogier Ponds. Nearby sensitive receptors include those nearby the Maintenance of the North Channel ~~Extension~~ Reach and Live Oak Restoration Reach Conservation Measures, discussed above, and residential communities southwest of Coyote Creek bound by US 101 to the northeast and Monterey Highway to the southwest.

Phase 2 Coyote Percolation Pond

The Phase 2 Coyote Percolation Pond CM area is bound by Monterey Highway to the southwest, US 101 to the northeast, and Metcalf Road to the southeast. The closest receptors include residential communities adjacent to Coyote Percolation Pond to the south and west and Metcalf Park adjacent to the south. Residential communities are also located north of US101, approximately 0.1 miles from the Project Area.

Haul Routes

Sensitive receptors along construction haul routes include the following:

- Cochrane Road: Sensitive receptors (single-family residential) line both sides of Cochrane Road between the Cochrane Road and Mission View Drive intersection and the Malaguerra Avenue and Cochrane Avenue intersection.

- Malaguerra Avenue: Sensitive receptors located along Malaguerra Avenue include the residential neighborhood located southwest of Malaguerra Avenue and northwest of Cochrane Road.
- Dunne Avenue: Sensitive receptors are located along Dunne Avenue from the Murphy Road and Dunne Avenue intersection and extending to the northeast. The predominant receptors abutting both sides of Dunne Avenue include single-family residential uses. Other sensitive receptors fronting Dunne Avenue include Nordstrom Park, Nordstrom Elementary School, and The Church of Jesus Christ of Latter-day Saints, and several smaller parks.
- Hill Road: Sensitive receptors (i.e., single-family residential) are located along both sides of Hill Road.
- Main Avenue: Sensitive receptors (i.e., single-family residential and Live Oak High School) are located along both sides of Main Avenue.

3.3.2 Regulatory Setting

3.3.2.1 Federal Laws, Regulations, and Policies

Clean Air Act and National Ambient Air Quality Standards

The Clean Air Act is implemented by the USEPA and sets ambient air emission limits, referred to as NAAQS, for six criteria air pollutants: PM_{10}, $PM_{2.5}$, CO, NO_2, ozone, and lead.

Table 3.3-1 shows the current attainment status for NAAQS and CAAQS in the SFBAAB (study area).

The USEPA and CARB regulate various stationary sources, area sources, and mobile sources of air pollutant emissions. The USEPA has regulations involving performance standards for specific sources that may release TACs, known at the federal level as hazardous air pollutants (HAP). In addition, the USEPA has regulations involving emission criteria for off-road air emission sources such as emergency generators, construction equipment, and vehicles; the USEPA also regulates releases of toxic chemicals.

USEPA and NHTSA Emission Standards for On-Road Vehicles

In 1975, Congress enacted the Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the USEPA and National Highway Traffic Safety Administration (NHTSA) are responsible for establishing additional vehicle standards. In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. Notably, California harmonized its vehicle efficiency standards through 2025 with the federal standards through the Advanced Clean Cars Program.

In March 2022, Corporate Average Fuel Economy (CAFE) standards were finalized for model years 2024 through 2026. The final rule establishes standards that require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks. Current rulemaking is working on establishing (NHTSA 2022):

- standards for model years 2027 and beyond for passenger cars and light trucks

- fuel efficiency standards for model years 2029 and beyond for heavy-duty pickup trucks and vans
- fuel efficiency standards for model years 2030 and beyond for medium and heavy duty on-highway vehicles and work trucks

USEPA Emission Standards for Nonroad Equipment and Vehicles

The USEPA has adopted emission standards for different types of non-road engines, equipment, and vehicles. For nonroad diesel engines, the USEPA has adopted multiple tiers of emission standards.

The USEPA signed a final rule on May 11, 2004, introducing the Tier 4 emission standards, to be phased in between 2008 and 2015 (69 Code of Federal Regulations (CFR) 38957–39273, June 29, 2004). The Tier 4 standards require that emissions of PM and NO_X be further reduced by about 90 percent. Such emission reductions can be achieved through the use of control technologies, including advanced exhaust gas after-treatment. To enable sulfur-sensitive control technologies in Tier 4 engines, the USEPA also mandated reductions in sulfur content in nonroad diesel fuels. In most cases, federal nonroad regulations also apply in California, which has only limited authority to set emission standards for new nonroad engines. The Clean Air Act preempts California's authority to control emissions from new farm and construction equipment less than 175 horsepower (hp) (Clean Air Act Section 209[e][1][A]) and requires California to receive authorization from the USEPA for controls over other off-road sources (Clean Air Act Section 209[e][2][A]). New engines built in and after 2015 across all hp sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards.

3.3.2.2 State Laws, Regulations, and Policies

California Clean Air Act and Ambient Air Quality Standards

CARB sets standards for criteria pollutants in California that are more stringent than the NAAQS and include the following additional contaminants: visibility-reducing particles, H_2S, sulfates, and vinyl chloride. **Table 3.3-1** provides the CAAQS and their corresponding attainment status in the SFBAAB. The BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the SFBAAB and to develop and implement strategies to attain the applicable federal and state standards.

CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB also establishes passenger vehicle fuel specifications.

CARB Emission Standards for In-use Off-road Diesel Vehicles

In 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from in-use, off-road, heavy-duty diesel vehicles in California. The regulation imposes limits on vehicle idling and requires fleets to reduce emissions by retiring, replacing, repowering, or installing exhaust retrofits to older engines. In December 2011, the regulation was amended to modify the compliance dates for performance standards and establish requirements for compliance with verified diesel emission control strategy technologies that reduce PM and/or NO_X emissions. The regulation is in the process of finalizing additional amendments that will require the phase out of the oldest and highest emitting off-road engines and would restrict the addition of vehicles with Tier 3 and Tier 4 interim engines. The rules would be implemented starting in 2024 and would require contracting entities to obtain and retain a fleet's valid Certificate of Reported Compliance prior to awarding a contract or hiring a fleet, mandate the use of R99 or R100 Renewable Diesel for all fleets with some limited exceptions, and provide additional requirements to increase enforceability and provide flexibility for permanent low-use vehicles.

CARB Emission Standards for Trucks and Buses

In 2008, CARB approved a regulation to substantially reduce emissions of DPM, NO_X, and other pollutants from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance standards and requirements by 2023. Affected vehicles include on-road, heavy-duty, diesel-fueled vehicles with a gross vehicle weight rating greater than 14,000 pounds. The regulation was updated in 2011 and 2014 to provide more compliance flexibility and reflect the impact of the 2008 economic recession on vehicle activities and emissions.

CARB Emission Standards for Heavy-duty On-board Diagnostic Systems

In 2004, CARB adopted regulations requiring on-board diagnostic (OBD) systems on all 2007 and later model year heavy-duty engines and vehicles (i.e., vehicles with a gross vehicle weight rating greater than 14,000 pounds) in California. CARB subsequently adopted a comprehensive OBD regulation for heavy-duty vehicles model years 2010 and beyond. The heavy-duty OBD regulations were updated in 2010, 2013, and 2016 with revisions to enforcement requirements, testing requirements, and implementation schedules. Heavy-duty trucks used during Project construction or operations would be required to comply with the heavy-duty OBD regulatory requirements.

CARB Inspection Program for Heavy-duty Vehicles

The heavy-duty vehicle inspection program requires heavy-duty trucks and buses to be inspected for excessive smoke and tampering and for compliance with engine certification labels. Any heavy-duty vehicle (i.e., a vehicle with a gross vehicle weight rating greater than 14,000 pounds) traveling in California, including vehicles registered in other states and foreign countries, may be tested. Tests are performed by CARB inspection teams at border crossings, California Highway Patrol weigh stations, fleet facilities, and randomly selected roadside locations. Owners of trucks and buses found to be in violation are subject to penalties starting at $300 per violation. Heavy-duty trucks used during Project construction or operations would be subject to the inspection program.

CARB Clean Cars Programs

The Advanced Clean Cars emissions-control program was approved by CARB in 2012 and is closely associated with the Pavley regulations (CARB 2017~~a~~). The program requires a greater number of zero-emission vehicle models for years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the low-emissions vehicle (LEV) regulations to reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles and the ZEV regulations to require manufactures to produce an increasing number of pure ZEV's (meaning battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles (PHEV) between 2018 and 2025.

California recently adopted the new Advanced Clean Car II in August 2022, which dramatically reduces emissions from passenger vehicles for model years 2026 through 2035. Advanced Clean Cars II would require more aggressive tailpipe emission standards for gasoline cars and heavier passenger trucks and require all new vehicles sold by 2035 be ZEVs (CARB 2023a ~~2023c~~).

CARB Mobile Source Strategy

The Mobile Source Strategy (2016) includes an expansion of the Advanced Clean Cars program and further increases the stringency of GHG emissions for all light-duty vehicles, and 4.2 million zero-emission and plug-in hybrid light-duty vehicles by 2030. It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for classes 3 through 7 "last mile" delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions and a 50 percent reduction in the consumption of petroleum-based fuels. CARB's Mobile Source Strategy includes measures to reduce total light-duty vehicle miles travelled (VMT) by 15 percent compared to business-as-usual in 2050.

CARB Regulations on Diesel Emissions

In 2004, the CARB adopted an ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 CCR Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 hp such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007 aims to reduce emissions through the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets. Current rulemaking of this regulation anticipated to be finalized in 2023 includes additional updates to ensure fleet compliance by requiring public agencies and prime contractors to verify compliance with these fleet requirements annually and to report non-compliant fleets. In addition, starting in 2024, fleets will be required to use 99 or 100 renewable diesel.

California Standards for Diesel Fuel Regulations

The California Standards for Diesel Fuel Regulations require diesel fuel with a sulfur content of 15 parts per million (ppm) or less (by weight) to be used for all diesel-fueled vehicles that are operated in California. The standard also applies to non-vehicular diesel fuel, other than diesel fuel used solely in locomotives or marine vessels. The regulations also contain standards for the aromatic hydrocarbon content and lubricity of diesel fuels.

Assembly Bill 1346: Air Pollution: small off-road engines

AB 1346 requires CARB to adopt cost-effective and technologically feasible regulations to prohibit engine exhaust and evaporative emissions from new Small Off-Road Engines (SORE) by July 1, 2022, for engines produced on or after January 1, 2024, or as soon as CARB determines is feasible. In determining technological feasibility, CARB is to consider emissions from SOREs in the state, a timeline for zero-emission SORE development, increased electricity demand from charging zero-emission SORE, cases for both commercial and residential users of SOREs, and expected availability of zero-emission generators and emergency response equipment. In addition, CARB is to identify and make available funding for rebates or incentive funding. CARB adopted engine exhaust emission regulations for SORE in compliance with AB 1346 requiring most new SORE to be zero emissions by 2024.

Portable Equipment Registration Program

The Statewide Portable Equipment Registration Program (PERP) establishes a system to uniformly regulate portable engines and portable engine–driven equipment units. After being registered in this program, engines and equipment units may operate throughout the state without the need to obtain permits from individual air districts. Owners or operators of portable engines and certain types of equipment can voluntarily register their units under this program. Operation of registered portable engines may still be subject to certain district requirements for reporting and notification. Engines with less than 50 brake hp are exempt from this program.

California Control Measures for Airborne Toxic Air Contaminants

CARB identifies substances as TACs as defined in Health and Safety Code Section 39655 and listed in Title 17, Section 93000 of the CCR, "Substances Identified as Toxic Air Contaminants." Airborne Toxic Control Measures (ATCM), including the following relevant measures, are implemented to address sources of TACs:

- ATCM for DPM from Portable Engines Rated at 50 hp and Greater
- ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- ATCM to Reduce Particulate Emissions from Diesel-Fueled Engines Standards for Non-vehicular Diesel Fuel
- ATCM for Stationary Compression Ignition Engines
- Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations
- Asbestos ATCM for Surfacing Applications

In addition to ATCMs, TACs are controlled under several regulations in California, including the Tanner Air Toxics Act, Air Toxics Hot Spots Information Act, and AB 2588: Air Toxics "Hot Spots" Information and Assessment Act. In addition, Proposition 65 (the Safe Water and Toxic Enforcement Act of 1996) requires California to publish a list of chemicals known to cause cancer or birth defects or other reproductive harm. Proposition 65 requires businesses to notify Californians about substantial amounts of chemicals in the products they purchase or that are released into the environment.

ZEV Executive Orders

In March 2012, then-Governor Brown issued EO B-16-12 establishing a goal of 1.5 million ZEVs on California roads by 2025.In addition to the ZEV goal, the executive order stipulated that by 2015 all major cities in California will have adequate infrastructure and be “zero-emission vehicle ready”; that by 2020 the State will have established adequate infrastructure to support 1 million ZEVs; and that by 2050, virtually all personal transportation in the state will be based on ZEVs, and GHG emissions from the transportation sector will be reduced by 80 percent below 1990 levels.

On January 26, 2018, then-Governor Brown issued EO B-48-18 establishing a goal of 5 million ZEVs on California roads by 2030 and spurred the installation and construction of 250,000 plug-in electric vehicle chargers, including 10,000 direct current fast chargers, and 200 hydrogen refueling stations by 2025.

In September 2020, Governor Newsom signed EO N-79-20, which sets a new State goal that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035; that 100 percent of medium- and heavy-duty vehicles in the state be zero-emission by 2045 for all operations, where feasible, and by 2035 for drayage trucks; and that 100 percent of off-road vehicles and equipment will be zero emission by 2035, where feasible. This order calls upon state agencies, including CARB, the CEC, the CPUC, the Department of Finance, and others to develop and propose regulations and strategies to achieve these goals.

3.3.2.3 Regional Laws, Regulations, and Policies

BAAQMD 2022 CEQA Guidelines

In December 1999, the BAAQMD adopted its initial *CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans* (BAAQMD *CEQA Guidelines*), as a guidance document to provide lead government agencies, consultants, and project proponents with uniform procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. The BAAQMD *CEQA Guidelines* is an advisory document and local jurisdictions are not required to use the methodology outlined therein. The document describes the criteria that the BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

The BAAQMD updated quantitative thresholds of significance for its CEQA air quality guidelines in 2010 and published its latest version of its BAAQMD *CEQA Guidelines* in April 2023 (BAAQMD 2023a). The BAAQMD 2022 *CEQA Guidelines* provide BAAQMD-recommended procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements.

The guidelines specify recommended thresholds of significance for construction and operational criteria air pollutants and precursor emissions, GHG emissions, and risks and hazards associated with TACs from an individual project and cumulative impact, discussed in Section 3.3.3, *Methodology and Approach to Impact Analysis*.

BAAQMD 2017 Clean Air Plan

The BAAQMD has developed the *Spare the Air-Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area Final 2017 Clean Air Plan* (2017 Clean Air Plan), which details planned efforts to improve Bay Area air quality, including reducing PM and TAC emissions, and protecting public health. In addition, the 2017 Clean Air Plan simultaneously updates the 2010 Clean Air Plan, which is the most recent ozone plan for the Bay Area, to comply with state air quality planning requirements and reduce ozone precursors (BAAQMD 2017c ~~2017b~~). The 2017 Clean Air Plan contains a control strategy that includes 85 individual control measures to reduce emissions of criteria air pollutants and GHGs from the full range of emission sources. The measures include stationary (industrial) sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, and water (BAAQMD 2017c ~~2017b~~).

BAAQMD Particulate Matter Plan

On January 9, 2013, the USEPA issued a final rule to determine that the SFBAAB attains the 24-hour $PM_{2.5}$ standard (78 Federal Register 1760; January 9, 2013). This USEPA rule suspends key State Implementation Plan (SIP) requirements as long as monitoring data continue to show that the SFBAAB attains the standard. Despite this USEPA action, the SFBAAB will continue to be designated as “nonattainment” for the national 24-hour $PM_{2.5}$ standard until the BAAQMD submits a “redesignation request” and a “maintenance plan” to USEPA, and USEPA approves the proposed redesignation.

For PM emissions, the BAAQMD has developed various rules, programs, and measures to identify and control sources of PM, including general PM emission requirements, a Winter Spare the Air program, and control measures identified in the 2017 Clean Air Plan (BAAQMD 2017c ~~2017b~~). The 2017 Clean Air Plan includes a variety of control measures to reduce PM emissions, including, but not limited to, expanding the BAAQMD’s fugitive dust visible emissions limits to a wider array of sources, reducing DPM emissions from emergency generators, and developing a rule to prevent mud/dirt track-out from construction and other sites (BAAQMD 2017c ~~2017b~~).

BAAQMD 2005 Ozone Strategy

For ozone precursor management, the BAAQMD has identified measures in the 2017 Clean Air Plan and the Bay Area 2005 Ozone Strategy that include stationary-source control measures to be implemented through BAAQMD regulations; mobile-source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with the Metropolitan Transportation Commission, local governments, transit agencies, and other agencies (BAAQMD 2006).

BAAQMD Rules

The BAAQMD supports incentive programs to reduce criteria pollutant emissions, TACs, and odors within the district and has established rules and permitting requirements. The Project may be subject to the following BAAQMD rules:

Regulation 2 (Permits): This regulation outlines the air permitting program, including exemptions and sources needing permitting.

Regulation 2, Rule 1 (New Source Permits): This rule applies to all new or modified sources requiring a permit. This rule requires the analysis of new or modified sources to ensure that if emissions do exceed specific applicable thresholds that "Best Available Control Technology" is installed to limit the emissions to the greatest extent possible.

Regulation 2, Rule 2 (New Source Review): This rule outlines permitting process for new sources.

Regulation 2, Rule 5 (New Source Review of TACs): This rule outlines guidance for evaluating TAC emissions and their potential health threats.

Regulation 6, Rule 1 (Particulate Matter Requirements): This rule limits the quantity of PM in the atmosphere through the establishment of limitations on emission rates, emissions concentrations, visible emissions, and opacity.

Regulation 6, Rule 6 (Prohibition of Trackout): This rule limits the quantity of PM in the atmosphere through control of trackout of solid materials onto paved public roads outside the boundaries of large construction sites.

Regulation 7 (Odorous Substances): This regulation places general limitations on odorous substances and specific emission limitations on certain odorous compounds.

Regulation 8, Rule 3 (Architectural Coasting): This rule limits the quantity of volatile organic compounds that can supplied, sold, applied, and manufactured within the BAAQMD region.

Regulation 8, Rule 15 (Emulsified and Liquid Asphalts): This rule limits the reactive organic gases content of asphalt available for use during construction through regulating the sale and use of asphalt and limits the ROG content in asphalt.

Regulation 9, Rule 2 (Hydrogen Sulfide): The rule limits ground level concentrations of hydrogen sulfide.

Regulation 9, Rule 8 (Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines): This rule limits the emissions of NO_x and CO from stationary internal combustion engines with an output rated by the manufacturer at more than 50 brake horsepower. In addition, Section 9-8-330 states that an emergency standby engine cannot be operated for more than 50 hours in a calendar year for testing and maintenance purposes.

Regulation 11, Rule 14 (Asbestos-Containing Serpentine): The purpose of this rule is to control emissions of asbestos from unpaved road surfaces and other surfacing operations. This rule limits the use of serpentine material with >5% asbestos content for covering roads or paths.

3.3.2.4 Local Laws, Regulations, and Policies

Santa Clara County General Plan

The Santa Clara County General Plan Health Element (2015) and the General Plan (1994) contain the following policies relevant to air quality:

Policy HE-G.1: Air quality environmental review. Continue to utilize and comply with the Air District's project- and plan-level thresholds of significance for air pollutants and GHG emissions.

Policy HE-G.2: Coordination with regional agencies. Coordinate with the Air District to promote and implement stationary and area source emission measures.

Policy HE-G.3: Fleet upgrades. Promote Air District mobile source measures to reduce emissions by accelerating the replacement of older, dirtier vehicles and equipment, and by expanding the use of zero emission and plug-in vehicles.

Policy HE-G.4: Off-road sources. Encourage mobile source emission reduction from off-road equipment such as construction, farming, lawn and garden, and recreational vehicles by retrofitting, retiring, and replacing equipment and by using alternate fuel vehicles.

Policy HE-G.7: Sensitive receptor uses. Promote measures to protect sensitive receptor uses, such as residential areas, schools, day care centers, recreational playfields and trails, and medical facilities by locating uses away from major roadways and stationary area sources of pollution, where possible, or incorporating feasible, effective mitigation measures.

Policy C-HS 1: Ambient air quality for Santa Clara County should comply with standards set by state and federal law.

Policy C-HS 12: Measures to reduce particulate matter pollution originating from quarrying, road, and building construction, industrial processes, unpaved parking lots, and other sources should be encouraged.

Policy C-HS(i) 1: Reductions in vehicular exhaust emissions also contribute to reductions in levels of suspended particulate matter.

Policy C-HS(i) 2: Low-cost techniques such as washing the tires of construction vehicles to remove soil before they leave a site prevents soils from being deposited on roadways, where it may be "re-entrained" by other traffic and produce high levels of the particulates.

City of Morgan Hill General Plan

The Natural Resources and Environment chapter of the City of Morgan Hill General Plan (2017 ~~2016~~) contains the following goals, policies, and actions relevant to air quality:

Goal NRE-10: Reduced air pollution emissions.

Policy NRE-10.1: Regional and Subregional Cooperation. Cooperate with regional agencies in developing and implementing air quality management plans. Support subregional coordination with other cities, counties, and agencies in the Santa Clara Valley and adjacent areas to address land use, jobs/housing balance, and transportation planning issues as a means of improving air quality.

Goal NRE-11: Minimized exposure of people to toxic air contaminants such as ozone, carbon monoxide, lead, and particulate matter.

Policy NRE-11.1: TACs and Proposed Sensitive Uses. Require modeling for sensitive land uses, such as residential development, proposed near sources of pollution such as freeways, and industrial uses. Require new residential development and projects categorized as sensitive receptors to incorporate effective mitigation measures into project designs or be located adequate distances from sources of TACs to avoid significant risk to health and safety.

Policy NRE-11.2: TACs and Existing Sensitive Uses. Encourage the installation of appropriate air filtration mechanisms at existing schools, residences, and other sensitive receptors adversely affected by existing or proposed pollution sources.

Policy NRE-11.3: Health Risk Assessments. For proposed development that emits toxic air contaminants, require project proponents to prepare health risk assessments in accordance with BAAQMD procedures as part of environmental review and implement effective mitigation measures to reduce potential health risks to less-than-significant levels. Alternatively, require these projects to be located an adequate distance from residences and other sensitive receptors to avoid health risks. Consult with the BAAQMD to identify stationary and mobile toxic air contaminant sources and determine the need for and requirements of a health risk assessment for proposed developments.

Policy NRE-11.4: Truck Routes. For development projects generating significant heavy-duty truck traffic, designate truck routes that minimize exposure of sensitive receptors to toxic air contaminants and particulate matter.

Policy NRE-11.5: Truck Idling. For development projects generating significant truck traffic, require signage to remind drivers that the State truck idling law limits truck idling to five (5) minutes.

Policy NRE-11.6 Vegetation Buffers. Encourage the use of pollution-absorbing trees and vegetation in buffer areas between substantial sources of toxic air contaminants and sensitive receptors.

Goal NRE-12: Minimized air pollutant emissions from demolition and construction activities.

Policy NRE-12.1: Best Practices. Requirement that development projects implement best management practices to reduce air pollutant emissions associated with construction and operation of the project.

Policy NRE-12.2: Conditions of Approvals. Include dust, particulate matter, and construction equipment exhaust control measures as conditions of approval for subdivision maps, site development and planned development permits, grading permits, and demolition permits. At a minimum, conditions shall conform to construction mitigation measures recommended in the current BAAQMD CEQA Guidelines.

Policy NRE-12.3: Control Measures. Require construction and demolition projects that have the potential to disturb asbestos (from soil or building material) to comply with all the requirements of the California Air Resource Board’s ATCMs for Construction, Grading, Quarrying, and Surface Mining Operations.

Policy NRE-12.4: Grading. Require subdivision designs and site planning to minimize grading and use landform grading in hillside areas.

Action NRE-12.A: Standard Measures for Demolition and Grading. Adopt and periodically update dust, particulate matter, and exhaust control standard measures for demolition, grading, and construction activities to include on project plans mitigation measures as conditions of approval-based BAAQMD CEQA Guidelines. Include measures to prevent silt loading on roadways that generate particulate matter air pollution by prohibiting unpaved or unprotected access to public roadways from construction sites.

Action NRE-12.B: Grading Ordinance. Revise the grading ordinance and condition grading permits to require that graded areas be stabilized from the completion of grading to commencement and construction.

Goal NRE-14: Minimum exposure of residents to objectionable odors.

Policy NRE-14.1: New Odor Sources. For new, expanded, or modified facilities that are potential sources of objectionable odors, require an analysis of possible odor impacts and the provision of odor minimization and control measures as mitigation.

Policy NRE-14.2: Odors and Proposed Sensitive Uses. Require new residential development projects and projects categorized as sensitive receptors to be located an adequate distance from facilities that are existing or potential sources of odor. Determine the adequate separation distance based on the type, size, and operations of the facility.

City of Morgan Hill Zoning Code

Condition 18.76.100 of the City of Morgan Hill's Zoning Code (2018) prohibits objectionable odors that are perceptible by a reasonable person at the lot line of a site. However, odors from temporary construction, demolition, and vehicles that enter and leave the site (e.g., construction equipment, trains, trucks, etc.) are exempt from this standard.

Envision San José 2040 General Plan

The Envision San José 2040 General Plan (2023 ~~2011~~) contains the following policies/actions relevant to air quality:

Goal MS-10: Minimize air pollutant emissions from new and existing development.

Policy MS-10.1: Assess projected air emissions from new development in conformance with BAAQMD CEQA Guidelines and relative to state and federal standards. Identify and implement feasible air emission reduction measures.

Policy MS-10.2: Consider the cumulative air quality impacts from proposed developments for proposed land use designation changes and new development, consistent with the region's Clean Air Plan and State law.

Policy MS-10.8: Minimize vegetation removal required for fire prevention. Require alternatives to discing, such as mowing, to the extent feasible. Where vegetation removal is required for property maintenance purposes, encourage alternatives that limit the exposure of bare soil.

Policy MS-10.9: Foster educational programs about air pollution problems and solutions.

Action MS-10.14: Review and evaluate the effectiveness of site design measures, transit incentives, and new transportation technologies, and encourage those that most successfully reduce air pollutant emissions.

Goal MS-11: Minimize exposure of people to air pollution and toxic air contaminants such as ozone, carbon monoxide, lead, and particulate matter.

Policy MS-11.1: Require completion of air quality modeling for sensitive land uses such as new residential developments that are located near sources of pollution such as freeways and industrial uses. Require new residential development projects and projects categorized as sensitive receptors to incorporate effective mitigation into project designs or be located an adequate distance from sources of TACs to avoid significant risks to health and safety.

Policy MS-11.2: For projects that emit toxic air contaminants, require project proponents to prepare health risk assessments in accordance with BAAQMD-recommended procedures as part of environmental review and employ effective mitigation to reduce possible health risks to a less than significant level. Alternatively, require new projects (such as, but not limited to, industrial, manufacturing, and processing facilities) that are sources of TACs to be located an adequate distance from residential areas and other sensitive receptors.

Policy MS-11.3: Review projects generating significant heavy-duty truck traffic to designate truck routes that minimize exposure of sensitive receptors to TACs and particulate matter.

Policy MS-11.4: Encourage the installation of appropriate air filtration at existing schools, residences, and other sensitive receptor uses adversely affected by pollution sources.

Policy MS-11.5: Encourage the use of pollution absorbing trees and vegetation in buffer areas between substantial sources of TACs and sensitive land uses.

Action MS-11.7: Consult with BAAQMD to identify stationary and mobile TAC sources and determine the need for and requirements of a health risk assessment for proposed developments.

Action MS-11.8: For new projects that generate truck traffic, require signage which reminds drivers that the State truck idling law limits truck idling to five minutes.

Goal MS-12: Minimize and avoid exposure of residents to objectionable odors.

Policy MS-12.1: For new, expanded, or modified facilities that are potential sources of objectionable odors (such as landfills, green waste and resource recovery facilities, wastewater treatment facilities, asphalt batch plants, and food processors), the City requires an analysis of possible odor impacts and the provision of odor minimization and control measures as mitigation.

Policy MS-12.2: Require new residential development projects and projects categorized as sensitive receptors to be located an adequate distance from facilities that are existing and potential sources of odor. An adequate separation distance will be determined based upon the type, size, and operations of the facility.

Goal MS-13: Minimize air pollutant emissions during demolition and construction activities.

Policy MS-13.1: Include dust, particulate matter, and construction equipment exhaust control measures as conditions of approval for subdivision maps, site development and planned development permits, grading permits, and demolition permits. At minimum, conditions shall conform to construction mitigation measures recommended in the current BAAQMD CEQA Guidelines for the relevant project size and type.

Policy MS-13.2: Construction and/or demolition projects that have the potential to disturb asbestos (from soil or building material) shall comply with all the requirements of the California Air Resources Board's ATCMs for Construction, Grading, Quarrying, and Surface Mining Operations.

Policy MS-13.3: Require subdivision designs and site planning to minimize grading and use landform grading in hillside areas.

Policy EC-4.6: Evaluate development proposed in areas with soils containing naturally occurring asbestos (i.e., serpentinite) that would require ground disturbance and/or development of new residential or other sensitive uses, for risks to people from airborne asbestos particles during construction and post-construction periods. Hazards shall be assessed, at minimum, using guidelines and regulations of the BAAQMD and the CARB.

Policy EC-7.7: Determine for any development or redevelopment site that is within 1,000 feet of a known, suspected, or likely geographic ultramafic rock unit (as identified in maps developed by the Department of Conservation – Division of Mines and Geology) or any other known or suspected locations of serpentine or naturally occurring asbestos, if naturally occurring asbestos exists and, if so, comply with the BAAQMD's Asbestos ATCM requirements.

3.3.3 Methodology and Approach to Impact Analysis

This impact analysis considers whether implementation of the Project would result in significant impacts related to air quality. This section includes an evaluation of the criteria air pollutants and TAC emissions generated by the Project and if the Project would conflict with any applicable plan or policy for air quality. This section also includes a health risk assessment (HRA) to evaluate the health effects of TACs and $PM_{2.5}$ during Project construction. The analysis evaluates the criteria air pollutants and TAC emissions that would occur as a result of the following activities:

- Seismic Retrofit Construction
- Conservation Measure Construction
- Construction Monitoring
- Post-Construction Anderson Dam Facilities Operations and Maintenance
- Post-Construction Conservation Measures Operations and Maintenance
- Post-Construction FAHCE Adaptive Management

3.3.3.1 Seismic Retrofit Construction

As described in Section 3.0, *Introduction*, the baseline for evaluating Seismic Retrofit construction effects is the existing conditions at the time of EIR preparation modified by the FOCP implementation (referred to as the existing conditions baseline). Existing baseline operations for the Project reflect a seismically restricted capacity (e.g., maintenance of the reservoir at deadpool), and flow releases and maintenance activities projected to occur following completion of the FOCP, presently under construction. Similarly, the construction baseline assumes completion of facility upgrades and physical changes associated with the FOCP.

Criteria Pollutant Emissions

The CEQA Air Quality, Greenhouse Gas and Health Risk Assessment Technical Report (Ramboll 2024) (Appendix E), which supports the air quality assessment in this section, primarily used the methodology from the California Emissions Estimator Model (CalEEMod) version 2022.1 to quantify the criteria pollutant emissions for the Project. CalEEMod incorporates numerous default assumptions and CARB emission factors for on-road and off-road vehicles. The emission factors for off-road equipment and mobile sources were obtained from the latest versions of CARB's OFFROAD and EMission FACtor (EMFAC) models, respectively. Emissions calculations associated with off-road construction equipment were based on the construction schedule and the type, size, fuel type, tier level, hours of operation and utilization factor for each piece of equipment. For diesel-powered off-road construction equipment, methodologies consistent with CalEEMod were used to estimate emissions. Where Project-specific equipment information was not available, CalEEMod default hp was used. Load factors for each piece of equipment were based on default factors from CalEEMod. On-site boat emissions were estimated using emission factors and methodology from CARB's Pleasure Craft Model Database, matched to their respective gasoline-fueled boat classifications. Blasting-related emissions were estimated using methods from the Mojave Desert Air Quality Management District (MDAQMD) Emissions Inventory Guidance for Mineral Handling and Processing Industries (MDAQMD 2013) and USEPA's AP-42, and San Joaquin Valley Air Pollution Control District's guidance for hexavalent chromium. Emissions calculations associated with blasting activities were based on the number of blast holes drilled, type of explosives, and amounts of material shifted by blasting, as provided by Valley Water. Emissions assumed one complete blast occurs in 1 hour of activity. Emissions from on-road construction trips for workers, vendors, and haul trucks were estimated using emissions factors from EMFAC2021. EMFAC2021 incorporates the Pavley Clean Car Standards and the Advanced Clean Cars program.

Project construction activities would be completed using a combination of off-road and portable construction equipment. It was assumed that all construction off-road equipment is diesel powered except for those specified as electric or gasoline powered. Specific construction equipment assumptions for each phase and construction trip assumptions for workers, vendors, and haul trucks are provided in Appendix E.

Seismic retrofit construction is anticipated to span a 7-year period. The specific construction phasing schedule is provided in Appendix E. Annual emissions were averaged over the number of work days in each construction year to give average daily emissions in pounds per day. Average daily emissions were calculated for each phase of construction, then summed for all phases that occur concurrently.

Mitigated emissions account for the implementation of **Mitigation Measure AQ-1** and **Mitigation Measure AQ-2**. **Mitigation Measure AQ-1** would require the use of Tier 4 engines for off-road equipment and 2010 or newer on-road heavy duty diesel trucks and boat engines. **Mitigation Measure AQ-2** calls for the use of blasting wind screens during construction blasting activities.

Application of BAAQMD-Recommended Mitigation and ATCMs

BAAQMD recommends the implementation of Basic Best Management Practices for Construction-Related Fugivite Dust Emissions (see Appendix A, BMP-AQ-1[2]) as mitigation for fugitive dust from construction. BAAQMD considers the impact of construction-related fugitive dust emissions to be less than significant if all the Basic Best Management Practices (i.e., measures from BMP-AQ-1) are implemented.

In addition, all projects must implement any applicable ATCMs. This includes the ATCM for DPM from portable engines; ATCM to limit diesel-fueled commercial motor vehicle idling; ATCM to reduce particulate emissions from diesel-fueled engines (for non-vehicular diesel fuel); ATCM for stationary compression ignition engines; asbestos ATCM for surfacing applications, and asbestos ATCM for construction, grading, and blasting. For more details on NOA, see Section 3.10, *Hazards and Hazardous Materials*.

Quantification methodologies for emission reductions from fugitive dust mitigation measures is not available for all types of mitigation listed in BMP-AQ-1 and **Table 3.3-4**; thus, no quantified reductions in fugitive dust emissions are shown. Instead, these measures represent best practices for controlling fugitive dust and reducing emissions to a less-than-significant level. In addition to the fugitive dust BMPs, the Project would require a BAAQMD-approved Dust Mitigation Plan pursuant to the California Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations (CCR Title 17, Section 93105). The Dust Mitigation Plan would include all applicable dust control BMPs listed in BMP-AQ-1, may include other asbestos-specific dust control requirements, and may also require soil and ambient air sampling for asbestos fibers.

Health Risk Assessment

In order to evaluate the impact of exposing sensitive receptors to TACs, an HRA was conducted to evaluate the potential human health effects of onsite off-road construction equipment DPM emissions, total organic gases (TOG) from gasoline combustion and TACS anticipated to be in PM from blasting~~, as detailed in Section 3.3.1.5 above~~. The HRA evaluated excess lifetime cancer risk, noncancer chronic HI, and primary $PM_{2.5}$ concentration for offsite sensitive receptor exposure to emissions from Project construction. Additional details of the HRA not contained in this summary are found in Appendix E. The HRA does not include an assessment of asbestos exposure as this is controlled to protect human health with implementation of the ATCM and required measures under the Dust Mitigation Plan, and no further analysis is typically required

2 Note: As detailed in Section 3.3.3.7, *Applicable Best Management Practices and BAAQMD Measures*, BMP AQ-1 includes a requirement that vehicles on unpaved roads observe a 15 mile per hour speed limit. To make this BMP feasible for the Project, this BMP would be modified to allow haul trucks to travel up to 25 miles per hour on unpaved roads, except in areas with naturally occurring asbestos where the 15 miles per hour limit would still apply.

beyond discussing compliance with the regulations (BAAQMD 2017a ~~2017c~~). The purpose of the ATCM and Dust Mitigation Plan is to reduce public exposure to fugitive dust, which includes NOA from construction activities that emit or re-suspend dust which may contain asbestos. Section 3.10, *Hazards and Hazardous Material*, addresses potential asbestos-related impacts in greater detail.

The exhaust emissions from all onsite off-road equipment were estimated using methods consistent with CalEEMod following the same assumptions as the criteria pollutant mass emissions. It was assumed that all exhaust PM_{10} from off-road equipment was equal to DPM. USEPA's recommended air dispersion model, AERMOD (version 22112), was used to estimate the concentration of DPM at various sensitive receptors located near the Project construction areas. Standard guidance from the OEHHA and BAAQMD was used to estimate exposure, dose, and health impacts, including cancer and chronic noncancer health effects. This includes using the latest OEHHA recommended breathing rates and age-specific factors (ASF) (OEHHA 2015) for the various sensitive receptor populations. Sensitive receptor populations that were quantified include resident adult, resident child, day care child, preschool child, and juvenile detention residents. The California Environmental Protection Agency-approved (CalEPA) toxicity values for DPM were used to evaluate health impacts from construction and operational diesel fueled sources (CalEPA 2022).

Health effects from exhaust and evaporation from gasoline combustion were based on specific TAC emissions. Emissions of TOG from gasoline-fueled vehicles and boats were speciated using organic chemical profiles from BAAQMD (BAAQMD 2012).[3] The organic profile used for gasoline trucks and boats can be found in Appendix E. The CalEPA-approved toxicity values for each TAC were used to evaluate health impacts from operational gasoline fueled sources (CalEPA 2022).

The HRA provides a characterization of the excess cancer risks that could occur due to exposure to DPM and TACs associated with Project construction. The excess cancer risk is generally multiplied by 1 million to report the excess cancer risk that would be expected to occur based on the exposure to DPM in a population of 1 million people.

Besides cancer risk, DPM, gasoline exhaust TACs and other TACs (e.g., heavy metals and silica) associated with the Project can also have acute and chronic non-cancer health effects. To determine the significance of the acute and chronic non-cancer health impact, the ambient air concentration is divided by the Reference Exposure Level to provide the hazard quotient. If several TACs are present, the individual hazard quotients are summed to reach an overall hazard index (HI). The concentration of $PM_{2.5}$ at locations near the Project area was also quantified using the dispersion modeling methods described above.

In addition to evaluating Project impacts, cumulative impacts were evaluated against the BAAQMD's cumulative risk thresholds. Impacts from construction- and operation-related emissions from nearby existing or reasonably foreseeable projects, roadways with over 10,000 vehicles per day, and railways (within 1,000 feet of the construction site) were evaluated. If specific health impacts from these reasonably foreseeable cumulative projects are known or are

[3] Speciation profile is from BAAQMD's Recommended Methods for Screening and Modeling Local Risks and Hazards (BAAQMD 2012), Table 14, Toxic Speciation of TOG due to Tailpipe Emissions, and Table 15, Toxic Speciation of TOG due to Evaporative Losses.

expected to have an impact on sensitive receptors evaluated in the HRA, the impacts of those projects were added to the maximum exposed individual sensitive receptor.

Throughout FOCP construction certain trails and public access to Anderson Dam and Reservoir were closed for public safety. This would continue throughout the Seismic Retrofit construction portion of the Project. Trails in Rosendin Park would also be fully closed for 3 to 4 months during the initial blasting phase of the Seismic Retrofit Components construction which would occur sometime during Year 4, 5, or 6 of Project construction, and be partially closed throughout the duration of blasting in Years 4, 5, and/or 6 (with the nearest open trails over 900 feet from the blasting area, though typically much further). Aside from the trail closures within the Project boundaries of the BHBA, there would be no planned closures of the Rosendin Park Area before Year 4 or after Year 6 of Project construction. Since recreational receptors are unlikely to be present and exposed to air toxics from Project construction for an extended duration, health risk impacts on Rosendin Park receptors are expected to be low and were not quantified in this analysis.

Odors

Odor impacts were assessed based on the source of anticipated odors and whether those sources would generate objectionable odors. Screening distances for potential odor impacts are discussed below in Section 3.3.3.8, *Thresholds of Significance*.

3.3.3.2 Conservation Measures Construction

As described in Section 3.0, *Introduction*, the baseline for evaluating Conservation Measure construction effects is the existing conditions at the time of EIR preparation modified by the FOCP implementation (i.e., existing conditions baseline). Conservation Measures involving construction activities with a potential to result in a substantial amount of air pollutant emissions ~~adversely affect air quality~~ that are evaluated in the impact analysis include:

- Ogier Ponds CM
- ~~North Channel Extension~~
- Sediment Augmentation Program
- Phase 2 Coyote Percolation Dam CM

The air quality impacts from the construction of the Conservation Measure components were analyzed using the same methodologies as the Seismic Retrofit construction. Construction activities associated with the Ogier Ponds CM would occur from Year 6 through Year 8 ~~Year 9~~; Sediment Augmentation Program would occur in Year 8[4] ~~from Year 2 through Year 15~~; and Phase 2 Coyote Percolation Dam CM would occur during Year 1 and Year 2 ~~from Year 4 through Year 5~~. Maintenance of the North Channel Reach and the Live Oak Restoration Reach would involve only minor and intermittent maintenance activities (e.g., vegetation management, replacement planting, etc.) and would not result in any substantial amount of air pollutant emissions; therefore, these Conservation Measures are not discussed further in this section. ~~The~~

[4] Air pollutant emissions were only quantified for the initial placement of gravel, assumed to occur in Year 8. While emissions associated with future gravel augmentation are assumed to be minor, their scale, timing, and duration are speculative and were not quantified.

~~North Channel Extension Conservation Measure would occur for 2 months in Year 1 and Year 7. Due to the short duration, small number of equipment and workers required, and lack of high-emissions activities, impacts from the North Channel Extension are anticipated to be small in comparison to the impacts of the Seismic Retrofit and other Conservation Measures. Thus, a quantitative analysis of this Conservation Measure was not performed.~~ A detailed construction schedule for the Conservation Measures, specific construction equipment assumptions for the Conservation Measures, and construction trip assumptions for the Conservation Measures for workers, vendors, and haul trucks are provided in Appendix E.

3.3.3.3 Construction Monitoring

Construction monitoring activities are not included in the impact analysis, as monitoring would involve data and information collection and assessment and would not result in any substantial amount of air pollutant emissions. Thus, construction monitoring is not discussed further in this section.

3.3.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

Operation of the Anderson Dam following construction of the Project would involve implementation of the FAHCE rule curves and pulse flows, which would not result in additional air pollutant emissions compared to the existing conditions baseline. In addition, a diesel generator is proposed at the new outlet works, which would replace an existing diesel generator in the same general area, resulting in no net increase of criteria air pollutants or TACs above baseline conditions. Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). No new long-term operational sources of emissions would be generated by the Project; therefore, this EIR evaluates construction emissions but does not evaluate future Anderson Dam maintenance and operations activities.

3.3.3.5 Post-Construction Conservation Measures Operations and Maintenance

Similar to the operation of the Anderson Dam, post-construction operations and maintenance of the Conservation Measures components would involve minimal activities generating air pollutant emissions. Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain Coyote Percolation Dam per Valley Water's existing DMP. Maintenance of Coyote Percolation Dam facilities were previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). No new long-term operational sources generating air pollutant emissions would be added by the post-construction Conservation Measures operations and maintenance. Therefore, operations and maintenance of the Conservation Measures components would not result in significant impacts to air pollutant emissions, and these Conservation Measures operations and maintenance impacts are not discussed further in this section.

3.3.3.6 Post-Construction Project and FAHCE Adaptive Management

The Project and FAHCE AMP would guide post-construction adaptive management of project flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis, because they would result in only minor air pollutant emissions.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Therefore, impacts of these operational adaptive management actions are not evaluated in the impact analysis, because they would result in only minor air pollutant emissions.

3.3.3.7 Applicable Best Management Practices and VHP Conditions ~~BAAQMD Measures~~

The following Valley Water BMPs would serve to minimize impacts on air quality from the Project (refer to Chapter 2, *Project Description*, for the full text of the BMPs):

- **AQ-1:** Use Dust Control Measures
- **AQ-2:** Avoid Stockpiling Odorous Materials

Additionally, the following BAAQMD-recommended measures ~~mitigation~~ and airborne toxic control measures (ATCMs) would be implemented**.** BAAQMD recommends the implementation of Basic Best Management Practices for Construction-Related Fugitive Dust Emissions, because it is difficult to quantify all types of fugitive dust emissions and reductions of those emissions attributable to mitigation measures. These measures overlap with Valley Water BMP AQ-1. BAAQMD considers the impact of construction-related fugitive dust emissions to be less than significant if all the basic best management practices for construction are implemented. BAAQMD strongly recommends implementing all feasible fugitive dust management practices (e.g., enhanced construction BMPs), especially when construction activities are near sensitive receptors. Due to the unique and complex nature of Seismic Retrofit Construction, one minor variance from the BAAQMD BMPs related to vehicle speeds on unpaved roads is necessary in certain situations and areas to make it feasible for the Project, as shown in the footnote below.

- Basic Best Management Practices for Construction-Related Fugitive Dust Emissions (BAAQMD 2023a)
  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 offsite shall be covered.
  3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
  4. All vehicle speeds on unpaved roads not surfaced with aggregate base shall be limited to 15 miles per hour.[5]
  5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
  6. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 miles per hour for more than 30 minutes.
  7. All trucks and equipment, including their tires, shall be washed prior to leaving the site.
  8. 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 wood chips, mulch, or gravel.
  9. Publicly visible signs shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints phone number shall also be visible to ensure compliance with applicable regulations.

As noted above, all projects must implement any applicable ATCMs. This includes the ATCM for DPM from portable engines; ATCM to limit diesel-fueled commercial motor vehicle idling; ATCM to reduce particulate emissions from diesel-fueled engines (for non-vehicular diesel fuel); ATCM for stationary compression ignition engines; asbestos ATCM for surfacing applications, and asbestos ATCM for construction, grading, quarrying, and surface mining operations (discussed in the *Hazards and Hazardous Materials* section). In addition, all projects must comply with BAAQMD Rule 6-1, which limits fugitive particulate emissions, and Rule 6-6, which limits trackout of solid materials onto paved public roads outside the boundaries of large construction sites.

No VHP conditions are applicable to air quality.

[5] The 15 miles per hour speed limit would apply to all vehicles and equipment only in areas containing naturally occurring asbestos. Outside of these areas, a 25 mile per hour speed limit would be observed for haul trucks on unpaved roads (light duty pick-up trucks would observe the 15 mile per hour limit), such as the in-reservoir access roads to Stockpile Areas K and L. Limiting haul truck speeds to 15 miles per hour on all unpaved access roads would not be feasible to construct the Project interim dam to its full height, as the interim dam at the proposed height could not be reconstructed in a single work season.

3.3.3.8 Thresholds of Significance

Significance Criteria

For the purposes of this EIR and pursuant to Appendix G of the *CEQA Guidelines*, the Project would result in a significant impact on air quality if it would:

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

Specific Thresholds of Significance

This EIR applies the following air quality thresholds:

Air Quality Plan Consistency

<u>Construction and Operation</u>

The following qualitative threshold is used to evaluate the significance of air quality management plan consistency impacts resulting from implementation of the Project:

Construction and operation of buildings, appliances, equipment, and vehicles would not adhere to the measures and guidance included in BAAQMD 2017 Bay Area Clean Air Plan.

Criteria Air Pollutants

<u>Construction and Operation</u>

The BAAQMD 2022 *CEQA Air Quality Guidelines* are used in this analysis to evaluate air quality. **Table 3.3-3** shows the significance thresholds for Project criteria air pollutants and precursor emissions being used for the purposes of this analysis. These thresholds represent the levels at which a Project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. For the purposes of this analysis, the Project would result in a significant impact if Project emissions would exceed thresholds as shown in **Table 3.3-3**.

Table 3.3-3. BAAQMD Air Quality Significance Thresholds

	Construction Thresholds	Operational Thresholds	
Pollutant	**Average Daily Emissions (lbs/day)**	**Average Daily Emissions (lbs/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

Source: BAAQMD 2023a ~~2022a~~

Key: ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; lbs/day = pounds per day

Toxic Air Containments

Construction and Operation

For health risks associated with TAC and $PM_{2.5}$ emissions, the BAAQMD 2022 *CEQA Guidelines* state a project would result in a significant impact if any of the following thresholds are exceeded during construction or operation:

- Noncompliance with Qualified Community Risk Reduction Plan
- Increased cancer risk of greater than 10 in a million
- Increased noncancer risk of greater than 1 HI (Chronic or Acute)
- Ambient $PM_{2.5}$ increase of greater than 0.3 µg/m^3 annual average

In addition, a project would have a cumulatively considerably impact associated with health risks from TAC and $PM_{2.5}$ emissions if the aggregate total emissions of all past, present, and foreseeable future sources within a 1,000-foot radius of the property line of the source plus the project's contribution exceed any of the following thresholds:

- Noncompliance with Qualified Community Risk Reduction Plan
- Increased cancer risk of greater than 100 in a million
- Increased noncancer risk of greater than 10 HI (Chronic or Acute)
- Ambient $PM_{2.5}$ increase of greater than 0.8 µg/m^3 annual average

Odor Sources

Construction and Operation

The BAAQMD provides minimum distances for siting of new odor sources as shown in **Table 3.3-4.** A significant impact would occur if the project would involve the operation of an odor source that would be located closer to sensitive receptors than the screen distances shown in **Table 3.3-4** or if five confirmed complaints per year averaged over 3 years have been received regarding odors associated with the project.

Table 3.3-4. BAAQMD Odor Source Thresholds

Odor Source	Minimum Distance for Less-than-Significant Odor Impacts (in miles)
Wastewater Treatment Plant	2
Wastewater Pumping Facilities	1
Sanitary Landfill	2
Transfer Station	1
Composting Facility	1
Petroleum Refinery	2
Asphalt Batch Plant	2
Chemical Manufacturing	2
Fiberglass Manufacturing	1
Painting/Coating Operations	1
Rendering Plant	2

BAAQMD 2022a, Table 5-4

3.3.4 Impact Analysis

Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan **(Significant and Unavoidable)**

Construction

The most recently adopted air quality plan in the SFBAAB is the 2017 Clean Air Plan (BAAQMD 2017a ~~2017b~~). The 2017 Clean Air Plan is a roadmap showing how the San Francisco Bay Area will achieve compliance with the State one-hour ozone standard as expeditiously as practicable, and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The 2017 Clean Air Plan does not include control measures that apply directly to construction and operation of individual development projects. Instead, the control strategy includes stationary-source control measures to be implemented through the BAAQMD regulations; mobile-source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with the Metropolitan Transportation Commission (MTC), local governments, transit agencies, and others. The 2017 Clean Air Plan focuses on two paramount goals, both consistent with the mission of BAAQMD:

- Protect air quality and health at the regional and local scale by attaining all national and state air quality standards and eliminating disparities among Bay Area communities in cancer health risk from TACs; and
- Protect the climate by reducing Bay Area GHG emissions to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.

Under BAAQMD's methodology, a determination of consistency with the *CEQA Guidelines* thresholds should demonstrate that a project:

- Supports the primary goals of the 2017 Clean Air Plan;
- Includes applicable control measures from the 2017 Clean Air Plan; and
- Does not disrupt or hinder implementation of any 2017 Clean Air Plan control measures.

Seismic Retrofit Construction

On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating consistency with the 2017 Clean Air Plan's goals. As discussed under Impact AQ-2 below and summarized in **Table 3.3-5** and **Table 3.3-6**, Seismic Retrofit Construction would result in exceedances of BAAQMD thresholds for criteria air pollutants even with implementation of **Mitigation Measure AQ-1** and, thus, would conflict with the BAAQMD 2017 Clean Air Plan goal to attain established air quality standards. Therefore, Seismic Retrofit Construction would conflict with or obstruct the implementation of an applicable air quality plan, and impacts would be significant and unavoidable.

Conservation Measures Construction

<u>Ogier Ponds CM</u>

On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating consistency with the BAAQMD 2017 Clean Air Plan goals. As discussed under Impact AQ-2 below and summarized in **Table 3.3-7** and **Table 3.3-8**, Ogier Ponds CM construction would result in exceedances of BAAQMD thresholds for criteria air pollutants even with implementation of **Mitigation Measure AQ-1** and, thus, would conflict with the BAAQMD 2017 Clean Air Plan goal to attain established air quality standards. Therefore, Ogier Ponds CM construction would conflict with or obstruct the implementation of an applicable air quality plan, and impacts would be significant and unavoidable.

~~North Channel Extension~~

~~On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating consistency with the BAAQMD 2017 Clean Air Plan goals. As discussed under Impact AQ-2 below, North Channel Extension construction would not result in exceedances of BAAQMD thresholds for criteria air pollutants and, thus, would not conflict with the BAAQMD 2017 Clean Air Plan goal to attain established air quality standards. Therefore, North Channel Extension construction would not conflict with or obstruct the implementation of an applicable air quality plan, and impacts would be less than significant.~~

<u>Sediment Augmentation Program</u>

On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating consistency with the BAAQMD 2017 Clean Air Plan goals. As discussed under Impact AQ-2 below and summarized in **Table 3.3-9** and **Table 3.3-10**, Sediment Augmentation Program construction would <u>not</u> result in exceedances of BAAQMD thresholds for criteria air pollutants<u>,</u> ~~even with implementation of **Mitigation Measure AQ-1**~~ and, thus, would <u>not</u> conflict with the BAAQMD 2017 Clean Air Plan goal to attain established air quality standards. Therefore, Sediment Augmentation Program construction would <u>not</u> conflict with or obstruct the implementation of an applicable air quality plan, and impacts would be <u>less than</u> significant ~~and unavoidable~~.

Phase 2 Coyote Percolation Dam CM

On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating consistency with the BAAQMD 2017 Clean Air Plan goals. As discussed under Impact AQ-2 below and summarized in **Table 3.3-11** ~~and **Table 3.3-13**~~, Phase 2 Coyote Percolation Dam CM construction would not result in exceedances of BAAQMD thresholds for criteria air pollutants and, thus, would not conflict with the BAAQMD 2017 Clean Air Plan goal to attain established air quality standards. Therefore, Phase 2 Coyote Percolation Dam CM construction would not conflict with or obstruct the implementation of an applicable air quality plan, and impacts would be less than significant.

Operations and Maintenance

As discussed in Section 3.3.3, *Methodology and Approach to Impact Analysis*, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures, as well as FAHCE Adaptive Management, would result in negligible air pollutant emissions. Therefore, operational impacts with regard to consistency with an applicable air quality plan would be less than significant.

Significance Conclusion Summary

The criteria air pollutant emissions from construction of the Seismic Retrofit component and~~,~~ Ogier Ponds CM~~, and the Sediment Augmentation Program~~ would exceed BAAQMD thresholds. ~~As described under Impact AQ-2, implementation~~ Implementation of **Mitigation Measure AQ-1** would require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. However, even with implementation of **Mitigation Measure AQ-1**, construction of the Seismic Retrofit component~~, Ogier Ponds CM, and the Sediment Augmentation Program~~ would exceed BAAQMD thresholds for ROG and NOx, and construction of the Ogier Ponds CM would exceed the BAAQMD threshold for NO_X. As such, Project construction would conflict with the BAAQMD 2017 Clean Air Plan goal to attain established air quality standards, while Project operation would not exceed any BAAQMD thresholds for the various criteria air pollutants. Therefore, the Project overall would conflict with or obstruct the implementation of an applicable air quality plan, and impacts would be **significant and unavoidable**.

Mitigation Measures

Mitigation Measure AQ-1: Implement Construction Criteria Air Pollutants Reduction Measures

Prior to any ground disturbing and construction activities, Valley Water and/or its contractor will implement construction-related criteria pollutant emission reduction measures and include all such requirements in applicable bid documents, purchase orders, and contracts ~~constructs~~ with successful contractors demonstrating the ability to supply the compliant on-or off-road construction equipment for use. The reduction measures to implement and include on such documentation are as follows:

a. Ensure all off-road construction equipment with greater than 25 hp and operating for more than 20 hours total over the entire duration of construction activities have engines that meet or exceed either USEPA or CARB Tier 4 Final offroad emission standards. In the event that a Tier 4 final engine is not readily available for a specialized piece of equipment, the contractor must demonstrate its attempts to secure a Tier 4 engine, prior to the use of any such engine.

b. Ensure that all on-road trucks and boat engines used during construction are of model year 2010 or newer.

c. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 2 minutes. Provide clear signage that posts this requirement for workers at the entrances to the site and develop an enforceable mechanism to monitor idling time to ensure compliance with this measure.

d. Require that all construction equipment is maintained and properly tuned in accordance with manufacturer's specification. Equipment should be checked by a certified mechanic and determined to be running in proper condition prior to operation.

Impact AQ-2: 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 (Significant and Unavoidable)

Construction

Seismic Retrofit Construction

The Seismic Retrofit component would generate criteria air pollutant and/or pre-cursors of criteria air pollutants emissions during the construction period compared to the existing baseline conditions at the time of the EIR preparation modified by the FOCP implementation. As described above, the criteria air pollutant emissions were estimated for off-road equipment, on-road vehicles, and in-water boats and barges expected to be used during the construction phases. In addition, criteria air pollutant emissions related to blasting were estimated.

Table 3.3-5 summarizes the estimated maximum daily average emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the Seismic Retrofit component**.** As shown in **Table 3.3-5**, Seismic Retrofit construction emissions would exceed the BAAQMD average daily thresholds for ROG in Year 1 through Year 6 and for NOx in Year 1 through Year 7. Therefore, criteria air pollutant emissions from construction of the Seismic Retrofit component would be significant.

However, implementation of **Mitigation Measure AQ-1**, described under Impact AQ-1 above, would require all construction equipment to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. **Table 3.3-6** summarizes the estimated mitigated maximum daily average emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the Seismic Retrofit component**.** As shown in **Table 3.3-6,** mitigated Seismic Retrofit construction emissions would exceed the BAAQMD average daily thresholds for ROG in Year 1 and for NOx in Year 2 through Year 6. Therefore, Seismic Retrofit cumulative construction criteria pollutant impacts related to air pollutant emissions and consistency with associated air quality standards would be significant and unavoidable.

Table 3.3-5. Summary of Modeled Emissions of Criteria Air Pollutants by Year for Seismic Retrofit Construction

	ROG	NO_X	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Construction Year	**Average Daily Emissions (lbs/day)**			
Year 1	398	137 ~~138~~	41	32
Year 2	88	996	33	32
Year 3	82	93	32	30
Year 4	92	1,013 ~~1,015~~	34	32
Year 5	83	920 ~~922~~	30	29
Year 6	86	981 ~~983~~	30	29
Year 7	11	83 ~~84~~	2	2
Maximum Average Daily Emissions	**398**	**1,013** ~~**1,015**~~	**41**	**32**
BAAQMD Thresholds of Significance (average daily emissions)	54	54	82	54
Exceed Threshold?	***Yes***	***Yes***	*No*	*No*

Source: Appendix E: Table 16

Key: ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; lbs/day = pounds per day

Table 3.3-6. Summary of Mitigated Modeled Emissions of Criteria Air Pollutants by Year for Seismic Retrofit Construction

	ROG	NO_X	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Construction Year	**Mitigated Average Daily Emissions(lbs/day)**			
Year 1	67	27 ~~28~~	37	28
Year 2	28	223 ~~224~~	5	5
Year 3	28	148 ~~150~~	5	5
Year 4	32	213 ~~216~~	6	6
Year 5	30	176 ~~178~~	5	5
Year 6	30	259 ~~262~~	6	6
Year 7	3	21 ~~22~~	1	1
Maximum Daily Emissions	**67**	**259** ~~**262**~~	**37**	**28**
BAAQMD Threshold of Significance (average daily emissions)	54	54	82	54

	ROG	NO_X	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Construction Year	**Mitigated Average Daily Emissions(lbs/day)**			
Exceed Threshold?	***Yes***	***Yes***	*No*	*No*

Source: Appendix E: Table 17

Key: ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; lbs/day = pounds per day

Conservation Measures Construction

The emissions from the construction associated with the Conservation Measures components were analyzed using similar methodologies as the Seismic Retrofit component construction.

Ogier Ponds CM

Table 3.3-7 summarizes the estimated maximum daily average emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the Ogier Ponds CM**.** As shown in **Table 3.3-7**, Ogier Ponds CM construction emissions would exceed the BAAQMD average daily threshold for NOx in Years 6 through Year 8. Therefore, criteria air pollutant emissions from construction of the Ogier Ponds CM would be significant.

However, implementation of **Mitigation Measure AQ-1**, described under Impact AQ-1 above, would require all construction equipment to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. **Table 3.3-8** summarizes the estimated mitigated maximum daily average emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the Ogier Ponds CM**.** As shown in **Table 3.3-8,** mitigated Ogier Ponds CM construction emissions would exceed the BAAQMD average daily thresholds for NO_X in Year 6 and Year 7. Therefore, Ogier Ponds CM cumulative construction criteria pollutant impacts related to air pollutant emissions and consistency with associated air quality standards would be significant and unavoidable.

Table 3.3-7. Summary of Modeled Emissions of Criteria Air Pollutants by Year for Ogier Ponds CM Construction

	ROG	NO_X	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Construction Year	**Average Daily Emissions (lbs/day)**			
Year 6	40	231 ~~227~~	15 ~~10~~	10
Year 7	29 ~~28~~	228 ~~223~~	28 ~~15~~	16
Year 8	11	79	8 ~~5~~	5
Maximum Average Daily Emissions	**40**	**231 ~~227~~**	**28 ~~15~~**	**16**
BAAQMD Thresholds of Significance	54	54	82	54
Exceed Threshold?	*No*	***Yes***	*No*	*No*

Source: Appendix E: Table 26

Key: ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; lbs/day = pounds per day

Table 3.3-8. Summary of Mitigated Modeled Emissions of Criteria Air Pollutants by Year for Ogier Ponds CM Construction

	ROG	NO_X	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Construction Year	**Mitigated Average Daily Emissions (lbs/day)**			
Year 6	12 ~~11~~	89 ~~87~~	5	4
Year 7	8	60 ~~59~~	10	6 ~~5~~
Year 8	3	21 ~~22~~	3	2
Maximum Daily Emissions	**12 ~~11~~**	**89 ~~87~~**	**10**	**6 5**
BAAQMD Thresholds of Significance	54	54	82	54
Exceed Threshold?	*No*	***Yes***	*No*	*No*

Source: Appendix E: Table 27

Key: ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; lbs/day = pounds per day

~~North Channel Extension~~

~~North Channel Extension was not analyzed for criteria air pollutant emissions given the short duration, small number of equipment and workers required, and lack of high-emissions activities. The North Channel Extension would consist of grading over one dry season and construction work over 2 months in Year 1, and planting of native vegetation over 2 months in Year 7. Work would require a maximum of 20 onsite workers at any one time and an average of 10 onsite workers for the duration of construction. Construction would require a bulldozer, motor grader, excavator, loader, dump, light trucks, and a water truck. Only minor material movement is expected to occur as part of grading for the channel extension and no other high-emissions activities would occur. The minimal amount of construction activity required for the North Channel Extension is unlikely to exceed BAAQMD's thresholds of significance on its own and would be less than significant.~~

Sediment Augmentation Program

Table 3.3-9 summarizes the estimated maximum daily average emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the Sediment Augmentation Program**.** As shown in **Table 3.3-9**, Sediment Augmentation Program construction emissions would not exceed the BAAQMD average daily threshold for any criteria air pollutant ~~NO_X during every year of construction from Year 2 through Year 15~~. Therefore, criteria air pollutant emissions from construction of the Sediment Augmentation Program would be less than significant.

Additionally ~~However~~, implementation of **Mitigation Measure AQ-1**, described under Impact AQ-1 above, would require all construction equipment to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. **Table 3.3-10** summarizes the estimated mitigated maximum daily average emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the Sediment Augmentation Program**.** As shown in **Table 3.3-10,** mitigated Sediment Augmentation Program construction emissions would not exceed the BAAQMD average daily thresholds any criteria air pollutant ~~for NOx during every year of construction from~~

~~Year 2 through Year 15~~. Therefore, Sediment Augmentation Program cumulative construction criteria pollutant impacts related to air pollutant emissions and consistency with associated air quality standards would be less than significant ~~and unavoidable~~.

Table 3.3-9. Summary of Modeled Emissions of Criteria Air Pollutants by Year for Sediment Augmentation Program Construction

	ROG	**NO_X**	**PM_{10} (exhaust)**	**$PM_{2.5}$ (exhaust)**
Construction Year	**Average Daily Emissions (lbs/day)**			
Year 2	~~35~~	~~291~~	~~26~~	~~14~~
Year 3	~~32~~	~~262~~	~~19~~	~~12~~
Year 4	~~31~~	~~245~~	~~18~~	~~11~~
Year 5	~~30~~	~~233~~	~~17~~	~~11~~
~~Year 6~~	~~29~~	~~224~~	~~17~~	~~10~~
~~Year 7~~	~~28~~	~~216~~	~~16~~	~~10~~
Year 8	<1 ~~27~~	3 ~~211~~	<1 ~~16~~	<1 ~~10~~
~~Year 9~~	~~27~~	~~204~~	~~16~~	~~9~~
Year 10	~~27~~	~~198~~	~~16~~	~~9~~
Year 11	~~26~~	~~192~~	~~15~~	~~9~~
Year 12	~~26~~	~~187~~	~~15~~	~~9~~
Year 13	~~25~~	~~179~~	~~15~~	~~8~~
~~Year 14~~	~~25~~	~~177~~	~~15~~	~~8~~
Year 15	~~25~~	~~174~~	~~14~~	~~8~~
~~Maxim~~um Daily Emissions	**<1 ~~35~~**	**3 ~~291~~**	**<1 ~~26~~**	**<1 ~~14~~**
BAAQMD Thresholds of Significance	~~54~~	~~54~~	~~82~~	~~54~~
Exceed Threshold?	*~~No~~*	*No* ***~~Yes~~***	*~~No~~*	*~~No~~*

Source: Appendix E: Table 46

Key: ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; lbs/day = pounds per day

Table 3.3-10. Summary of Mitigated Modeled Emissions of Criteria Air Pollutants by Year for Sediment Augmentation Program Construction

	ROG	NO_X	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Construction Year	**Mitigated Average Daily Emissions (lbs/day)**			
Year 2	~~9~~	~~72~~	~~19~~	~~7~~
~~Year 3~~	~~9~~	~~64~~	~~12~~	~~6~~
Year 4	~~9~~	~~64~~	~~12~~	~~6~~
Year 5	~~9~~	~~63~~	~~12~~	~~6~~
Year 6	~~8~~	~~62~~	~~12~~	~~6~~
Year 7	~~8~~	~~62~~	~~12~~	~~6~~
~~Year 8~~	<~~1~~ 8	2 ~~62~~	<1 ~~12~~	<~~1~~ 6
Year 9	~~8~~	~~62~~	~~12~~	~~6~~
Year 10	~~8~~	~~62~~	~~12~~	~~6~~
Year 11	~~8~~	~~61~~	~~12~~	~~6~~
~~Year 12~~	~~8~~	~~61~~	~~12~~	~~6~~
Year 13	~~8~~	~~61~~	~~12~~	~~6~~
Year 14	~~8~~	~~61~~	~~12~~	~~6~~
~~Year 1~~5	~~8~~	~~63~~	~~12~~	~~6~~
Maximum Daily Emissions	**<1 ~~9~~**	**2 ~~72~~**	**<1 ~~19~~**	**<1 ~~7~~**
~~BAAQM~~D Thresholds of Significance	~~54~~	~~54~~	~~82~~	~~54~~
Exceed Threshold?	*~~No~~*	*No* ***~~Yes~~***	*~~No~~*	*~~No~~*

Source: Appendix E: Table 47

Key: ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; lbs/day = pounds per day

Phase 2 Coyote Percolation Dam CM

Table 3.3-11 summarizes the estimated maximum daily average emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the Phase 2 Coyote Percolation Dam CM**.** As shown in **Table 3.3-11**, Phase 2 Coyote Percolation Dam CM construction emissions for all criteria air pollutants would be below the BAAQMD average daily thresholds and therefore would be less than significant.

Table 3.3-11. Summary of Modeled Emissions of Criteria Air Pollutants by Year for Phase 2 Coyote Percolation Dam CM

	ROG	NO_X	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Construction Year	**Average Daily Emissions (lbs/day)**			
Year 1	5	39	6	4
Year 2	5	45	8	5
Year 4	2	~~14~~	1	1
Year 5	5	~~35~~	6	3
Maximum Average Daily Emissions	**5**	**45 ~~35~~**	**8 6**	**5 3**
BAAQMD Thresholds of Significance	54	54	82	54
Exceed Threshold?	*No*	*No*	*No*	*No*

Source: Appendix E: Table 36

Key: ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; lbs/day = pounds per day

Fugitive Dust Emissions

Due to the size and length of Project construction and its proximity to sensitive receptors, fugitive dust emission other than from blasting would be significant even with BMP AQ-1. Implementation of **Mitigation Measure AQ-3** described below, would be required. **Mitigation Measure AQ-3** would implement BAAQMD's Enhanced Construction BMPs, which includes planting vegetative ground cover or using a soil stabilizer, applying gravel to unpaved roads, and minimizing the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time. Implementation of **Mitigation Measure AQ-3**, in addition to BMP AQ-1, would reduce fugitive dust emissions by implementing all feasible fugitive dust control measures recommended by BAAQMD and additional measures to control fugitive dust from blasting. Nevertheless, fugitive dust emissions from Seismic Retrofit and Conservation Measure construction are likely to remain high near sensitive receptors, and this impact would be significant and unavoidable.

Unmitigated blasting emissions and mitigated blasting emissions are shown in **Table 3.3-12**. Mitigated blasting emissions account for implementation of **Mitigation Measure AQ-2** which would require the use of wind screens during blasting to reduce the PM emissions associated with blasting. The blasting fugitive PM emissions would be significant without mitigation; however, implementation of **Mitigation Measure AQ-2**, described below, would be required. **Mitigation Measure AQ-2** would require the installation of wind screens during blasting activities to reduce fugitive dust emissions. Implementation of **Mitigation Measure AQ-2** would reduce blasting emissions to less than significant levels with mitigation incorporated.

Table 3.3-12. Blasting Fugitive Dust Emissions

	PM_{10} (dust)	$PM_{2.5}$ (dust)	PM_{10} (dust)	$PM_{2.5}$ (dust)
Year	Unmitigated (tons/year)		Mitigated (tons/year)	
Year 5	1.9	1.9	0.8	0.8
Year 6	6.9	6.9	3.0	3.0
Total	8.7	8.7	3.8	3.8

Source: Appendix E: Table 13.

Key:PM_{10} = particulate matter 10 microns in diameter or less; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Operations and Maintenance

As discussed in Section 3.3.3, *Methodology and Approach to Impact Analysis*, above, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures, as well as FAHCE Adaptive Management, would result in negligible criteria air pollutant emissions. Therefore, regional air quality standards attainment impacts would be less than significant, and no mitigation is required.

Significance Conclusion Summary

Construction of the Seismic Retrofit components and~~,~~ Ogier Ponds CM~~, and the Sediment Augmentation Program,~~ would exceed the BAAQMD average daily thresholds for criteria air pollutants, while construction of the Sediment Augmentation Program and Phase 2 Coyote Percolation Dam CM and Project operational impacts related to criteria air pollutants would be less than significant. Specifically, Seismic Retrofit construction emissions would exceed the BAAQMD average daily thresholds for ROG in Year 1 through Year 6 and for NOx in Year 1 through Year 7. Ogier Ponds CM construction emissions would exceed the BAAQMD average daily threshold for NO_X in Year 6 and Year 7. ~~Sediment Augmentation Program construction emissions would exceed the BAAQMD average daily threshold for NO_X during every year of construction from Year 2 through Year 15.~~ Construction of the ~~North Channel Extension and~~ Phase 2 Coyote Percolation Dam CM and Sediment Augmentation Program would not exceed the BAAQMD average daily thresholds for criteria air pollutants. **Table 3.3-13** summarizes the overall Project construction emissions. As shown in **Table 3.3-13**, overall Project construction emissions would exceed the BAAQMD average daily threshold for ROG during Year 1 through Year 6 and for NO_X during Year 1 through Year 8 ~~15~~.

Table 3.3-13. Summary of Modeled Emissions of Criteria Air Pollutants by Year for Overall Project Construction

	ROG	NO_X	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Construction Year	**Average Daily Emissions (lbs/day)**			
Year 1	401 ~~398~~	159 ~~138~~	45 ~~41~~	34 ~~32~~
Year 2	91 104	1,020 ~~1,133~~	34 46	34 38
Year 3	82 97	932 ~~1,057~~	32 41	30 36
Year 4	92 106	1,013 ~~1,127~~	34 42	32 38
Year 5	83 ~~99~~	920 ~~1,048~~	30 ~~41~~	29 ~~35~~
Year 6	118 132	1,166 ~~1,270~~	42 46	37 41
Year 7	36 ~~50~~	285 ~~394~~	27 ~~24~~	16 ~~21~~
Year 8	11 ~~46~~	79 ~~346~~	8 ~~24~~	5 ~~18~~
~~Year 9~~	~~27~~	~~204~~	~~16~~	~~9~~
Year 10	~~27~~	~~198~~	~~16~~	~~9~~
Year 11	~~26~~	~~192~~	~~15~~	~~9~~
Year 12	~~26~~	~~187~~	~~15~~	~~9~~
~~Year 1~~3	~~25~~	~~179~~	~~15~~	~~8~~
Year 14	~~25~~	~~177~~	~~15~~	~~8~~
Year 15	~~25~~	~~174~~	~~14~~	~~8~~
Maximum Average Daily Emissions	**401 ~~398~~**	**1,166 ~~1,270~~**	**45 46**	**37 41**
BAAQMD Threshold of Significance	~~54~~	~~54~~	~~82~~	~~54~~
Exceed Threshold?	***~~Yes~~***	***~~Yes~~***	*~~No~~*	*~~No~~*

Source: Appendix E: Table 50

Key: ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; lbs/day = pounds per day

In addition, construction-related fugitive dust impacts other than from blasting would remain significant even with implementation of BAAQMD basic BMPs (BMP AQ-1) and **Mitigation Measure AQ-3**, because emissions would remain high near sensitive receptors for a relatively long duration. Fugitive dust impacts from blasting emissions would be less than significant with implementation of **Mitigation Measure AQ-2**. **Mitigation Measure AQ-2**, described below, would require the installation of wind screens during blasting activities to reduce fugitive dust emissions. **Mitigation Measure AQ-3**, described below, would implement BAAQMD's Enhanced Construction BMPs, which includes planting vegetative ground cover or using a soil stabilizer, applying gravel to unpaved roads, and minimizing the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time.

Implementation of **Mitigation Measure AQ-1**, described under Impact AQ-1 above, would require all construction equipment to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. Mitigated Seismic Retrofit construction emissions would exceed the BAAQMD average daily thresholds for ROG in Year 1 and for NOx in Year 2 through Year 6. Mitigated Ogier Ponds CM construction emissions would exceed the BAAQMD average daily thresholds for NO_X in Year 6 and Year 7. ~~Mitigated Sediment Augmentation Program construction emissions would exceed the BAAQMD average daily thresholds for NO_X during every year of construction from Year 2 through Year 15.~~ **Table 3.3-14** summarizes the mitigated overall Project construction emissions. As shown in **Table 3.3-14**, mitigated overall Project construction emissions would exceed the BAAQMD average daily threshold for ROG during Year 1 ~~6~~ and for NO_X during Year 2 through Year 7 ~~15~~. Since criteria air pollutant exhaust emissions would remain above the BAAQMD significance threshold even with implementation of **Mitigation Measures AQ-1, AQ-2, and AQ-3**, the overall Project impact related to regional air quality, as well as fugitive dust emissions, would be **significant and unavoidable**.

Table 3.3-14. Summary of Mitigated Modeled Emissions of Criteria Air Pollutants by Year for Overall Project Construction

	ROG	NO_X	PM_{10} (exhaust)	$PM_{2.5}$ (exhaust)
Construction Year	**Average Daily Emissions (lbs/day)**			
Year 1	68 ~~67~~	32 ~~28~~	38 ~~37~~	29 ~~28~~
Year 2	29 ~~32~~	230 ~~258~~	5 ~~14~~	6 ~~8~~
Year 3	28 ~~32~~	148 ~~180~~	5 ~~11~~	5 ~~8~~
Year 4	32 ~~36~~	213 ~~245~~	6 ~~11~~	6 ~~8~~
Year 5	30 ~~34~~	176 ~~213~~	5 ~~13~~	5 ~~9~~
Year 6	39 ~~43~~	330 ~~360~~	10 ~~15~~	8 ~~11~~
Year 7	10 ~~14~~	75 ~~107~~	10 ~~16~~	6 ~~9~~
Year 8	3 ~~14~~	21 ~~99~~	3 ~~17~~	2 ~~9~~
~~Year 9~~	~~8~~	~~62~~	~~12~~	~~6~~
Year 10	~~8~~	~~62~~	~~12~~	~~6~~
Year 11	~~8~~	~~61~~	~~12~~	~~6~~
Year 12	~~8~~	~~61~~	~~12~~	~~6~~
Year 13	~~8~~	~~61~~	~~12~~	~~6~~
~~Year 1~~4	~~8~~	~~61~~	~~12~~	~~6~~
Year 15	~~8~~	~~63~~	~~12~~	~~6~~
~~Maxim~~um Average Daily Emissions	**68 ~~67~~**	**330 ~~360~~**	**38 ~~37~~**	**29 ~~28~~**
BAAQMD Threshold of Significance	54	~~54~~	82	54
Exceed Threshold?	***Yes***	***~~Yes~~***	*No*	*No*

Source: Appendix E: Table 51

Key: ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; lbs/day = pounds per day

These significant criteria air pollutant emissions could lead to increased concentrations of pollutants in the atmosphere and could result in health effects due to the increased emissions. TAC emissions are evaluated further in the HRA, and evaluated under Impact AQ-3 along with the primary $PM_{2.5}$ concentration. The ambient concentration of criteria pollutants is a result of complex atmospheric chemistry. Photochemical grid-based models simulate the chemical interactions and three-dimensional dispersion patterns on a regional, statewide, and national scale. These models are complex and require significant expertise, knowledge, and resources as they build on other third-party models and processing tools that characterize meteorology, emissions, and other environmental conditions, such as land cover, radiative properties, and boundary conditions. Use of these models is typically beyond the resources available for air quality analysis prepared pursuant to CEQA, and even if such an analysis was to be completed consideration would need be given to ensure the results would be meaningful based on modeling and data limitations. This information is not widely available and, where it is available, its use would be speculative.

$NO_{\cancel{o}x}$ and ROG are precursors to ozone, and NO_x, ROG, and sulfur oxides (SO_x) are precursors to secondarily formed $PM_{2.5}$. Chemical and physical processes transform some of these precursors to the criteria pollutant concentrations in the atmosphere. Multiple variables determine whether emissions of air pollutants from the project move and disperse in the atmosphere in a manner in which concentrations of criteria pollutants would become elevated and result in health impacts. A specific mass of precursor emissions does not equate to an equivalent concentration of the resultant ozone or secondary particulate matter in that area. The resulting health effects of ambient air concentrations are further based on a complex relationship of multiple variables and factors. The calculated health effects are dependent upon the concentrations of pollutants to which the receptors are exposed the number and type of exposure pathways for a receptor, and the intake parameters from a receptor, which vary based upon age and sensitivity (e.g., presence of pre-existing conditions). Health effects would be more likely for individuals with greater susceptibility to exposure, and the location of receptors relative to the project impacts would affect where the receptors are exposed to project-related pollutants.

The following is a summary of the health effects from ozone, $PM_{2.5}$ and PM_{10}. Meteorology and terrain play major roles in ozone formation, and conditions for maximum ozone generation occur on days with low wind speeds or stagnant air, warm temperature, and cloudless skies. Short-term exposure (lasting a few hours) to ozone at levels typically observed in the SFBAAB can result in health effects. When inhaled, $PM_{2.5}$ and PM_{10} can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks and cause or aggravate bronchitis and other lung diseases. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper in the lungs and damage lung tissues. Health effects of $PM_{2.5}$ include mortality (all causes), hospital admissions (respiratory, asthma, cardiovascular), emergency room visits (asthma), and acute myocardial infraction (non-fatal). For ozone, the endpoints are mortality, emergency room visits (respiratory), and hospital admissions (respiratory).

Since ROG and NO_x emissions will remain above the significance threshold, these emissions would be considered **significant and unavoidable**.

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

AQ-2 Implement Construction Blasting Fugitive Dust Emissions Reduction

Valley Water and/or its contractor will implement construction-related fugitive dust emission reduction measures and include all requirements in applicable bid documents, purchase orders, and contracts ~~constructs~~ with successful contractors demonstrating the ability to supply the blasting screens for use prior to any ground disturbing and construction activities. The Contractor will install three-sided wind screens during blasting activities. Wind screens should be made of a solid fabric or other material capable of catching at least 75 percent of particulate matter greater than 2.5 micrometers in diameter. Screens should be used in combination with watering of the blasting area.

AQ-3 Implement BAAQMD Enhanced Construction BMPs

To further reduce construction-related emissions that exceed the BAAQMD's thresholds of significance, Valley Water will require its construction contractors to comply with the following enhanced BMPs during construction:

- Vegetative ground cover (e.g., fast-germinating native grass seed) will be planted in disturbed areas as soon as possible in light of construction phasing and scheduling by Valley Water and watered appropriately until vegetation is established. Where vegetative ground cover is not feasible, soil stabilizer will be used.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time will be limited whenever feasible. Activities will be phased to reduce the amount of disturbed surfaces at any one time as permitted by construction phasing and scheduling.

Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations (Significant and Unavoidable)

Construction

Construction of the Seismic Retrofit component and Conservation Measures would generate TAC emissions and release $PM_{2.5}$ in proximity to nearby sensitive receptors. In order to determine the impacts of these TAC and $PM_{2.5}$ emissions exposure to sensitive receptors, an HRA was conducted following OEHHA and BAAQMD guidelines for comparison to BAAQMD's risk thresholds for projects (Appendix E). The analysis discusses risk with respect to receptors within 1,000 feet of each specific construction phase, as well as the total risk to receptors from construction of the Seismic Retrofit component and the Conservation Measures components regardless of distance between the activity and the receptor. Air pollution sensitive receptors in proximity to the Project area are discussed in Section 3.3.1.3, *Valley Water and Anderson Dam.* This evaluation does not include NOA. Refer to Section 3.10, *Hazards and Hazardous Materials*, for an evaluation of NOA.

Seismic Retrofit Construction

The results of the HRA for Seismic Retrofit construction are shown in **Table 3.3-15**. As shown in **Table 3.3-15**, emissions from Seismic Retrofit construction would exceed the BAAQMD thresholds for excess lifetime cancer risk, acute HI, and $PM_{2.5}$ concentrations. Therefore, Seismic Retrofit construction would expose receptors to substantial pollutant concentrations and impacts would be significant.

Implementation of **Mitigation Measures AQ-1 and AQ-2**, described under Impacts AQ-1 and AQ-2 above, would be required. **Mitigation Measure AQ-1** would require all diesel construction equipment to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. **Mitigation Measure AQ-2** would require the installation of three-sided wind screens during blasting activities. **Table 3.3-16** summarizes the mitigated Seismic Retrofit construction HRA results. As shown in **Table 3.3-16**, mitigated Seismic Retrofit construction risks would still exceed the BAAQMD thresholds for excess lifetime cancer risk, acute HI, and $PM_{2.5}$ concentrations. Therefore, Seismic Retrofit construction would expose receptors to substantial pollutant concentrations and impacts would be significant and unavoidable.

Table 3.3-15. Summary of Seismic Retrofit Construction Health Risk Assessment Results

	Excess Lifetime Cancer Risk	Chronic HI	Acute HI	$PM_{2.5}$ Concentration
	(in a million)	(unitless)	(unitless)	($\mu g/m^3$)
Seismic Retrofit Construction Risks	80 ~~81~~	0.075 ~~0.081~~	15	0.77 ~~1.7~~[1]
BAAQMD Thresholds of Significance	10	1	1	0.3
Exceed Threshold?	***Yes***	*No*	***Yes***	***Yes***

Source: Appendix E: Table 56

Key: HI = hazard index; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; $\mu g/m^3$ = micrograms per cubic meter

Notes: [1] The original value of 1.7 $\mu g/m^3$ was an error due to an erroneously high number of construction hours for fugitive dust emissions, which was corrected during remodeling based on Project revisions. This error was only specific to the Seismic Retrofit.

Table 3.3-16. Summary of Mitigated Seismic Retrofit Construction Health Risk Assessment Results

	Excess Lifetime Cancer Risk	Chronic HI	Acute HI	$PM_{2.5}$ Concentration
	(in a million)	(unitless)	(unitless)	($\mu g/m^3$)
Mitigated Seismic Retrofit Construction Risks	17	0.016 ~~0.017~~	3.7	0.43 ~~0.58~~
BAAQMD Thresholds of Significance	10	1	1	0.3
Exceed Threshold?	***Yes***	*No*	***Yes***	***Yes***

Source: Appendix E: Table 56

Key: HI = hazard index; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; $\mu g/m^3$ = micrograms per cubic meter

Conservation Measures Construction

Ogier Ponds CM

The results of the HRA for Ogier Ponds CM construction are shown in **Table 3.3-17**. As shown in **Table 3.3-17**, emissions from Ogier Ponds CM construction would not exceed the BAAQMD thresholds. Therefore, Ogier Ponds CM construction would not expose receptors to substantial pollutant concentrations and impacts would be less than significant.

Implementation of **Mitigation Measure AQ-1**, described under Impact AQ-1 above, would require all diesel construction equipment to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. **Table 3.3-18** summarizes the mitigated Ogier Ponds CM construction HRA results. As shown in **Table 3.3-18**, mitigated Ogier Ponds CM construction risks would further reduce risk and would not exceed the BAAQMD thresholds. Therefore, Ogier Ponds CM construction would not expose receptors to substantial pollutant concentrations and impacts would remain less than significant.

Table 3.3-17. Summary of Ogier Ponds CM Construction Health Risk Assessment Results

	Excess Lifetime Cancer Risk	Chronic HI	Acute HI	$PM_{2.5}$ Concentration
	(in a million)	(unitless)	(unitless)	($\mu g/m^3$)
Ogier Ponds CM Construction Risks	2.7 ~~2.8~~	0.012	0.0039	0.19
BAAQMD Thresholds of Significance	10	1	1	0.3
Exceed Threshold?	*No*	*No*	*No*	*No*

Source: Appendix E: Table 57

Key: HI = hazard index; PM2.5 = particulate matter 2.5 microns or less in diameter; µg/m³ = micrograms per cubic meter

Table 3.3-18. Summary of Mitigated Ogier Ponds CM Construction Health Risk Assessment Results

	Excess Lifetime Cancer Risk	Chronic HI	Acute HI	$PM_{2.5}$ Concentration
	(in a million)	(unitless)	(unitless)	($\mu g/m^3$)
Mitigated Ogier Ponds CM Construction Risks	0.77 ~~0.8~~	0.0037	0.0039	0.064 ~~0.065~~
BAAQMD Thresholds of Significance	10	1	1	0.3
Exceed Threshold?	*No*	*No*	*No*	*No*

Source: Appendix E: Table 57

Key: HI = hazard index; PM2.5 = particulate matter 2.5 microns or less in diameter; µg/m³ = micrograms per cubic meter

~~North Channel Extension~~

~~North Channel Extension was not analyzed in the HRA. The North Channel Extension would consist of grading over one dry season and construction work over 2 months in Year 1, and planting of native vegetation over 2 months in Year 7. Work would require a maximum of 20 onsite workers at any one time and an average of 10 onsite workers for the duration of construction. Construction would require a bulldozer, motor grader, excavator, loader, dump, light trucks, and a water truck. Only minor material movement is expected to occur as part of grading for the channel extension and no other high-emissions activities would occur. This amount of construction activity is unlikely to exceed BAAQMD's significance thresholds for risk and hazards, and on its own would be less than significant.~~

Sediment Augmentation Program

The results of the HRA for Sediment Augmentation Program construction are shown in **Table 3.3-19**. As shown in **Table 3.3-19**, emissions from Sediment Augmentation Program construction would not exceed the BAAQMD thresholds for excess lifetime cancer risk and $PM_{2.5}$ concentrations. Therefore, Sediment Augmentation Program construction would not expose receptors to substantial pollutant concentrations and impacts would be less than significant.

Implementation of **Mitigation Measure AQ-1**, described under Impact AQ-1 above, would require all diesel construction equipment to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. **Table 3.3-16** summarizes the mitigated Sediment Augmentation Program construction HRA results. As shown in **Table 3.3-16**, mitigated Sediment Augmentation Program construction risks would not exceed the BAAQMD thresholds for excess lifetime cancer risk ~~even~~ with mitigation. Therefore, Sediment Augmentation Program construction would not expose receptors to substantial pollutant concentrations and impacts would ~~be~~ remain less than significant ~~and unavoidable~~.

Table 3.3-19. Summary of Sediment Augmentation Program Construction Health Risk Assessment Results

	Excess Lifetime Cancer Risk	Chronic HI	Acute HI	$PM_{2.5}$ Concentration
	(in a million)	(unitless)	(unitless)	(µg/m³)
Sediment Augmentation Program Construction Risks	<0.001 ~~38~~	<0.001 ~~0.015~~	<0.001 ~~0.0064~~	<0.001 ~~0.304~~
BAAQMD Thresholds of Significance	10	1	1	0.3
Exceed Threshold?	*No* ~~***Yes***~~	*No*	*No*	*No* ~~***Yes***~~

Source: Appendix E: Table 59

Key: HI = hazard index; PM2.5 = particulate matter 2.5 microns or less in diameter; µg/m³ = micrograms per cubic meter

Table 3.3-20. Summary of Mitigated Sediment Augmentation Program Construction Health Risk Assessment Results

	Excess Lifetime Cancer Risk	Chronic HI	Acute HI	$PM_{2.5}$ Concentration
	(in a million)	(unitless)	(unitless)	(µg/m³)
Mitigated Sediment Augmentation Program Construction Risks	<0.001 ~~12~~	<0.001 ~~0.0039~~	<0.001 ~~0.0064~~	<0.001 ~~0.12~~
BAAQMD Thresholds of Significance	10	1	1	0.3
Exceed Threshold?	*No* ~~*Yes*~~	*No*	*No*	No

Source: Appendix E: Table 59

Key: HI = hazard index; PM2.5 = particulate matter 2.5 microns or less in diameter; µg/m³ = micrograms per cubic meter

Phase 2 Coyote Percolation Dam CM

The results of the HRA for Phase 2 Coyote Percolation Dam CM construction are shown in **Table 3.3-21.** As shown in **Table 3.3-21**, emissions from Phase 2 Coyote Percolation Dam CM construction would not exceed the BAAQMD thresholds. Therefore, Phase 2 Coyote Percolation Dam CM construction would not expose receptors to substantial pollutant concentrations and impacts would be less than significant.

Implementation of **Mitigation Measure AQ-1**, described under Impact AQ-1 above, would require all diesel construction equipment to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. **Table 3.3-22** summarizes the mitigated Phase 2 Coyote Percolation Dam CM HRA results. As shown in **Table 3.3-22**, mitigated Phase 2 Coyote Percolation Dam CM construction risks would further reduce risk and would not exceed the BAAQMD thresholds. Therefore, Phase 2 Coyote Percolation Dam CM construction would not expose receptors to substantial pollutant concentrations and impacts would remain less than significant.

Table 3.3-21 Summary of Phase 2 Coyote Percolation Dam CM Construction Health Risk Assessment Results

	Excess Lifetime -Cancer Risk	Chronic HI	Acute HI	$PM_{2.5}$ Concentration
	(in a million)	(unitless)	(unitless)	(µg/m³)
Phase 2 Coyote Percolation Dam CM Construction Risks	2.7 0~~.26~~	0.0018 ~~0.0013~~	0.023 ~~0.017~~	0.051 ~~0.039~~
BAAQMD Thresholds of Significance	10	1	1	0.3
Exceed Threshold?	*No*	*No*	*No*	*No*

Source: Appendix E: Table 58

Key: HI = hazard index; PM2.5 = particulate matter 2.5 microns or less in diameter; µg/m3 = micrograms per cubic meter

Table 3.3-22. Summary of Mitigated Phase 2 Coyote Percolation Dam CM Construction Health Risk Assessment Results

	Excess Lifetime -Cancer Risk	Chronic HI	Acute HI	$PM_{2.5}$ Concentration
	(in a million)	(unitless)	(unitless)	(μg/m^3)
Mitigated Phase 2 Coyote Percolation Dam CM Construction Risks	0.48 ~~0.064~~	0.00034 ~~0.00032~~	0.023 ~~0.017~~	0.016
BAAQMD Thresholds of Significance	10	1	1	0.3
Exceed Threshold?	*No*	*No*	*No*	*No*

Source: Appendix E: Table 58

Key: HI = hazard index; PM2.5 = particulate matter 2.5 microns or less in diameter; µg/m3 = micrograms per cubic meter

Operations and Maintenance

As discussed in Section 3.3.3, *Methodology and Approach to Impact Analysis*, above, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures, as well as FAHCE Adaptive Management, would result in negligible TAC emissions. Therefore, operational impacts related to potential exposure to TACs would be less than significant, and no mitigation is required.

Significance Conclusion Summary

The results of the HRA for all Project construction activities, including the Seismic Retrofit components and Conservation Measures components, are shown in **Table 3.3-23**. Project operational impacts related to TAC emissions would be **less than significant.** Specifically, as shown in **Table 3.3-23**, Project construction activities related to these components would exceed BAAQMD's significance thresholds for excess lifetime cancer risk, acute HI, and $PM_{2.5}$ concentration.

Implementation of **Mitigation Measure AQ-1** and **Mitigation Measure AQ-2**, described under Impacts AQ-1 and AQ-2 above, would be required. **Mitigation Measure AQ-1** would require all diesel construction equipment to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. **Mitigation Measure AQ-2** would require the installation of three-sided wind screens during blasting activities. **Table 3.3-24** summarizes the mitigated overall Project construction HRA results. As shown in **Table 3.3-24**, mitigated overall Project construction risks would exceed the BAAQMD thresholds for excess lifetime cancer risk, acute HI, and $PM_{2.5}$ concentration even with mitigation. Therefore, the Project overall would expose receptors to substantial pollutant concentrations, and impacts would be **significant and unavoidable**.

Table 3.3-23. Summary of Overall Project Construction Health Risk Assessment Results

	Excess Lifetime Cancer Risk	Chronic HI	Acute HI	$PM_{2.5}$ Concentration
	(in a million)	(unitless)	(unitless)	(µg/m³)
Overall Project Construction Risks	80 ~~82~~	0.077 ~~0.094~~	15	0.77[1] ~~1.7~~
BAAQMD Thresholds of Significance	10	1	1	0.3
Exceed Threshold?	***Yes***	*No*	***Yes***	***Yes***

Source: Appendix E: Table 60

Key: HI = hazard index; PM2.5 = particulate matter 2.5 microns or less in diameter; µg/m3 = micrograms per cubic meter

Notes: [1] The original value of 1.7 µg/m³ was an error due to an erroneously high number of construction hours for fugitive dust emissions, which was corrected during remodeling based on Project revisions. This error was only specific to the Seismic Retrofit.

Table 3.3-24. Summary of Mitigated Overall Project Construction Health Risk Assessment Results

	Excess Lifetime Cancer Risk	Chronic HI	Acute HI	$PM_{2.5}$ Concentration
	(in a million)	(unitless)	(unitless)	(µg/m³)
Mitigated Overall Project Construction Risks	17 ~~21~~	0.017 ~~0.021~~	3.7	0.43 ~~0.64~~
BAAQMD Thresholds of Significance	10	1	1	0.3
Exceed Threshold?	***Yes***	*No*	***Yes***	***Yes***

Source: Appendix E: Table 60

Key: HI = hazard index; PM2.5 = particulate matter 2.5 microns or less in diameter; µg/m3 = micrograms per cubic meter

BAAQMD *CEQA Guidelines* establish an incremental $PM_{2.5}$ concentration CEQA significance level of 0.3 µg/m³, based on an annual average. There are also NAAQS and CAAQS s for $PM_{2.5}$. The $PM_{2.5}$ NAAQS include an annual average concentration of 12 µg/m³ and a 24-hour average concentration of 35 µg/m³ and are both based on the 8th highest concentration for that averaging time. The $PM_{2.5}$ CAAQS include an annual average concentration of 12 µg/m³, but the State has not established a 24-hour average $PM_{2.5}$ CAAQS. $PM_{2.5}$ concentrations due to construction activities at the MEI are shown in **Table 3.3-25**. The $PM_{2.5}$ concentrations associated with mitigated emissions from construction of the Project represent a small fraction of background and a small fraction of the NAAQS and CAAQS, which provides additional context of the fine particulate matter impacts. While incremental $PM_{2.5}$ concentrations exceed the CEQA significance level of 0.3 µg/m³ when the 8th highest concentrations at the MEI are added to the background concentrations, as shown in **Table 3.3-25**, the concentrations for the mitigated scenario would not exceed the NAAQS or CAAQS. Nevertheless, since Project $PM_{2.5}$ concentration would exceed the BAAQMD threshold of 0.3 µg/m³ with mitigation, this impact would be **significant and unavoidable.**

Table 3.3-25. Background Fine Particulate Matter Concentrations in the Project Area

Pollutant	Averaging Period	AAQS ($\mu g/m^3$)	Form of Standard	Background Concentration [1] ($\mu g/m^3$)	Unmitigated Project Contribution at $PM_{2.5}$ MEI[2] ($\mu g/m^3$)	Mitigated Project Contribution at $PM_{2.5}$ MEI[2] ($\mu g/m^3$)
PM2.5	24-Hour	35 (NAAQS)	8th Highest Maximum Concentration	25 32	1.6 10.3[4]	0.84 ~~1.32~~
PM2.5	Annual	12.0 (NAAQS[3] & CAAQS)	Annual Mean	8.9 10.3	0.67 1.0	0.35 ~~0.48~~

Source: Appendix E: Summary Table P ~~K~~.

Notes:

[1] Background concentrations are USEPA design values from ~~2019-~~2021-2023 for the monitor located at San José – Knox Avenue, the closest $PM_{2.5}$ monitor to the Project area.

[2] Emission rates modeled as emissions in lb/year converted to g/s for 365 days (for comparison to the annual NAAQS) and for a typical day in Year 4 (the Seismic Retrofit construction year of maximum unmitigated and mitigated $PM_{2.5}$ emissions). Emission rates conservatively include fugitive $PM_{2.5}$. The Seismic Retrofit construction contribution was evaluated at the Project $PM_{2.5}$ MEI.

[3] On February 7, 2024, the U.S. Environmental Protection Agency (EPA) strengthened the NAAQS for fine particle pollution ($PM_{2.5}$) by revising the level of the primary (health-based) annual $PM_{2.5}$ standard to 9.0 $\mu g/m^3$. The effective date of the new standard was May 6, 2024. However, the 12.0 $\mu g/m^3$ standard was the standard at the time of Draft EIR preparation, and the Project's unmitigated and mitigated contribution remains well below both the former and new NAAQS standard.

[4] The original value of 10.3 $\mu g/m^3$ was an error due to an erroneously high number of construction hours for fugitive dust emissions, which was corrected during remodeling based on Project revisions. This error was only specific to the Seismic Retrofit.

Key: AAQS = Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; MEI = maximum exposed individual; NAAQS = National Ambient Air Quality Standards; $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter; $\mu g/m^3$ = micrograms per cubic meter

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

AQ-2 Implement Construction Blasting Fugitive Dust Emissions Reduction

Impact AQ-4: Other emissions adversely affecting a substantial number of people **(Less than Significant)**

Construction

Seismic Retrofit Construction

During Seismic Retrofit construction, odors would be emitted from diesel exhaust generated by construction equipment and haul trucks. Construction and hauling activities near existing receptors would be temporary, intermittent, and only during construction hours. Additionally, the diesel exhaust emissions and the associated odors would be diffusive in nature (i.e., spread out over several large work areas) and would not persist upon completion of construction.

When the reservoir and channels are fully dewatered during construction, odors could be emitted from exposed organic matter. However, the exposed organic matter is not anticipated to be a permanent odor source because the sediment would dry out or be removed during clearing and grubbing to allow for a clear construction site. Odors could be emitted from the short-term stockpiling of sediment materials. However, through the implementation of BMP AQ-2, Seismic Retrofit construction activities would avoid stockpiling odorous material near sensitive receptors.

BAAQMD has not developed an odor screening distance for this Project land use type, which suggests that construction and operation of reservoirs/waterbodies are not common sources of odor. In addition, in comparison to the odor screening distances, the predominant winds are from the north-northwest. While there are nearby residences to the south and southeast of the Project area (i.e., less than 1 mile), those locations would be potentially downwind of active construction work areas on a temporary basis and are unlikely to experience substantial or long-term odors from the Project.

Based on data provided by BAAQMD through a public records request in which Ramboll requested all publicly available odor complaints in Morgan Hill, California, for the most recent and available three-year period (i.e., February 2020 through February 2023), BAAQMD has received zero confirmed odor complaints regarding odor associated with Anderson Dam (including Anderson Lake and associated recreational activities) (BAAQMD 2023b ~~2023a~~). Thus, based on the odor complaint history and the temporary nature of construction activities, Seismic Retrofit construction would not generate objectionable odors affecting a substantial number of people, and impacts would be less than significant.

Conservation Measures Construction

During Conservation Measure construction, odors would be emitted from diesel exhaust generated by construction equipment and haul trucks. Construction and hauling activities near existing receptors would be temporary, intermittent, and only during construction hours. Additionally, the diesel exhaust emissions and associated odors would be diffusive in nature (i.e., spread out over several large work areas) and would not persist upon completion of construction.

When the reservoir and channels are fully dewatered during construction, odors could be emitted from exposed organic matter. However, the exposed organic matter is not anticipated to be a permanent odor source, because the sediment would dry out or be removed during clearing and grubbing to allow for a clear construction site. Odors could be emitted from the short-term stockpiling of the sediment materials. However, through the implementation of BMP AQ-2, Conservation Measure construction activities would avoid stockpiling odorous material nearby sensitive receptors. Additionally, since the Conservation Measures Project areas are smaller in size and scale than the Seismic Retrofit Project area, the number of odor complaints received for Anderson Dam is expected to be representative for the Conservation Measures. Thus, based on the odor complaint history and the temporary nature of construction activities, Conservation Measures construction would not generate objectionable odors affecting a substantial number of people, and impacts would be less than significant.

Operations and Maintenance

As discussed in Section 3.3.3, *Methodology and Approach to Impact Analysis*, above, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures, as well as FAHCE Adaptive Management, would not result in emissions of odor. Therefore, there would be no operational impact related to exposure to odors.

Significance Conclusion Summary

As described above, construction equipment would emit diesel exhaust odors, and the disturbance of soils and dewatered channels and reservoirs could emit organic matter odors. These odors would be temporary and intermittent. Implementation of BMP AQ-2 would require construction avoid stockpiling of odorous material near sensitive receptors. Currently, there have been no reported odor complaints to BAAQMD. Construction odors are not anticipated to be notably different for the Project compared to the existing baseline conditions at the time of the EIR preparation modified by the FOCP implementation. Odors associated with operations and maintenance are not expected. Thus, based on the odor complaint history, implementation of BMP AQ-2, and the temporary nature of construction activities, the overall Project impact related to exposure to odors would be **less than significant**.

Mitigation Measures

No mitigation is required.

3.3.5 Cumulative Impacts

The cumulative impact geographic study area for air quality is the Santa Clara Valley Subregion of the SFBAAB. The Santa Clara Valley Subregion is bounded by the San Francisco Bay to the north and by mountains to the east, south, and west. The Santa Clara Valley has a high concentration of industrial activity at its northern end in Silicon Valley. In addition, the Santa Clara Valley's large population and many work-site destinations generate the highest levels of mobile-sourced emissions of any subregion in the SFBAAB (BAAQMD 2017a ~~2017c~~).

The approach to the cumulative impacts analysis and list of foreseeable future projects, programs, and plans considered in the cumulative impact analysis is included in Section 3.0.5, *Approach to Cumulative Impacts*.

This section describes the Project's contribution to cumulative air quality impacts, as summarized in **Table 3.3-26**. Cumulative impact thresholds for air quality are the same as the impact thresholds presented in Section 3.3.3.8, *Thresholds of Significance*.

Table 3.3-26. Summary of Project Impact Contribution to Cumulative Air Quality Impacts

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan	No ~~Yes~~	Y~~es~~	C~~C~~	MM AQ-1	Y~~es~~
Cumulative Impact AQ-2: 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	No ~~Yes~~	Y~~es~~	C~~C~~	MM AQ-1 MM AQ-2 MM AQ-3	Y~~es~~
Cumulative Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations	No	No	NCC	MM AQ-1 MM AQ-2	No
Cumulative Impact AQ-4: Other emissions adversely affecting a substantial number of people	N~~o~~	N~~o~~	NC~~C~~	N/A	N~~o~~

Key: CC = cumulatively considerable; MM = Mitigation Measure; N/A = not applicable; NCC = not cumulatively considerable

Cumulative Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan **(Cumulatively Considerable)**

The SFBAAB is in non-attainment for federal standards of ozone and $PM_{2.5}$ and in non-attainment for the State standard for ozone, $PM_{2.5}$, and PM_{10}. The SFBAAB is in attainment of all other federal and State standards. Construction of the Seismic Retrofit components and Conservation Measures of the Project would exceed the BAAQMD average daily thresholds for criteria air pollutants, which would conflict with or obstruct implementation of the applicable air quality plan.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction or operation activities overlap within the same timeframe as the construction activities for the Project.

Cumulative Effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; therefore, these two projects would not result in cumulative impacts related to criteria air pollutants. There would be no cumulatively significant effect.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur within the SFBAAB. Construction or operation of future projects, programs, and plans could overlap with the <u>8</u> ~~15~~-year construction schedule that Seismic Retrofit components and Conservation Measures construction would occur. Construction of the Project would exceed the BAAQMD average daily thresholds for criteria air pollutants, which would conflict with or obstruct implementation of the applicable air quality plan. In combination with construction or operation occurring at the same time from <u>probable</u> ~~probably~~ future projects, plans, and programs, Project construction could create localized areas of unhealthy air pollution levels or air quality nuisances, which would further conflict with or obstruct implementation of the applicable air quality plan. Therefore, the cumulative impact resulting from the Project in combination with other probable future projects would be cumulatively significant, and the Project's contribution would be cumulatively considerable.

Significance Conclusion Summary

Valley Water would reduce the Project's incremental contribution to cumulative impacts on criteria air pollutants through implementation of **Mitigation Measure AQ-1**, which would require all construction equipment to be equipped with Tier 4 engines and would require all on-road <u>truck</u> engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. Construction of the Seismic Retrofit components and Conservation Measures would exceed the BAAQMD average daily thresholds for criteria air pollutants without mitigation and this impact would be significant and cumulatively considerable impact before mitigation. With implementation of **Mitigation Measure AQ-1**, construction of the Seismic Retrofit components and Conservation Measures would exceed the BAAQMD average daily thresholds for criteria air pollutants with mitigation. The Project's contribution to cumulative impacts on criteria air pollutants remains **cumulatively considerable**.

Mitigation Measures

AQ-1 Construction Air Quality Criteria Air Pollutant Mitigation Measure

***Cumulative Impact AQ-2: 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* (Cumulatively Considerable)**

The SFBAAB is in non-attainment for federal standards of ozone and $PM_{2.5}$ and in non-attainment for the State standard for ozone, $PM_{2.5}$, and PM_{10}. The SFBAAB is in attainment of all other federal and State standards. Construction of the Seismic Retrofit components and Conservation Measures of the Project would exceed the BAAQMD average daily thresholds for criteria air pollutants, which could result in the net increase of criteria air pollutants.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction or operation activities overlap within the same timeframe as the construction activities for the Project.

Cumulative Effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin. Together, these two projects would not result in cumulative impacts related to criteria air pollutants. There would be no cumulative effect.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur within the SFBAAB. Construction or operation of future projects, programs, and plans could overlap with the 8 ~~15~~-year construction schedule that Seismic Retrofit components and Conservation Measures construction would occur. Construction of the Project would exceed the BAAQMD average daily thresholds for criteria air pollutants. In combination with construction or operation occurring at the same time from probable future projects, plans, and programs, the cumulative impact would be significant. The construction of other projects could generate fugitive dust in addition to fugitive dust from the Project and the cumulative impact of fugitive dust would be significant Therefore, the cumulative impact on the net increase of any criteria air pollutants resulting from the Project in combination with other probable future projects is cumulatively significant, and the Project's contribution would be cumulatively considerable.

Significance Conclusion Summary

Valley Water would reduce the Project's incremental contribution to cumulative impacts on criteria air pollutants through implementation of **Mitigation Measure AQ-1**, which would require all construction equipment to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** would also minimize construction equipment idling time and require regular maintenance for all equipment. Construction of the Seismic Retrofit components and Conservation Measures would exceed the BAAQMD average daily thresholds for criteria air pollutants without mitigation and this impact would be a significant and cumulatively considerable impact before mitigation. With implementation of **Mitigation Measure AQ-1**, construction of the Seismic Retrofit components and Conservation Measures would exceed the BAAQMD average daily thresholds for criteria air pollutants with mitigation. Fugitive dust impacts from blasting emissions would be less than significant with implementation of **Mitigation Measure AQ-2**, which would require the installation of wind screens during blasting activities to reduce fugitive dust emissions. **Mitigation Measure AQ-3** would implement BAAQMD's Enhanced Construction BMPs, which includes planting vegetative ground cover or using a soil stabilizer, and minimizing the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time. Nevertheless, even with mitigation, construction-related fugitive dust impacts would be cumulatively considerable**.** The Project's contribution to cumulative impacts on criteria air pollutants remains **cumulatively considerable.**

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

AQ-2 Implement Construction Blasting Fugitive Dust Emissions Reduction

AQ-3 Implement BAAQMD Enhanced Construction BMPs

Cumulative Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations (Not Cumulatively Considerable)

Construction of the Seismic Retrofit components and Conservation Measures of the Project would exceed the BAAQMD thresholds for risks and hazards, which would expose sensitive receptors to substantial pollutant concentrations. Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction or operation activities overlap within the same timeframe as the construction activities for the Project.

Cumulative Effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; therefore, these two projects would not result in cumulative impacts related to criteria air pollutants. There would be no cumulative effect.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

As discussed under Section 3.3.3.8, *Thresholds of Significance*, a project would have a cumulatively considerably impact associated with health risks from TAC and $PM_{2.5}$ emissions if the aggregate total emissions of all past, present, and foreseeable future sources within a 1,000-foot radius of the property line of the source plus the project's contribution exceed the lifetime cancer risk of more than 100 in a million, chronic non-cancer HI greater than 10.0, and an incremental increase in the annual average $PM_{2.5}$ concentration of greater than 0.8 $\mu g/m^3$. The cumulative impact for the HRA was evaluated at the MEI for Project construction combined with the health risk from stationary and roadway sources within 1,000 feet based on health risk data provided by the BAAQMD. The MEI is the receptor with the highest incremental cancer risk, chronic hazard quotient, and $PM_{2.5}$ concentration from the Project across all populations and exposure scenarios. A summary of the cumulative impacts at the Project MEI is shown in **Table 3.3-27**. As shown in **Table 3.3-27**, cumulative health risks at the MEI would not exceed the BAAQMD thresholds for cumulative health risks. Therefore, the cumulative impact on the exposure of sensitive receptors to substantial pollutant concentrations resulting from the Project in combination with other probable future projects would not be significant, and the Project's contribution would not be cumulatively considerable.

Table 3.3-27. Summary of Cumulative Health Risk Assessment Results

	BAAQMD Threshold of Significance	Mitigated	
		MEI	*Exceed Threshold?*[1]
Excess Lifetime Cancer Risk (in a million)	100	18 ~~21~~	*No*
Chronic HI	10	0.018 ~~0.022~~	*No*
$PM_{2.5}$ Concentration (µg/m³)	0.8	0.47 ~~0.65~~	*No*

Source: Appendix E: Summary Table Q ~~Table 61~~

Key: HI = hazard index; PM2.5 = particulate matter 2.5 microns or less in diameter; µg/m3 = micrograms per cubic meter; MEI = maximally exposed individual

Notes:

[1] Project unmitigated cumulative health risk also does not exceed the BAAQMD significance thresholds (see Appendix E: Table 61).

Significance Conclusion Summary

The Project's contribution to exposure of sensitive receptors to substantial pollutant concentrations would **not be cumulatively considerable** with the FOCP and other potential future projects, programs, or plans.

Mitigation Measures

No mitigation is required.

*Cumulative Impact AQ-4: Other emissions adversely affecting a substantial number of people (*Not Cumulatively Considerable*)*

Construction of the Project would not have a significant impact from odor emissions. Odors generated by construction of the Project would be temporary in nature and based on odor complaints history. Construction of the Project would not generate objectionable odors affecting a substantial number of people.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction or operation activities overlap within the same timeframe as the construction activities for the Project and are land uses that typically emit odors.

Cumulative Effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; therefore, these two projects would not result in cumulative impacts related to objectionable odors. There would be no cumulative effect.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Construction emissions would disperse rapidly with distance, and as a result, construction and operational projects in close proximity to one another would not result in combined odors above those analyzed. Therefore, cumulative odor impacts from probable future projects, plans, and programs would not result in a cumulatively significant odor impact. The cumulative impact related to odors would not be significant, and the Project's contribution would not be cumulatively considerable.

Significance Conclusion Summary

The Project's contribution to other emissions adversely affecting a substantial number of people would **not be cumulatively considerable** with the FOCP and other probable future projects.

Mitigation Measures

No mitigation is required.

3.3.6 References

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3.4 Biological Resources—Fisheries Resources

This section describes the regulatory and environmental setting for fisheries resources and analyzes the environmental impacts of the Project on fisheries resources, including an evaluation of both construction-related and operation-related impacts, resulting from implementation of the Project.

For post-construction flows, impacts are evaluated in comparison to the:

- "Pre-FERC Order Baseline" – represented by groundwater recharge operations to meet consumer demand and Coyote Creek conditions immediately prior to the 2020 FERC IRRM Order (i.e., prior to the reservoir drawdown to Deadpool and FOCP)
- "Future Baseline," – anticipated future, post-Project "business as usual" Anderson Dam operations without implementing FAHCE or flow regime improvements, after all seismic safety improvements have been implemented, permitting the reservoir to return to maximum storage capacity, including groundwater recharge operations to meet future anticipated consumer demand, and anticipated Coyote Creek conditions in the absence of drawdown, FOCP construction, and Project construction

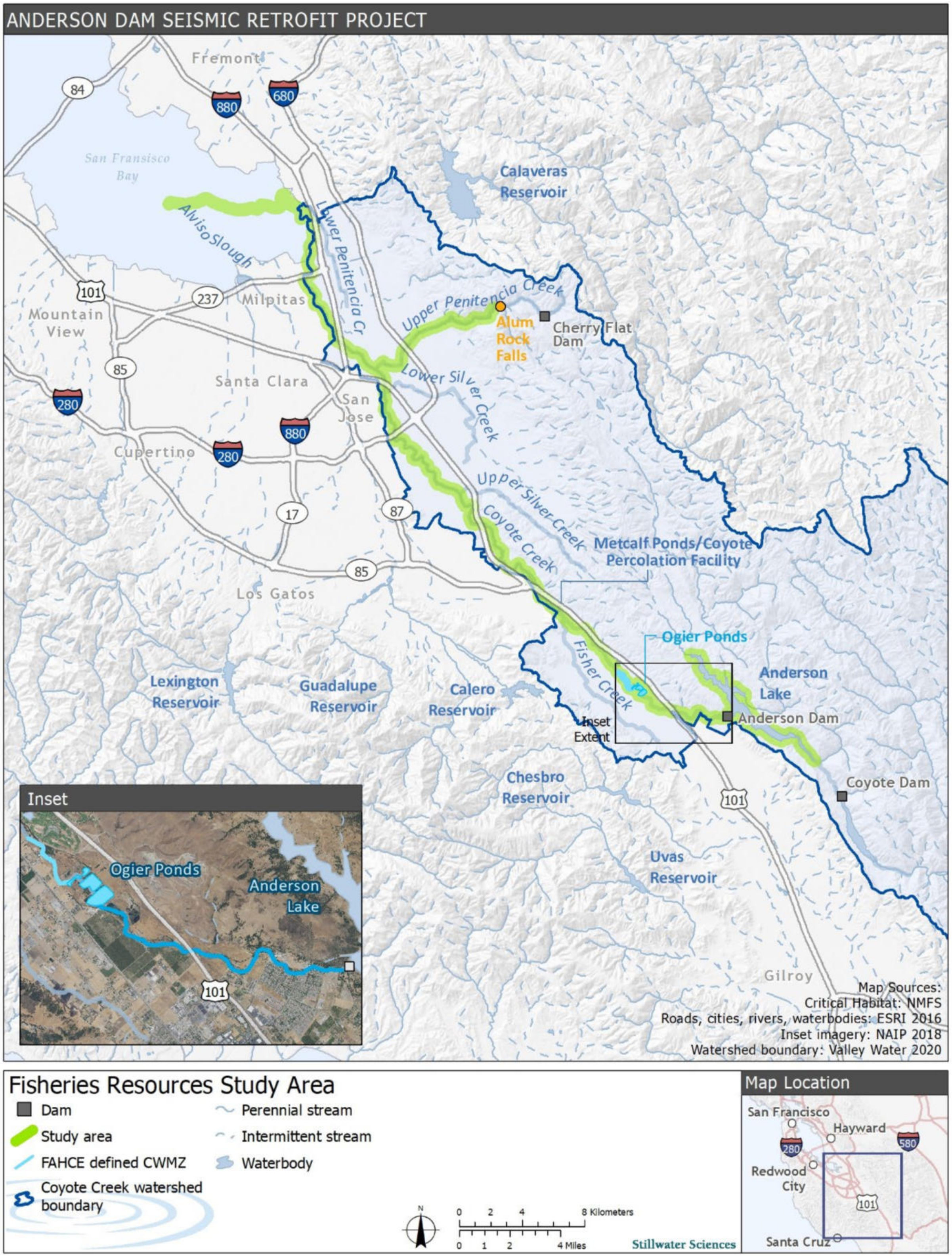
For non-flow related construction phase impacts of Project improvements and facilities to be constructed either an existing conditions baseline based on data available at the time of EIR preparation, or a post-FOCP conditions baseline (if FOCP implementation has changed these existing conditions) is used, which allows for a more accurate prediction of Project impacts. Where resources would be affected by construction phase dewatering and operations, including implementation of the Project Construction Period Reservoir Operations and Drawdown Plan, which describes the two-stage reservoir dewatering plan and construction phase flow related Conservation Measures, effects would be evaluated in comparison to:

- existing conditions, to take into account effects on the existing reservoir drawdown conditions as well as use of imported water releases, chillers and other FOCP avoidance and minimization measures for aquatic resources; and
- the Pre-FERC Order Baseline to evaluate construction phase impacts on aquatic resources in the study area during normal Anderson reservoir and Coyote Creek flow conditions.

The study area used to assess impacts on fisheries resources is defined as the area and immediate vicinity within which all construction-related activities or ground disturbance would occur, as well as other areas whose fisheries would be affected by Project construction and operations. Specifically, the fisheries resources study area comprises:

- Coyote Creek, from the base of Anderson Dam downstream to the tidally inundated portion of lower Coyote Creek
- the waters of San Francisco Bay included in Coyote Creek to the confluence with Alviso Slough
- lands in the immediate vicinity of Anderson Reservoir and Coyote Creek
- Upper Penitencia Creek downstream of Alum Rock Falls (**Figure 3.4-1**)

1 **Figure 3.4-1. Fisheries Resources Study Area**



2

3.4.1 Environmental Setting

This section provides descriptions of the key waterways, stream habitat conditions, and special-status fish species in the study area. To identify occurrence of fisheries resources under the Pre-FERC Order Baseline, Existing Conditions, and Post-FOCP biological conditions for fisheries resources in the study area, as well as the historical context of special-status fish populations, a number of information sources were reviewed, including the following:

- FAHCE *Settlement Agreement* (FAHCE 2003a ~~2003b~~)
- Valley Water Daily WEAP Model Technical Memorandum (SEI and Valley Water 2020)
- Existing and historical hydrologic conditions of Coyote Creek document (Balance Hydrologics 2005)
- Coyote Creek Instream Flow Assessment (Stillwater Sciences 2021)
- Sediment Transport Modeling documents (URS 2020a, 2020b)
- Document describing priority locations for gravel augmentation and large woody debris placement (Balance Hydrologics 2018)
- Documents prepared for Valley Water's evaluation of its DMP (Valley Water 2008a, 2008b, 2012)
- Documents prepared for Valley Water's SMP Update (Valley Water 2011 ~~2011a, 2011b,~~ 2014)
- Santa Clara ~~The~~ Valley Habitat Plan (ICF 2012)
- Data on special-status species occurrences (~~Bousman 2007,~~ CDFW 2008, Shuford and Gardali 2008, California Natural Diversity Data Base [CNDDB] 2018, USFWS 2014)
- Coyote Creek Watershed Fisheries Monitoring, Years 2018-2022 (Valley Water 2019 ~~2019a~~, 2020a, 2021a, 2021b, 2022a)
- Fish Population Sampling in Fall 2014-2020 on Coyote Creek (Leicester and Smith 2014, 2015; Smith~~, 2015,~~ 2016, 2017, 2018, 2019, 2020)
- Fish Assemblage of Anderson Reservoir 2017 and 2019 (Valley Water 2020b)
- Fish Assemblage of Anderson Reservoir 2019 (Valley Water 2020c)
- Coyote Creek Fish Rescue and Relocation 2021 (Valley Water ~~and Stillwater Sciences~~ 2020d, Valley Water 2021c ~~2021h~~)

3.4.1.1 Fisheries Resources and Related Aquatic Habitat

The EIR's assessment of fisheries impacts is an analysis of impacts on "candidate, sensitive, or special-status species," as suggested by *CEQA Guidelines* Appendix G. Special-status aquatic species with the potential to occur in the study area are identified in **Table 3.4-1**, and the seasonal occurrence of each special-status species in the study area by life stage is shown in **Table 3.4-2**.

Table 3.4-1. Special-Status Fish Species Evaluated in the Fisheries Resources Study Area

Name	Scientific Name	Regulatory Status	Potential for Occurrence in the Project Area
Central California coast steelhead	*Oncorhynchus mykiss*	FT; Designated critical habitat	**Present.** Observed in Coyote Creek immediately downstream of the dam, and in tributaries to Coyote Creek, including Upper Penitencia Creek (NMFS 2006, 2009, 2016; Valley Water 2019~~a~~, 2020a, 2021a, 2021b, 2022a). Resident *O. mykiss* upstream of Anderson Dam in Coyote Creek and upstream of Cherry Flat Dam in Upper Penitencia are not considered part of the CCC DPS and are not considered special-status (NMFS 2006). Critical habitat is designated within the study area in Coyote Creek downstream of Anderson dam and within Upper Penitencia Creek downstream of the dam at Cherry Flat reservoir.
Central Valley fall-run Chinook salmon	*Oncorhynchus tshawytscha*	FSC/CSSC; Designated EFH	**Present.** Adult Chinook salmon have been observed as far upstream as Coyote Percolation Dam and were observed migrating upstream (Valley Water 2020a Valley Water 2021d ~~2021c~~). It is reasonable to assume that Chinook salmon can migrate to the base of Anderson Dam. EFH is designated within the study area in Coyote Creek, downstream of Anderson Dam.
Longfin smelt	*Spirinchus thaleichthys*	FC; ST	**Present.** Longfin smelt occur in the lowermost, tidally influenced estuarine reaches of Coyote Creek and Alviso Slough (Valley Water 2013, Otolith Geochemistry & Fish Ecology Laboratory 2021).
Pacific lamprey	*Entosphenus tridentatus*	CSSC	**Present.** Pacific lamprey occur in mainstem Coyote Creek downstream of Anderson Dam and in Upper Penitencia Creek (Buchan and Randall 2003, Valley Water 2020e ~~2020d~~ and 2021e).
Riffle sculpin	*Cottus gulosus*	CSSC	**Present.** Riffle sculpin occur in Upper Penitencia Creek (Valley Water 2020a, Valley Water 2021a).
Sacramento hitch	*Lavinia exilicauda exilicauda*	CSSC	**Present.** Sacramento hitch occur in Coyote Creek downstream of Anderson Reservoir (Leidy 2007, Valley Water 2020a) and in Anderson Reservoir (Leidy 2007).
Southern coastal roach	*Hesperoleucus venustus subditus*	CSSC	**Present.** Southern coastal roach occur in Upper Penitencia Creek and within Coyote Creek downstream of Anderson Dam (Leidy 2007, ~~SCVWA~~ Valley Water 2008a, 2008b, 2020a, 2021a, ~~Valley Water 2020a,~~ 2021f).

Name	Scientific Name	Regulatory Status	Potential for Occurrence in the Project Area
Southern green sturgeon	*Acipenser medirostris*	FT; Designated critical habitat	**Not Observed; Very Low Potential to Occur.** Although green sturgeon have not been documented and are generally not expected to occur in Coyote Creek or Alviso Slough (Otolith Geochemistry & Fish Ecology Laboratory 2021), critical habitat is designated under the ESA within the lowermost, tidally influenced reaches of Coyote Creek and green sturgeon have been detected in the South San Francisco Bay on rare occasions (Crauder et al. 2016, Miller et al. 2020).
White sturgeon	*Acipenser transmontanus*	CSSC	**Present**. White sturgeon occur in Alviso Slough and the tidally influenced portion of Coyote Creek (Otolith Geochemistry & Fish Ecology Laboratory 2021).

Key: Status: Federally Threatened (FT); State Threatened (ST); Federal Candidate (FC); Federal Species of Concern (FSC); California Species of Special Concern (CSSC); Essential Fish Habitat (EFH)

1 **Table 3.4-2. Seasonal Occurrence in the Study Area by Life Stage for Special-Status Species**

Life Stage	January	February	March	April	May	June	July	August	September	October	November	December
Steelhead												
Adult Immigration	■■■■	■■■■	■■■■	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	■■■■
Spawning	■■■■	■■■■	■■■■	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	■■■■
Incubation	■■■■	■■■■	■■■■	■■■■	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	■■■■
Fry Rearing	□□□□	□□□□	■■■■	■■■■	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□
Juvenile Rearing	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■
Smolt Outmigration	□□□□	■■■■	■■■■	■■■■	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□
Fall-run Chinook Salmon												
Adult Immigration	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□■■	■■■■	■■■■
Spawning	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□■■	■■■■	■■■■
Incubation	■■■■	■■■■	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□■■	■■■■	■■■■
Fry Rearing	■■■■	■■■■	■■■■	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□
Juvenile Rearing	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□
Smolt Outmigration	□□□□	■■■■	■■■■	■■■■	■■■■	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□
Pacific Lamprey												
Adult Immigration	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□
Pre-Spawning Holding	■■■■	■■■■	■■■■	■■■■	□□□□	□■■■	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■
Spawning/ Incubation	□□□□	□□□□	■■■■	■■■■	■■■■	■■■■	■■■■	■■■■	□□□□	□□□□	□□□□	□□□□

Life Stage	January	February	March	April	May	June	July	August	September	October	November	December
Larvae Rearing												
Juvenile Outmigration												
Sacramento Hitch												
Spawning/ Incubation												
Fry and Juvenile Rearing/Adult Resident												
Southern Coastal Roach												
Spawning/ Incubation												
Fry and Juvenile Rearing/Adult Resident												
White Sturgeon												
Spawning/ Incubation												
Juvenile Rearing/Adult Transient												
Southern Green Sturgeon (Low Potential for Occurrence)												
Spawning/ Incubation												
Juvenile or Adult Transient												

Life Stage	January	February	March	April	May	June	July	August	September	October	November	December
Longfin Smelt												
Spawning/ Incubation												
Fry and Juvenile Rearing												
Riffle Sculpin												
Spawning/ Incubation												
Fry and Juvenile Rearing/Adult Resident												

Notes:

[a] Dark blue boxes indicate when species life stages are expected to occur in the study area in that month. Light blue boxes show times when species are not expected to occur in the study area.

Central California Coast Steelhead

The CCC steelhead (steelhead) distinct population segment (DPS) occurs within the study area and is a federally threatened population. The DPS includes naturally spawned populations of steelhead (and their progeny) residing downstream of long-term impassable barriers, both natural and human-made, in coastal drainages from the Russian River to Aptos Creek, and the drainages of San Francisco and San Padblo Bays, excluding the Sacramento-San Joaquin River Watershed. The CCC steelhead DPS was federally listed as threatened in 1997 (NMFS 2006). The California Coastal Multispecies Recovery Plan was developed in 2016 to provide a framework for the conservation and survival of listed species, including CCC steelhead (NMFS 2016). The most pressing threats to the CCC DPS identified in the Coyote Creek Watershed are loss of floodplain connectivity, flow conditions, and fish passage, as well as water diversion and impoundment (NMFS 2016). The CCC steelhead DPS includes the study area found downstream of long-term impassable barriers within the Coyote Creek mainstem (Anderson Dam) and Upper Penitencia Creek (Cherry Flat Dam; although anadromy is precluded further downstream by a waterfall) (62 Federal Register 159; 71 Federal Register 834).

For ease of communication, CCC steelhead DPS is used interchangeably with “steelhead” throughout this document. The DPS acronym is used in specific regulatory contexts regarding the CCC steelhead DPS, while steelhead is used in the impact analysis and more general discussions regarding steelhead in the fisheries resources study area. The species name abbreviation *O. mykiss* is used when referring to fish within the species that cannot be differentiated between the resident form (i.e., rainbow trout, which is not listed) and anadromous form (which is listed and referred to as steelhead or the DPS). Although there is a regulatory differentiation, in practice, rainbow trout downstream of impassable barriers receive protection under the ESA because they usually cannot be visually differentiated from the anadromous form.

Critical habitat for the CCC steelhead DPS was designated on September 2, 2005 (70 Federal Register 52488 52630). CCC steelhead critical habitat is designated in the fisheries resources study area in Coyote Creek from Anderson Dam to San Francisco Bay, and in Upper Penitencia Creek from the confluence of Coyote Creek and Upper Penitencia Creek to the dam at Cherry Flat Reservoir. A CDFW barrier assessment of Upper Penitencia Creek indicates that anadromous adult access ends at a waterfall located downstream of Cherry Flat Reservoir, just upstream of the confluence with Arroyo Aguague (CDFW 2018a, NMFS 2016).

Steelhead Life History

O. mykiss exhibit broad range of life-history strategies (NMFS 2012), including anadromy, where juveniles [1] rear in freshwater rivers and creeks, smolts [2] migrate to the ocean where they mature to adults, and adults return to freshwater rivers and creeks to spawn, usually after 1 to 3 years in the marine environment. They can also exhibit a resident life history, where rearing, maturing, and spawning all occur within freshwater. Steelhead are broadly categorized into winter and summer migration timing. Winter steelhead are the most widespread life history and the only life history observed in the Coyote Creek Watershed.

[1] In this report juvenile steelhead refers to all pre-smolt juveniles, both young-of-the-year and age 1+/2+, unless indicated separately.
[2] Smolts are juvenile steelhead migrating to the ocean (i.e., smolting) that exhibit silver coloration and have no parr marks.

CCC steelhead generally enter natal spawning streams as sexually mature adults from December through April. Upstream migration is thought to be opportunistic during precipitation-driven high-flow events. Steelhead spawn in late winter or spring (Shapovalov and Taft 1954, Meehan and Bjornn 1991, Behnke 1992, Moyle et al. 2008). Spawning occurs primarily from January through March but may begin as early as late December and may extend through April (Hallock et al. 1961, Moyle 2002). Individual steelhead may spawn more than once in their lifetime (iteroparity), returning to the ocean between each spawning migration.

Once adults reach the spawning habitat, the adults dig redds (gravel nests) and commence spawning activity. The eggs incubate in the redds for three weeks to two months, depending on water temperature (NMFS 2013). After they hatch, the alevin (larval fish with attached yolk sacs) remain in the redds until the yolk sacs have been absorbed. Based on the conditions within Coyote Creek, the incubation period is expected to occur between December and May (Valley Water 2021b). The fry (young juveniles) then move into the water column to rear. Based on *O. mykiss* captured and measured in the neighboring Guadalupe River Watershed, fry are expected to be rearing in Coyote Creek between March and May (Valley Water 2023a ~~2019b~~).

Upon emerging from the gravel, fry rear in edgewater habitats and move gradually into pools (smooth surface and deep, low-velocity water) and riffles (shallow, where water flows over coarse streambed particles and create surface turbulence) as they grow larger. Juvenile steelhead typically rear in freshwater for 1 to 3 years before migrating to the ocean as smolts (Shapovalov and Taft 1954, NMFS 2013). The duration of time juvenile steelhead spend in freshwater appears to be related to growth rate, with larger, faster-growing juveniles smolting earlier (Peven et al. 1994). Steelhead in areas with warm water temperatures, where food availability is high and other habitat conditions are suitable, may require a shorter period in freshwater before smolting, while steelhead in colder, more northern, and inland streams may require a longer time period (Sloat and Reeves 2014). Juvenile migration to the ocean generally occurs from February through May (see **Table 3.4-2** for a summary of the life-history timing for steelhead in the Coyote Creek Watershed).

Steelhead Habitat Requirements

Steelhead have habitat requirements for each life-history stage: spawning, incubation, fry rearing, and juvenile rearing, as well as conditions for adult and smolt migration that underlie both the qualitative and quantitative impact analyses of instream flows on steelhead habitat. This section summarizes steelhead habitat requirements from literature reviews conducted through the FAHCE process and identifies thresholds or suitability curves that are later used in the methods for modeling steelhead habitat changes under the Project compared to baseline conditions. Further details on how these habitat requirements were incorporated into the habitat modeling for the following fisheries resources impacts analysis can be found in the Fisheries Habitat Availability Estimation Methodology (Valley Water 2023a ~~2019b~~), the Section 3.4.3 *Methodology and Approach to Impact Analysis*, and Appendix F. The Fisheries Habitat Availability Estimation Methodology is included as Appendix N of the FAHCE Final EIR (Valley Water 2023a) ~~2023b~~.

To migrate upstream, adult steelhead require water depths greater than 0.5 feet (Thompson 1972, Bell 1991), and water velocities less than or equal to 8 feet per second (ft/s) (Thompson 1972, Bell 1991). While upstream migrating adult steelhead require a depth greater than 0.5 feet for passage, a review of available literature indicates a water depth of 0.7 feet or greater is more suitable for adult steelhead passage (e.g., Thompson 1972, SWRCB 2007, CDFW 2013, SWRCB 2014, Holmes et al. 2015) and a water depth of 0.7 feet or greater has recently been applied as a depth criterion for adult steelhead migration on the California coast (CDFW 2013, SWRCB 2014). A thalweg water depth criterion of 0.7 feet or greater was selected in coordination with the FAHCE TWG for assessing adult steelhead upstream passage based on the results of the literature review (Valley Water 2023a ~~2019b~~) and was used in the modeling methods for upstream passage (Section 3.4.3; Appendix F).

Adult steelhead upstream passage is also related to water temperature. In a review of various water temperature studies on anadromous salmonids summarized in McCullough et al. (2001), USEPA (2003) found that the cumulative stresses of water temperatures consistently greater than 62.6–64.4 °F (17–18 °C) resulted in an overall reduction in migration fitness. Telemetry research on summer-run steelhead in the Columbia River basin has identified approximately 66 °F (approximately 19 °C) as an important behavioral thermal threshold, where adults have been observed to seek out thermal refugia during their upstream migration (Keefer et al. 2009, as cited in Keefer et al. 2018). Thermal migration barriers for adult immigration have frequently been reported for salmonids, including steelhead, when water temperatures reach approximately 70 °F (approximately 21 °C) (McCullough et al. 2001). Bratovich et al. (2012) identified an adult steelhead migration upper optimal water temperature of 64 °F (17.8 °C) and an upper tolerable water temperature of 68 °F (20.0 °C), along with an adult steelhead holding upper optimal and upper tolerable water temperatures between 61–65 °F (16.1–18.3 °C), respectively, from a review of literature on adult steelhead migration and holding water temperatures, including McCullough et al. (2001), NMFS (2000a, 2002 ~~2001~~), Richter and Kolmes (2005), SWRCB (2003), USBR (1997 [as cited in Bratovich et al. 2012], 2004 ~~2003~~), and USFWS (2001 ~~1995~~). Suitable water temperatures for adult steelhead migration were typically higher than adult steelhead holding, primarily due to increased duration of exposure to water temperature during adult holding relative to migration. A water temperature binary criterion of 65 °F (18.3 °C) was selected for adult steelhead upstream passage, with water temperature considered suitable when it was less than or equal to 65 °F (18.3 °C) and unsuitable when it was greater than 65 °F (18.3 °C) since the upper tolerable water temperature for adult steelhead holding would be limiting for adult steelhead upstream passage (Valley Water 2023a ~~2019b~~).

Steelhead select spawning sites with gravel substrate and sufficient water velocity to maintain circulation through the gravel, providing a clean, well-oxygenated environment for incubating eggs. The preferred flow velocity for spawning is generally in the range of 1 to 3 ft/s (Raleigh et al. 1984). Literature from watersheds less than 500 mi^2 (Snider et al. 1995, USFWS 2007), as well as from the Trinity River (Hampton 1997) and Bovee (1978) were compiled and used to develop continuous steelhead spawning depth and velocity suitability curves based on the principles presented in Bovee et al. (1998) (Valley Water 2023a ~~2019b~~). Suitability curves were generally irregularly shaped parabolas due to the variations in depth and velocity suitability reported in literature. Water depths greater than 0.33 feet and less than 3.40 feet were considered suitable for steelhead spawning, with an optimal water depth of 1.24 feet. Water velocities greater than 0.68 ft/s and less than 3.88 ft/s were considered suitable for steelhead spawning, with an optimal water velocity of 1.68 ft/s. Please refer to (Valley Water 2023a ~~2019b~~) for the specific suitability curves. The preferred gravel substrate for spawning steelhead is in the range of 0.5 to 4 inches in diameter (Bjornn and Reiser 1991, NMFS 2016). In addition to substrate size, the percentage of fine sediment (in terms of cobble embeddedness) is also a primary determinant of spawning and incubation habitat quality. For example, Bjornn and Reiser (1991) present data showing that survival of steelhead (and Chinook salmon) embryos generally begins to decline as the percentage of fine sediment in the redd increases above 25 percent.

Water depth is generally considered sufficient for steelhead embryo incubation provided eggs are kept moist during incubation and redds are submerged when fry begin to hatch and emerge (Raleigh et al. 1984). SWRCB (2007) assumed that the minimum depth for embryo incubation is approximately 0.1 foot above the bed surface, so a water depth binary criterion of 0.1 foot was selected for steelhead embryo incubation, with water depths considered suitable when it was 0.1 foot or greater and unsuitable when it was less than 0.1 foot. If the 0.1-foot water depth criterion was not met for one day of the forecasted incubation period, embryo incubation during that period was not considered successful (Valley Water 2023a ~~2019b~~).

Water temperature is also important for steelhead spawning and embryo incubation, with optimal steelhead spawning water temperatures reported to range from 39–52 °F (4–11 °C) (McEwan and Jackson ~~Nelson~~ 1996 ~~1991~~). USEPA (2003) found that good survival of embryos occurs at constant water temperatures of about 39.2 to 53.6 °F (4 to 12 °C) from a review of various water temperature studies on anadromous salmonid embryos summarized in McCullough et al. (2001). Water temperature-related embryo survival is generally believed to be maximized at approximately 45–50 °F (7–10 °C), with some increase in mortality below and above this range (Myrick and Cech 2004). Most of the studies of *O. mykiss* embryo incubation conducted at or near 54.0 °F (12.2 °C) report high survival and normal development (Kamler and Kato 1983 as cited in Bratovich et al. 2012; Redding and Schreck 1979, Rombough 1988). Embryonic mortality increases sharply, and development is slowed at incubation temperatures greater than or equal to 57.0 °F (13.9 °C) (Velsen 1987, Rombough 1988). Bratovich et al. (2012) identified an upper optimal water temperature index value of 54 °F (12.2 °C) and an upper tolerable index value of 57 °F (13.9 °C) for steelhead embryo incubation based on a review of various water temperature studies, including NMFS (2000a, ~~2001,~~ 2002), USFWS (2001 ~~1995~~), USBR (1997 [as cited in Bratovich et al. 2012]), SWRCB (2003), Rombough (1988), Kamler and Kato (1983) as cited in Bratovich et al. 2012, Redding and Schreck (1979), USEPA (2001), Humpesch (1985), and McCullough et al. (2001). As such, an upper optimal water temperature binary criterion of 54 °F (12.2 °C) was selected for the steelhead spawning and incubation life stage based on an overall assessment of the various water temperature ranges reported to characterize the highest water temperature that could support high embryo survival in the literature and data review, with water temperature considered suitable when it was less than or equal to 54 °F (12.2 °C) and unsuitable when it was greater than 54 °F (12.2 °C). An upper tolerable water temperature binary criterion of 57 °F (13.9 °C) also was also selected for the steelhead spawning and incubation life-stage to represent the highest water temperature before embryonic mortality increases sharply and development becomes retarded slowed based on a synthesis of the water temperature ranges for embryo development in the reviewed literature and data, with water temperature considered suitable when it was less than or equal to 57 °F (13.9 °C) and unsuitable when it was greater than 57 °F (13.9 °C) (Valley Water 2023a ~~2019b~~).

After fry emerge from the gravel, they inhabit low-velocity areas along the stream margins. As they feed and grow, they gradually move to deeper and faster water. Juvenile salmonids prefer well-shaded pools at least 3.28 feet deep with dense overhead cover, or abundant submerged cover, composed of undercut banks, logs, roots, and other woody debris (NMFS 2016). Due to the life stage-specific preferences, separate depth and velocity suitability curves were identified and applied for fry and juveniles according to the same method applied for steelhead spawning, but including data from Holmes et al. (2014), Hampton (1997), Snider et al. (1995), and Bovee (1978) along with NMFS and Kier Associates (2008), Raleigh et al. (1984), Bustard and Narver (1975) for juvenile *O. mykiss* depth preferences (Valley Water 2023a ~~2019b~~). Water depths greater than 0 feet and less than 4.25 feet are considered suitable for steelhead fry rearing, with an optimal water depth of 0.63 feet (Valley Water 2023a ~~2019b~~). Water velocities greater than 0 ft/s and less than 2.81 ft/s are considered suitable for steelhead fry rearing, with an optimal water velocity of 0.41 ft/s. Water depths greater than 0.22 feet and less than 5.70 feet are considered suitable for steelhead juvenile rearing, with optimal water depths ranging from 1.49 to 3.00 feet. Water velocities greater than 0.05 ft/s and less than 4.45 ft/s are considered suitable for steelhead juvenile rearing, with an optimal water velocity of 1.14 ft/s (Valley Water 2023a ~~2019b~~).

Instream cover also is an important habitat component for juvenile *O. mykiss*, providing refuge from high-flow velocities and predation (Shirvell 1990, Meehan and Bjornn 1991). While cover provides refuge from high flows during winter and spring, steelhead in central California streams remain active during winter based on high growth rates (Sogard et al. 2009). Cover is particularly important in areas where water depths are shallow, which is the case for some stream reaches during summer low-flow conditions. For example, yearling and older *O. mykiss* (less than 4 inches) will reportedly abandon areas that are less than 6 inches deep unless there is abundant cover (Cramer and Ackerman 2009). However, steelhead tend to use riffles and other habitats not strongly associated with cover during summer rearing, more so than other salmonids (Shapovalov and Taft 1954). Increased prey availability in these habitats can offset the increased metabolic demands of higher water temperatures (Smith and Li 1983).

Water temperature and food availability are also critical habitat factors for rearing fry and juveniles. Water temperature has a strong influence on each steelhead life-history stage, as well as metabolism and growth rates for fry and juveniles (Sullivan et al. 2000). Food availability and consumption rate are critical factors for *O. mykiss* as the mediation of water temperature increases (Railsback and Kenneth 1999). When additional food is available, juvenile *O. mykiss* can also increase feeding to meet increased metabolic demands imposed by above-optimal temperatures, and growth rates can be higher under warmer conditions (Wurtsbaugh and Davis 1977, Hayes et al. 2008).

The reported preferred and tolerable water temperatures for juvenile steelhead can be highly variable, associated with variable acclimation temperatures, local adaptation, food availability, and other site-specific conditions. In general, water temperatures less than 68 °F (20 °C) are considered suitable for rearing steelhead (Hayes et al. 2008). While the preferred water temperatures for fry and juvenile steelhead across geographic regions have been reported to range from about 45–65 °F (7.2–18.3 °C) (Adams et al. 1975, Myrick and Cech 2001, Rich 1987), or less than 55 °F (12.8 °C) (USEPA 2003; McCullough et al. 2001), juvenile CCC steelhead have been observed in streams with temperatures as high as 75–79 °F (24–26 °C) (Hayes et al. 2008, Kubicek and Price 1976) with numerous reports citing juveniles present at temperatures of approximately 72 °F (22 °C) (NCRCD 2014; Sonoma County Water Agency [SCWA] 2003; Smith 2018). The upper incipient lethal temperature for juvenile rainbow trout is reported to be 75–79 °F (Sullivan et al. 2000, McCullough et al. 2001). However, juvenile steelhead in southern California have been observed at 88.7 °F (31.5 °C) (Sloat and Osterback 2012 ~~2013~~); juvenile steelhead have been observed to persist at summer water temperatures of up to approximately 82 °F (28 °C) or even 86 °F (30 °C) in eastern Oregon streams (Li et al. 1994); and Myrick and Cech (2000; 2005) reported critical thermal maxima ranging from approximately 86–90 °F (30–

32 °C) for some strains of *O. mykiss* (rainbow trout) acclimated to water temperatures of 68–77 °F (20–25 °C). Observations of juvenile CCC steelhead from approximately 72 °F (22 °C) to as high as 79 °F (26.1 °C) align with those reported from controlled swim tunnel respirometry studies that showed juvenile *O. mykiss* from the CCC steelhead population could maintain 95 percent of their aerobic scope, the difference between maximum and resting oxygen consumption, at temperatures as high as 76.3 °F (24.6 °C) (Verhille et al. 2016). Taken together, these studies provide evidence that steelhead in central California can tolerate temperatures greater than 75.2 °F (24 °C), but intraspecific thermal physiologies occur and some populations have higher or lower thermal tolerance (Myrick & Cech 2000, 2001; Beakes et al. 2010; Chen et al. 2015). The variable temperature tolerance of juvenile steelhead across their range provides flexibility during extreme water temperature conditions; however, tradeoffs exist as growth rates decline, vulnerability to disease increases, and temperature sensitive physiological mechanisms such as smoltification are impacted (Zillig et al. 2021).

Water temperature can also influence steelhead indirectly by altering ecological interactions (e.g., competition and predation) and food availability. For example, in some watersheds, warm water temperatures support and provide a competitive advantage for aquatic non-native species such as largemouth bass (*Micropterus salmoides*) (Rahel and Olden 2008). Aquatic non-native species have been documented to prey on juvenile steelhead and compete for habitat and food resources (Carey et al. 2011, Thompson et al. 2012).

A literature review of water temperature effects on fry and juvenile *O. mykiss*, including many of the citations discussed above and other studies evaluating suitable water temperatures for fry and juvenile *O. mykiss*, was conducted to develop a continuous fry and juvenile rearing water temperature suitability curve (Valley Water 2023a ~~2019b~~). A fry and juvenile rearing water temperature suitability curve was constructed by overlaying two sets of binary water temperature criteria pertaining to “optimal growth” and “survival” based on the principles of a generic water temperature suitability curve presented in Bovee et al. (1998). A synthesis of the water temperature ranges in the reviewed literature identified an “optimal growth” water temperature range for fry and juvenile steelhead as 50–65 °F (10–18.3 °C), with the lower limit based on USEPA (2003) and the upper limit based on (1) the water temperatures associated with optimal growth at various rations in the North Santiam River and in the lower American River (see Myrick and Cech [2001]); (2) the upper optimal water temperature identified by Bratovich et al. (2012) for juvenile steelhead rearing in the Central Valley; and (3) NMFS (2016). A synthesis of the water temperature ranges in the reviewed literature identified a “survival” water temperature range as 36–75 °F (2–24 °C), with the lower limit based on the higher thermal minimum identified for juvenile rainbow trout across studies presented by Myrick and Cech (2001) and the upper limit based on the lower end of the upper incipient lethal temperature range reported by Sullivan et al. (2000) and McCullough et al. (2001) for rainbow trout. The water temperature ranges identified above synthesized the steelhead fry and juvenile water temperature tolerances from multiple literature and data sources to best characterize the range of thermal tolerances of steelhead in Coyote Creek, but individual studies may identify slightly different “optimal,” “optimal growth,” “tolerable,” or “survival” water temperature ranges depending on the steelhead population studied (e.g., coastal or Central Valley), method of assessment (e.g., observation in field versus lab experiments), or the statistical time period considered (e.g., daily average versus weekly average). A continuous suitability curve was developed from these temperature criteria by fitting a third order polynomial function to the lower survivable temperature value (36 °F [2 °C]), lower optimal growth temperature value (50 °F [10 °C]), upper optimal growth temperature value (65 °F [18.3 °C]), and the upper survivable temperature value (75 °F [24 °C]) to create a biologically realistic variation in the water temperature suitability. Valley Water 2023a ~~2019b~~ provides further details, including a graph of the water temperature suitability curve. The water temperature suitability curve for steelhead fry and juvenile rearing was used in the WEAP model (SEI and Valley Water 2020) to estimate how water temperature variations altered fry or juvenile rearing habitat availability, so the EIR references these criteria when discussing the effects of water temperature on fry or juvenile rearing steelhead to be consistent.

The timing when juvenile steelhead begin their downstream migration may be affected by various environmental factors, including flow, water temperature, chemical factors (e.g., oxygen), turbidity, light, and food availability (Shapovalov and Taft 1954, Friesen et al. 2007, Giorgi et al. 1997, Kock et al. 2015, Gregory and Levings 1998). Flow must be sufficient to provide a water depth of at least 0.4 feet for juvenile steelhead downstream migration (CDFW 2013), so a thalweg water depth criterion of 0.4 feet or greater was selected for assessing juvenile steelhead downstream passage opportunities (Valley Water 2023a ~~2019b~~). The specific duration of time juvenile steelhead spend in freshwater before smolting appears to be related to growth rate, with larger, faster-growing juveniles smolting earlier (Peven et al. 1994). Steelhead in areas with warm water temperatures, where food availability is high and other habitat conditions are suitable, may require a shorter period in freshwater before smolting, while steelhead in colder, more northern, and inland streams may require a longer time period (Sloat and Reeves 2014). Most literature on water temperature effects on steelhead smolting suggest that water temperatures less than 52 °F (11 °C) are required for successful smoltification to occur (Adams et al. 1975, Myrick and Cech 2001, Rich 1987). Myrick and Cech (2001) suggest that water temperatures between 43–50 °F (6.1–10 °C) are the "physiologically optimal" temperatures required during the parr-smolt transformation and necessary to maximize saltwater survival. Zedonis and Newcomb (1997) reported any increase in water temperature above 59°F (15°C) during the smolt outmigration period would result in decreased smolting tendencies. NMFS (2016) stated that suitable water temperatures during the parr to smolt transformation and outmigration periods for steelhead range between approximately 50–63 °F (10–17 °C), with water temperatures less than 59 °F (15 °C) considered to be most optimal. However, SCWA (2016) documented steelhead smolts migrating downstream while mean daily temperature (MDT) was consistently above 59 °F (15 °C) and 7-day average of daily maximum (7DADM) was above 68 °F (20 °C). Similarly, downstream migrant smolt data from Valley Water collected in the late 1990s and early 2000s showed steelhead smolt migration occurs consistently while MDT exceeds 59 °F (15 °C) and 7DADM is above 68 °F (20 °C). In Coyote Creek specifically, 174 steelhead smolts were captured when MDT was higher than 59 °F (15 °C) and 17 steelhead smolts were captured during the period when 7DADM was above 68 °F (20 °C). While there is data to indicate smolting occurs above 59 °F (15 °C), an upper tolerable water temperature binary criterion of 59 °F (15 °C) was selected for juvenile steelhead downstream migration based on an overall assessment of the various water temperature ranges reported, with water temperature considered suitable for juvenile steelhead downstream migration when it was less than or equal to 59 °F (15 °C) and unsuitable when it was greater than 59 °F (15 °C) (Valley Water 2023a ~~2019b~~).

The discussion above summarizes the habitat requirements of steelhead described in literature and data, but it should be noted that the majority of available data used for evaluating temperature tolerance in McCollough et al. (2001) were from steelhead populations in the U.S. Pacific Northwest. Additional studies published after McCollough et al. (2001) have provided evidence for population-specific thermal tolerances for steelhead (Myrick and Cech 2001, 2005;

Sloat and Osterback 2012 ~~2013~~; Verhille et al. 2016; Zillig et al. 2021), with populations at the steelhead southern range having higher temperature tolerance compared with more northern populations.

In addition, adequate concentrations of DO in fresh water are critical for the survival of all life stages of steelhead (Carter 2008). The Basin Plan indicates that the DO objectives for Coyote Creek waters designated as COLD have minimum instantaneous DO of 7 milligrams per liter (mg/L). The median DO concentration for any three consecutive months shall not be less than 80 percent of the DO content at saturation (San Francisco Bay RWQCB 2019). ~~exposure of 3.5 days at DO concentrations of 3 mg/L or lower as the threshold at which mortality begins (USEPA 1986)~~

Critical habitat for the CCC steelhead DPS was designated on September 2, 2005. The range of critical habitat for this species includes the Russian River south to Aptos Creek and includes the San Francisco Bay tributaries. Within the fisheries resources study area, critical habitat for Central California coast steelhead habitat is designated in Coyote Creek from Anderson Dam to San Francisco Bay, in Upper Penitencia Creek from the confluence of Coyote Creek and Upper Penitencia Creek to Cherry Flat Reservoir, and in Arroyo Aguague Creek from its confluence with Upper Penitencia Creek to a waterfall that presents a barrier to anadromy approximately one mile upstream.

The Physical and Biological Features identified by NMFS specific to CCC steelhead critical habitat in the fisheries resources study area comprise freshwater spawning and rearing sites with suitable water quality and quantity, and migration corridors without obstructions for juvenile and adult life stages. Spawning sites require substrate suitable for successful spawning. Migration corridors must provide velocity refugia so migrating fish arrive at either the ocean or the spawning grounds successfully and with the necessary energy stores to complete the life-history stage. Based on the CCC DPS recovery plan (NMFS 2016), there are 1,484 miles of critical habitat in the DPS, of which 49 miles (3.3 percent of critical habitat) are within the study area.

Steelhead Occurrence in the Fisheries Resources Study Area

Coyote Creek historically and currently supports an anadromous run of steelhead. Historical information on steelhead in Coyote Creek before the construction of Coyote and Anderson Dams is limited. Descriptions of historical habitat conditions within the Coyote Creek watershed and a report documenting steelhead occurrences provides general evidence of where *O. mykiss* likely occurred (Leidy 2005a, San Francisco Estuary Institute [SFEI] 2006). In the upper Coyote Creek watershed, perennial shaded reaches, such as San Felipe Creek, likely provided high quality habitat for both resident and anadromous *O. mykiss* (SFEI 2006). Additionally, within the present-day FCWMZ, between the dam and Ogier Ponds, there was a mix of sycamore alluvial woodland, with 'occasional short reaches of continuous riparian forest' including cottonwoods and willows (SFEI 2006). Coyote Creek historically transitioned downstream from present-day Anderson Dam from a perennial to intermittent creek, and from an oak-dominant to sycamore-dominant plant community. It was also a meandering and narrower channel directly downstream of Anderson Dam before braiding in downstream segments (SFEI 2006). The present-day FCWMZ has comparatively higher riparian tree cover compared to downstream reaches (SFEI 2006). SFEI (2006) indicates that these sycamore alluvial woodland reaches, characterized by shallow, braided channels and variable flow, provide a unique habitat beneficial to native species, including fish (SFEI 2006). ~~within the present-day FCWMZ, Coyote~~

~~Creek historically was a perennial reach with a dense riparian canopy, presumably supporting *O. mykiss* (SFEI 2006).~~ Snyder (1905, as cited in Leidy et al. 2005a) described the occurrence of *O. mykiss* in Coyote Creek in two locations in 1898, upstream of the mouth to San Francisco Bay and in the lower portion of the stream near present-day San Jose. Downstream of the FCWMZ near present-day Cottonwood Lake, Coyote Creek became intermittent and braided with limited riparian cover, suggesting the fish observed by Snyder in 1898 were migrants and not rearing within that habitat (SFEI 2006). Leidy et al. (2005a) describe tributaries downstream of Anderson Dam as generally being "lightly used" as steelhead habitat, based mostly on the reports of Skinner (1962). Penitencia Creek was diverted in 1852 into Coyote Creek, establishing a new corridor for steelhead to access high quality habitat within Upper Penitencia Creek (SFEI 2006). Prior to the diversion of Penitencia Creek, Upper Penitencia Creek was likely an intermittent stream with rare, if any occurrence, of anadromous salmonids (SFEI 2006). By the 1960s, Upper Penitencia Creek was noted as having a uniquely productive *O. mykiss* population among lower Coyote Creek tributaries (Leidy et al. 2005a).

During the Pre-FERC Order Baseline Condition, as part of Valley Water's early implementation of FAHCE, Valley Water initiated several annual monitoring activities to assess *O. mykiss* in Coyote Creek. FAHCE monitoring efforts began in 2018 and include fall juvenile rearing monitoring, stream temperature monitoring, adult escapement monitoring using the Vaki Riverwatcher system (Vaki), and migration monitoring using PIT tags. Combined, these methods provide key information on the occurrence of *O. mykiss* within the Study Area.

O. mykiss have been observed throughout the mainstem of Coyote Creek and Upper Penitencia Creek, with the largest and most consistent abundance in the mainstem of Coyote Creek in the reach between Anderson Dam and Ogier Ponds (FCWMZ), and Upper Penitencia Creek (Valley Water 2008a, 2008b ~~2008~~; Leicester and Smith 2014; Smith 2016, 2017; Valley Water 2019 ~~2019a~~; ~~Valley Water and Stillwater Sciences 2020~~ Valley Water 2020d).

During existing conditions, *O. mykiss* have been captured in the FCWMZ during FOCP surveys and fish rescue and relocation efforts 2020 through 2023. Pursuant to the emergency Section 7 consultation for FOCP, fish rescue and relocation efforts were conducted in 2020 and 2021 within the FCWMZ. In 2020, rescued *O. mykiss* were relocated to Upper Penitencia Creek and in 2021, rescued *O. mykiss* greater than 4 inches (100 mm) were moved to the downstream mainstem of Coyote Creek at the confluence with Upper Penitencia Creek, while fish less than 4 inches were left in place. During surveys and fish rescues, over 300 *O. mykiss* were captured and a portion of them tagged with PIT tags in 2018-2022 (~~Valley Water and Stillwater Sciences 2020~~;Valley Water 2020d; Valley Water 2021a, 2021b, and 2022a). Many of these fish were juveniles, showing that *O. mykiss* reproduced in the FCWMZ, even during drought conditions and during FOCP. In 2022, rearing monitoring was conducted but *O. mykiss* were left in place in the FCWMZ and not relocated in consultation with resource agencies and the Technical Working Group as conditions within Coyote Creek were the most suitable.

However, adult steelhead are very rare within the FCWMZ and upper portions of the study area. No adult steelhead were documented migrating upstream or downstream on a Vaki Riverwatcher at the Coyote Percolation Dam from 2018 to 2022 (Valley Water 2019 ~~2019a~~, 2020a, 2021a, 2021b, 2022a). There were times when steelhead could have passed but avoided detection (e.g., times when turbidity is too high for the equipment to function, or a power outage caused the computer to shut down) but no steelhead redds were observed during 2020, 2021, or 2022 redd survey efforts following times when the Vaki was not functioning (Valley

Water 2021a, 2021b, and 2022a). Nevertheless large *O. mykiss* have been documented downstream of the dam during rearing studies and anecdotally from anglers.

In the Pre-FERC Order time period, including immediately prior to issuance of the FERC Order the fall of 2019, Valley Water conducted multi-pass depletion backpack electrofishing at four stations in Upper Penitencia Creek between Piedmont Road overcrossing and upstream of Alum Rock Park. *O. mykiss* were detected in the two upstream-most stations (n=63, Valley Water 2020a).

Following implementation of the FERC Order in August 2020, Valley Water conducted electrofishing at five stations in Upper Penitencia Creek. *O. mykiss* were detected in the four upstream-most stations, including a station that was not sampled in 2019 (n=15, Valley Water 2021a). Following the monitoring effort in 2020, Valley Water conducted a fish rescue pursuant to the Fish Rescue and Relocation Plan and 74 *O. mykiss* were rescued from the FCWMZ in Coyote Creek and relocated to Upper Penitencia Creek. However, in the fall of 2021 and 2022, Valley Water detected no *O. mykiss* during rearing monitoring surveys in Upper Penitencia Creek (Valley Water 2022a, 2023), presumably due to dry back and reduced flow from extreme drought conditions. During Pre-FERC Order and existing conditions, *O. mykiss* are not actively monitored downstream of the Coyote Percolation Dam and through the areas of tidal influence so no data are available for occurrence in this reach; however, given that *O. mykiss* are found upstream and the reach, can be intermittent, and lacks suitable spawning and rearing habitat it is likely that this reach is used as a migration corridor. Over time, ongoing PIT tag and Vaki monitoring would shed light on *O. mykiss* migration through the reach downstream of the Coyote Percolation Dam.

Central Valley Fall-Run Chinook Salmon

Central Valley fall-run and late fall-run Chinook salmon (Chinook salmon) occur within the study area and are considered by NMFS to be the same evolutionarily significant unit (ESU) (64 Federal Register 50394). NMFS determined that listing the Central Valley fall-run Chinook salmon ESU as threatened was not warranted (64 Federal Register 50394), but subsequently classified Central Valley fall-run Chinook salmon as a species of concern because of specific risk factors, including population size and hatchery influence (69 Federal Register 19975). Species of concern are not formally listed under the ESA. Because the Central Valley fall-run Chinook salmon ESU is not listed as federally endangered or threatened, critical habitat has not been designated for this species, but EFH is designated in the study area in Coyote Creek downstream of Anderson Dam. CDFW classifies Central Valley fall-run Chinook salmon as a Species of Special Concern. However, while CDFW indicates that the species is found within Central Valley rivers and streams, their range maps do not include Santa Clara County (CDFW 2021) Chinook salmon are included in the FAHCE Settlement Agreement. Henceforth, Chinook salmon that occur in the study area incorporating both fall-run and late fall-run will just be referred to as "Chinook salmon."

Chinook Life History

Central Valley fall-run Chinook salmon adult immigration is reported to occur between August and December (FAHCE ~~2003a,~~ 2003b; Fukushima and Lesh 1998; Leidy 2007; Moyle 2002; Valley Water 2021b). However, based on monitoring of adult Chinook salmon migrating upstream in the adjacent Guadalupe River Watershed, the immigration period was observed between October and January in the neighboring watershed (see Valley Water ~~water~~ 2002 and Nishijima et al. 2009). Based on a review of available data and literature, and because adult Chinook salmon have been observed migrating upstream into January in the adjacent Guadalupe River Watershed, mid-October through January was selected as the evaluation period for fall-run Chinook salmon adult immigration in the fisheries resources study area (Valley Water 2023a ~~2019b~~).

Literature suggests that Central Valley fall-run Chinook salmon adults spawn from the fall through mid-winter. The FAHCE limiting factors analyses (Valley Water 2000) utilized a time period for Chinook salmon adult spawning of October through February, while the FAHCE (2003a) Summary Report identified a time period of mid-October through December. Generally, fall-run Chinook salmon spawn from October through December, but because adult Chinook salmon have been observed migrating upstream into January in the adjacent Guadalupe River Watershed (Nishijima et al. 2009), a spawning time period of mid-October through January was selected for evaluation purposes.

Laboratory experiments in British Columbia (Beacham et al. 1989) found that the average incubation duration of Chinook salmon eggs to fry emergence was 77 days at 53.5 °F (12 °C) (consistent with water temperatures during the winter in the study area during Pre-FERC Order and existing conditions), indicating that Chinook salmon embryos spawned in January would reach the fry emergence stage by the end of March. Therefore, it is assumed that embryo incubation may extend through March.

Juvenile Chinook salmon emergence and rearing can occur from about January through June (Valley Water 2000, 2023 ~~2019b~~; FAHCE 2003b ~~2003a~~). However, based on juvenile outmigration surveys conducted in Coyote Creek and the Guadalupe River (Valley Water 2002, unpubl. data), fry-sized juveniles (i.e., less than 50 millimeter [mm] fork length [FL]) would be present in Coyote Creek from January through April. Fall-run Chinook salmon generally outmigrate from Central Valley rivers as young-of-the-year (Kimmerer and Brown 2006). In Coyote Creek juvenile Chinook salmon outmigration has been observed through the end of April with downstream movement coinciding with precipitation events (Valley Water 2000, 2002; FAHCE 2003b ~~2003a~~). While outmigration can extend into June for other regions of the stock, Chinook salmon are not expected to outmigrate during the months of May and June in Coyote Creek, due to the limited precipitation amounts characteristic of Santa Clara County during those months as well as dewatering the reservoir in April that will help promote outmigration of juveniles.

Chinook Habitat Requirements

Chinook salmon have habitat requirements for each life-history stage: adult migration, spawning, incubation, fry rearing, juvenile rearing, as well as conditions for smolt migration.

Adult Chinook salmon require flows of adequate depth to successfully migrate upstream in freshwater river systems. A literature review indicated a thalweg water depth of 0.9 feet or greater was a suitable water depth for adult Chinook salmon passage, and this criterion has been applied as a water depth criterion for adult Chinook salmon on the California coast (Thompson 1972; SWRCB 2007; CDFW 2013; SWRCB 2014). Based on the results of the literature review, a thalweg water depth criterion of 0.9 feet or greater was selected in coordination with the FAHCE Technical Working Group for assessing adult Chinook salmon upstream passage (Valley Water 2023a ~~2019b~~).

Adult Chinook salmon upstream passage is also related to water temperature. In a review of various water temperature studies on anadromous salmonids summarized in McCullough et al. (2001), USEPA (2003) found that an overall reduction in migration fitness attributable to cumulative stresses occurred at constant water temperatures greater than 62.6–64.4 °F (17–18 °C). Bratovich et al. (2012) identified an adult Chinook salmon migration upper optimal water temperature of 64 °F (17.8 °C) and an upper tolerable water temperature of 68 °F (20.0 °C), along with an adult Chinook salmon holding upper optimal and upper tolerable water temperatures between 61–65 °F (16.1–18.3 °C), respectively, from a review of literature on adult Chinook salmon migration and holding water temperatures, including Berman (1990), Marine (1992), NMFS (1997 ~~1997a~~, 2000a), McCullough (1999), McCullough et al. (2001), Strange (2010), Ward et al. (2004), Ward and Kier (1999), and USFWS (2001 ~~1995~~). Telemetry studies of adult fall-run Chinook salmon in the Columbia River reported migration rates slowed significantly when water temperatures were greater than about 68 °F (20 °C) due to temporary use of tributaries as thermal refugia (Goniea et al. 2006). Thermal migration barriers have frequently been reported for adult salmonid upstream migration, including Chinook salmon (McCullough et al. 2001) and that was factored into the WEAP model. However, recent literature suggests that salmonids in southerly locations, including Chinook salmon, may have thermal physiologies capable of tolerating higher water temperatures compared with more northerly populations that were evaluated to establish temperature tolerances (Zillig et al. 2021) so the WEAP model may overestimate temperature impacts on Chinook upstream migration. While some adult Chinook salmon may migrate at water temperatures greater than 65 °F (18.3 °C), a water temperature binary criterion of 65 °F (18.3 °C) was selected for adult Chinook salmon upstream passage with water temperature considered suitable when it was less than or equal to 65 °F (18.3 °C) and unsuitable when it was greater than 65 °F (18.3 °C) since the upper tolerable water temperature for adult Chinook salmon holding would be limiting for adult upstream passage (Valley Water 2023a ~~2019b~~).

Adult Chinook salmon select spawning sites with suitable substrate conditions and sufficient water depth and velocity to maintain circulation through the gravel, providing a clean, well-oxygenated environment for incubating eggs. The preferred flow velocity for spawning is generally in the range of 1 to 3 ft/s (Raleigh et al. 1984). Specifically, spawning Chinook salmon require clean, loose gravel in swift, relatively shallow areas. Because of their larger size, Chinook salmon can spawn in higher water velocities and use coarser substrates than other salmon species (Pacific Fishery Management Council [PFMC] 2014 ~~1999~~). Spawning Chinook salmon in California’s Trinity River reportedly preferred gravel and cobble from 2 to 6 inches in diameter that was less than 40 percent embedded in fine sediment (USFWS 1997). In Clear Creek (a tributary to the Sacramento River), spawning Chinook salmon used substrate sized between about 1 and 6 inches, with a preference for substrate between 1 and 3 inches (Giovanetti and Brown 2013). Raleigh et al. (1984) assumed that particles must be at least 0.5 inch in diameter to permit adequate percolation for successful embryonic development. In addition to substrate size, the percentage of fine sediment (in terms of cobble embeddedness) is also a primary determinant of spawning and incubation habitat quality, with survival of Chinook salmon embryos generally declining as the percentage of fine sediment in the redd increases above 25 percent (Bjornn and Reiser 1991). Continuous adult Chinook salmon spawning depth and velocity suitability curves were developed based on the principles presented in Bovee et al. (1998) and available literature on Chinook salmon spawning preferences to quantify the suitability of water depth and velocity conditions for Chinook salmon spawning (Valley Water 2023a ~~2019b~~). Suitability curves were generally irregularly shaped parabolas due to the variations in depth and velocity suitability reported in literature. Water depths greater than 0.23 feet and less than 3.30 feet were considered suitable for Chinook salmon spawning, with an optimal water depth of 1.13 feet. Water velocities greater than 0.30 ft/s and less than 5.50 ft/s were considered suitable for Chinook salmon spawning, with an optimal water velocity of 1.62 ft/s. Please refer to (Valley Water 2023a ~~2019b~~) for the specific suitability curves.

Following spawning, water depth and water temperature must be maintained within a suitable range during incubation for eggs to reach fry-emergence. Water depth is generally considered sufficient for Chinook salmon embryo incubation provided eggs are kept moist during incubation and redds are submerged when fry begin to hatch and emerge, with SWRCB (2007) assuming that the minimum depth for embryo incubation is approximately 0.1 feet above the bed surface. A water depth binary criterion of 0.1 feet was selected for Chinook salmon embryo incubation, with water depths considered suitable when it was 0.1 feet or greater and unsuitable when it was less than 0.1 feet. If the 0.1-feet water depth criterion was not met for one day of the forecasted incubation period, embryo incubation during that period was not considered successful (Valley Water 2023a ~~2019b~~).

Water temperature-related Chinook salmon embryo survival has generally been suggested to be optimal at approximately 43–54 °F (6–12 °C) (Myrick and Cech 2004). Based on a review of various water temperature studies on anadromous salmonid embryos summarized in McCullough et al. (2001), USEPA (2003) found that survival is optimized at constant water temperatures of about 39.2–53.6 °F (4–12 °C). Chinook salmon-specific studies indicate that Chinook salmon egg and alevin [3] survival decreased rapidly when water temperatures exceed approximately 56 °F (~13.3 °C) (Seymour 1956, Boles et al. 1988, USFWS 1999). Constant egg incubation temperatures between 42.5 °F and 57.5 °F were reported to result in normal development (Combs and Burrows 1957). Bratovich et al. (2012) identified an upper optimal water temperature index value of 56 °F (~13.3 °C) and an upper tolerable index value of 58 °F (14.4 °C) for Chinook salmon embryo incubation based on a review of water temperature studies, including some of those cited above, Myrick and Cech (2001), and NMFS (1993, ~~1997b,~~ 2002, 2014). As such, an upper optimal water temperature binary criterion of 56 °F (~13.3 °C) was selected for the Chinook salmon spawning and incubation based on an overall assessment of the various water temperature ranges reported to characterize the highest water temperature that could support high embryo survival in the literature and data review, with water temperature considered suitable when it was less than or equal to 56°F (~13.3°C) and unsuitable when it was greater than 56 °F (~13.3 °C). An upper tolerable water temperature binary criterion of 58 °F (14.4 °C) also was selected for the Chinook salmon spawning and incubation to represent the highest water temperature before embryonic mortality increases sharply based on a synthesis of the water temperature ranges in the reviewed literature and data, with water temperature considered suitable when it was less than or equal to 58°F (14.4°C) and unsuitable when it was greater than 58 °F (14.4 °C) (Valley Water 2023a ~~2019b~~).

Following emergence from redds, juvenile Chinook salmon are known to prefer slower water habitats than many other salmonid species (Quinn 2005) and have been reported to actively seek out slow backwaters, pools, or floodplain habitat for rearing (Sommer et al. 2001, Jeffres et al. 2008). However, juvenile Chinook salmon have been reported to show a clear preference for faster water (up to an average of about 1.8 ft/s) as they grow, consistent with trends found with

[3] Alevins are newly hatched salmon or trout that have broken free from the soft shell of the egg but still carry the yolk sac which provides nutrients. Alevins usually remain in the spawning gravels of the “redd” until they have absorbed the yolk sac and developed into fry.

salmonids in other rivers (Bjornn and Reiser 1991). Separate depth and velocity habitat suitability curves were identified through the FAHCE process and applied for fry and juveniles according to the same method applied for Chinook salmon spawning, but including data from Hampton (1997), Beakes et al. (2012 ~~2014~~), and Aceituno (1990) (Valley Water 2023a ~~2019b~~). Water depths greater than 0.00 feet and less than 5.72 feet are considered suitable for Chinook salmon fry rearing, with the habitat suitability curve forming a skewed bell shape that increases from 0 (e.g., not suitable) at 0.00 feet to 1 (e.g., most suitable) at the optimal water depth of 1.30 feet and decreases from 1 at 1.30 feet to 0 at the 5.72 feet. Water velocities from 0.00 ft/s to less than 2.55 ft/s are considered suitable for Chinook salmon fry rearing, with the habitat suitability curve forming a skewed bell shape that increases from 0 at 0.00 ft/s to 1 at the optimal water velocity of 0.28 ft/s and decreases from 1 at 0.28 ft/s to 0 at 2.55 ft/s. Water depths greater than 0.08 feet and less than 3.90 feet are considered suitable for Chinook salmon juvenile rearing, with the habitat suitability curve forming a skewed bell shape that increases from 0 at 0.08 feet to 1 at the an optimal water depth of 1.27 feet and decreases from 1 at 1.27 feet to 0 at the 3.90 feet. Water velocities greater than 0.00 ft/s and less than 3.27 ft/s are considered suitable for Chinook salmon juvenile rearing, with habitat suitability curve forming a skewed bell shape that increases from 0 at 0.00 ft/s to 1 at the optimal water velocity of 0.67 ft/s and decreases from 1 at 0.67 ft/s to 0 at 3.27 ft/s. Refer to (Valley Water 2023a ~~2019b~~) for figures and tables of the specific habitat suitability curves and further discussion can be found in Appendix F.

In-stream cover also is an important habitat component for juvenile Chinook salmon. Water depth (deep, low-velocity pools, and bank eddies), surface turbulence, instream structures, and substrate are all used as cover by juvenile Chinook salmon, with substrate being a primary source of escape and winter cover (Raleigh et al. 1986).

Water temperature is generally considered to be a key limiting factor for the Central Valley fall-run Chinook salmon juvenile rearing life stage, particularly during late spring. The preferred and tolerable water temperatures reported for juvenile Chinook salmon can be highly variable in literature due to differences in acclimation temperatures, local adaptation, food availability, and other site-specific conditions. The water temperature reported to allow for maximum growth of juvenile Central Valley fall-run Chinook salmon with maximal rations is 66.2 °F (19 °C) (Cech and Myrick 1999). Similar to results reported by Cech and Myrick (1999), Marine (1992) found that maximum growth rates of Sacramento River fall-run Chinook salmon were observed in juveniles reared at 62.6–68.0 °F (17–20 °C), with lower growth rates for juveniles reared at 69.8–75.2 °F (21–24 °C). USEPA (2003) determined the optimal growth for juvenile salmonids in general occurred when constant water temperatures ranged from 55.4–68 °F (13–20 °C) for unlimited food conditions or when constant water temperatures ranged from 50–60.8 °F (10–16 °C) for limited food conditions. Brett et al. (1982) determined that water temperatures of 66–68.9 °F (18.9–20.5 °C) were optimal for juvenile Chinook salmon from the Big Qualicum and Nechako Rivers fed to satiation, but the optimal growth water temperature decreased to 59 °F (15 °C) when juvenile Chinook salmon were fed at 60 percent of satiation. Overall, based on water temperature effects on growth, saltwater adaptation, and predation avoidance, Marine and Cech (2004) found that juvenile Central Valley fall-run Chinook salmon reared at water temperatures of 68 °F (20 °C) or greater experienced decreased growth, altered smolt physiology, and increased predation vulnerability compared with juveniles reared at water temperatures considered to be near optimal (55.4–60.8 °F). NMFS (2016) stated that optimal water temperatures for both Chinook salmon fry and juveniles range from approximately 54–61 °F (12–16 °C) based on Marine and Cech (2004) and Boles et al. (1988).

A literature review of water temperature effects on fry and juvenile Chinook salmon, including many of the citations discussed above and other studies evaluating suitable water temperatures for fry and juvenile Chinook salmon, was conducted to develop a continuous fry and juvenile rearing water temperature suitability curve (Valley Water 2023a ~~2019b~~). A fry and juvenile rearing water temperature suitability curve was constructed by overlaying two sets of binary water temperature criteria pertaining to “optimal growth” and “survival” based on the principles of a generic water temperature suitability curve presented in Bovee et al. (1998). A synthesis of the water temperature ranges in the reviewed literature identified an “optimal growth” water temperature range for fry and juvenile Chinook salmon as 50–61 °F (10–16 °C), with the lower limit based on USEPA (2003) and the upper limit based on (1) results of the laboratory study conducted by Marine and Cech (2004); (2) the upper optimal water temperature identified by Bratovich et al. (2012) for juvenile Chinook salmon rearing in the Central Valley; and (3) NMFS (2016). A synthesis of the water temperature ranges in the reviewed literature identified a “survival” water temperature range as 33–75 °F (0.6–24 °C), with the lower limit based on the thermal minima identified for juvenile Chinook salmon across studies presented by Myrick and Cech (2001) and the upper limit based on the lower end of the upper incipient lethal temperature range reviewed by Myrick and Cech (2001) for Chinook salmon. The water temperature ranges identified above synthesized the fry and juvenile Chinook salmon water temperature tolerances from multiple literature and data sources to best characterize the range of thermal tolerances of Chinook salmon in Coyote Creek, but individual studies may identify slightly different “optimal,” “optimal growth,” “tolerable,” or “survival” water temperature ranges depending on the Chinook salmon population studied (e.g., coastal or Central Valley), method of assessment (e.g., observation in field versus lab experiments), or the statistical time period considered (e.g., daily average versus weekly average). A continuous suitability curve was developed from these temperature criteria by fitting a third order polynomial function to the lower survivable temperature value (33 °F [0.6 °C]), lower optimal growth temperature value (50 °F [10 °C]), upper optimal growth temperature value (61 °F [16 °C]), and the upper survivable temperature value (75 °F [24 °C]) to create a biologically realistic variation in the water temperature suitability. The Fisheries Habitat Availability Estimation Methodology TM (Valley Water 2023a ~~2019b~~) provides further details, including a graph of the water temperature suitability curve. The water temperature suitability curve for fry and juvenile Chinook salmon rearing was used in the WEAP model (SEI and Valley Water 2020) to estimate how water temperature variations altered fry or juvenile rearing habitat availability, so the EIR references these criteria when discussing the effects of water temperature on fry or juvenile Chinook salmon rearing to be consistent.

In general, fall-run Chinook salmon in the Central Valley outmigrate from rivers as fry (Kimmerer and Brown 2006, Myers et al. 1997 ~~1998~~) since juveniles reared at water temperatures of 68 °F (20 °C) or greater experienced decrease growth, altered smolt physiology, and increased predation vulnerability compared with juveniles reared at water temperatures considered to be near optimal (Marine and Cech 2004). In order for Chinook salmon to migrate downstream, flow must be sufficient to provide a minimum water depth for juvenile Chinook salmon downstream migration and water temperatures must be suitable to support smoltification. A thalweg water depth criterion of 0.3 feet or greater was selected as the minimum water depth for assessing juvenile Chinook salmon downstream passage opportunities based on a review of available literature (CDFW 2013). Water temperatures that support smoltification for fall-run Chinook salmon range from 50–68 °F (10–20 °C), with approximately 50–63 °F (10–17.2 °C) being more optimal and water temperatures above approximately 63 °F (17.2 °C) reducing successful smoltification (Zedonis and Newcomb 1997). Bratovich et al. (2012) reviewed Chinook salmon literature on smoltification and downstream migration thermal tolerances (Kjelson and Brandes 1989; Marine 1997; Marine and Cech 2004; Zedonis and Newcomb 1997) and selected 63 °F (17.2 °C) and 68 °F (20 °C) as the Chinook salmon yearling and smolt outmigration upper optimal and upper tolerable water temperatures, respectively. As such, an upper tolerable water temperature binary criterion of 63 °F (17.2 °C) was selected to evaluate juvenile Chinook salmon downstream migration opportunities based on an overall assessment of the various water temperature ranges reported, with water temperature considered suitable for juvenile Chinook salmon downstream migration when it was less than or equal to 63 °F (17.2 °C) and unsuitable when it was greater than 63 °F (17.2 °C) (Valley Water 2023a ~~2019b~~).

Additionally, adequate concentrations of DO in fresh water are critical for the survival of all life stages of Chinook salmon (Carter 2008). Low DO concentrations can impact the swimming performance of migrating Chinook salmon and Chinook salmon avoided migrating when DO concentrations were below 5 mg/L (Carter 2008). At favorable incubation temperatures, growth of the embryos declined rapidly when DO was lower than 7 mg/L and alevin preferred oxygen concentrations between 8 and 10 mg/L (Carter 2008). Salmonid mortality can occur when oxygen concentrations fall below 3 mg/L for longer than 3.5 days (WDOE 2002).

Chinook Occurrence in the Fisheries Resources Study Area

Central Valley fall-run Chinook salmon have been observed in Coyote Creek since the mid-1980s. Their occurrence in the 1980s coincides with the initiation of the Central Valley hatchery and releases in San Francisco Bay and genetic evidence suggests they are of hatchery origin (Garcia-Rossi and Hedgecock 2002). Because the hatchery fish are released to San Francisco Bay and the Pacific Ocean as juveniles, they lack a strong homing instinct, which leads them to be more likely to stray to various river systems in the bay area like Coyote Creek and the Guadalupe River watersheds. Successful reproduction has been documented in the Coyote Creek Watershed (SCBWMI 2001). The majority of Chinook salmon spawning appears to be in the lowermost reaches of Coyote Creek (Smith 1998) but following the installation of a Vaki Riverwatcher at the Coyote Percolation Dam in 2019, adults have been observed migrating upstream through Metcalf Pond during both Pre-FERC Order and existing conditions. Few adult Chinook salmon have been observed upstream of Ogier Ponds (Valley Water, unpubl. data) but, Valley Water does not monitor for Chinook salmon spawning or rearing distribution; however, the presence of Chinook salmon redds would be recorded during steelhead spawning surveys if observed. No Chinook salmon redds have been observed in Coyote Creek during the limited number of steelhead spawning surveys to date (Valley Water 2021g, 2022b).

Chinook salmon travel through South San Francisco Bay, Alviso Slough, and the tidally influenced reaches of Coyote Creek when migrating into and out of Coyote Creek. Adult Chinook salmon were detected in Coyote Creek at the monitoring location near Metcalf Ponds in 2018 and 2019 (Pre-FERC Order Conditions) and 2020 (existing conditions) (Valley Water 2020e ~~2020d~~, 2021b). It is assumed that some rearing during smoltification may occur in San Francisco Bay, Alviso Slough, and the tidally influenced reaches of Coyote Creek, but spawning and rearing locations of Chinook salmon have not been clearly documented in the Study Area (Valley Water 2021h ~~2021i~~, Smith 2020). Spawning and rearing is likely to occur in suitable habitat outside of the tidally influenced reaches all the way to Anderson Dam. Run-timing and genetic analysis indicates that Chinook salmon occurring in the Coyote Creek watershed belong to the Central Valley fall-run ESU (Leidy 2007, Garcia-Rossi and Hedgecock 2002).

Chinook salmon have not been documented in Upper Penitencia Creek.

Pacific Lamprey

Pacific lamprey occur in the study area and are a California species of special concern with a status rating of "Moderate Concern" (Moyle et al. 2015). This rating denotes the species was "considered to be under no immediate threat of extinction" but were in "long-term decline of had naturally small, isolated populations which warrant frequent status re-assessment" (Moyle et al. 2015).

Pacific Lamprey Life History

Pacific lamprey are anadromous fish with three developmental stages: larvae, juvenile, and adult. Larvae reside entirely in freshwater before transforming into juveniles, which migrate to the ocean where they feed parasitically and grow into adults. These adults return to freshwater where they spawn and die.

Adult Pacific lamprey migrate into freshwater at a length of approximately 20 to 30 inches (Chase 2001). Once adults enter freshwater, they stop feeding and primarily expend energy towards upstream migration and sexual maturation (Johnson et al. 2015).

Freshwater entry typically occurs during winter and spring between January and June (Kan 1975, Chase 2001, Stillwater Sciences and Wiyot Tribe Natural Resources Department 2016, Parker 2018). The adult freshwater residence period can be divided into three distinct stages: (1) initial migration from the ocean to holding areas, (2) pre-spawning holding, and (3) secondary migration to spawning sites (Clemens et al. 2010, Starcevich et al. 2014). The pre-spawning holding stage begins when individuals cease upstream movement, generally in June or July, and continues until fish begin their secondary migration to spawn the following spring, generally in March or April (Robinson and Bayer 2005, Starcevich et al. 2014). Pacific lamprey do not necessarily home to natal spawning streams (Moyle et al. 2009, Spice et al. 2012). Instead, migrating adults appear to select spawning streams, at least in part, based on bile acid compounds secreted by larvae that act as migratory pheromones (Robinson et al. 2009, Yun et al. 2011). This mode of selecting spawning streams induces migratory adults to select locations where larval rearing has been successful as a result of suitable habitat and, therefore, has been called the "suitable river strategy" (Waldman et al. 2008).

Spawning typically takes place between March and June, and redds are constructed in gravel and cobble substrates within pool and run (sections without flow obstructions, even stream beds, and water flows faster than pools) tailouts or low-gradient riffles (Brumo et al. 2009, Gunckel et al. 2009). Larvae emerge from spawning gravels about 1 to 2 months after spawning, depending on water temperature, at a size of about 0.3 inches (Meeuwig et al. 2005; Brumo 2006). After hatching, the larvae drift downstream to backwater areas and burrow into fine sediment substrate, feeding on algae and detritus (Torgerson and Close 2004). Depending on growth rate, the larval phase lasts approximately 4 to 8 years, during which time individuals grow to about 6 inches (Dawson et al. 2015). After reaching sufficient size, larval Pacific lamprey transform into juveniles in late summer to fall (Dawson et al. 2015). During this metamorphosis, they develop eyes, a suctoral disc, sharp teeth, more-defined fins, and counter-shaded coloration (with silvery sides) in preparation for migration to the ocean (McGree et al. 2008, Manzon et al. 2015).

While little is known about Pacific lamprey juvenile outmigration timing in the study area, outmigration in other watersheds typically occurs at night in the winter and spring and is associated with high-flow events (Goodman et al. 2015). In the study area, summer and fall flows in the downstream portions of the two watersheds tend to be relatively low with intermittent, dry reaches; therefore, downstream migration likely occurs primarily in the winter and spring when sufficient stream flow is present to facilitate movement (before May).

After juveniles migrate to the ocean, they spend one to three years in the marine environment, during which time they parasitize a wide variety of ocean fish, including Pacific salmon, flatfish, rockfish, and pollock (Murauskas et al. 2013).

Pacific Lamprey Habitat Requirements

Pacific lamprey spawn in a wide range of river systems, from short coastal streams to inland tributaries of large rivers (USFWS 2019). The natural distribution of Pacific lamprey in California includes most streams with anadromous access and suitable spawning and rearing habitats (Swift and Howard 2009; Goodman and Reid 2012, 2017; Reid and Goodman 2016a). In general, over-summering habitat consists of protected areas associated with large cobble or boulder substrates, bedrock crevices, man-made structures such as bridge abutments, and large wood (Robinson and Bayer 2005, Lampman 2011, Starcevich et al. 2014). Effective spawning habitat consists of gravel and cobble substrates within pool and run tailouts and low-gradient riffles (Stone 2006, Brumo et al. 2009, Gunckel et al. 2009). Pacific lamprey can utilize a wide range of substrate sizes for redd construction, but most spawning occurs in locations with dominant particle sizes ranging from approximately 0.4 to 3.9 inches (10 to 100 mm) (Stone 2006, Gunckel et al. 2009). The principal habitat characteristics required for larvae are perennial water, fine sediments (sands and silts), and suitable water temperatures (Torgersen and Close 2004, Stone and Barndt 2005).

Unlike salmonids that can swim through or jump over high-velocity barriers, Pacific lamprey are specialized anguilliform [4] swimmers, with high-efficiency but relatively low-speed swimming (Mesa et al. 2003, Reid and Goodman 2016b). Swimming Pacific lamprey are often challenged by structural features (e.g., waterfalls, dams, fish ladders) (Goodman and Reid 2017). Often, they travel along the shallow periphery or even out of the water over wetted surfaces of a feature. This allows them to climb substantial waterfalls beyond the leaping or swimming ability of salmonids; however, simple angular edges or porous surfaces (e.g., grates) can block their passage.

The USFWS (2019) provides are review of Pacific lamprey habitat needs to date with regard to temperature ranges, tolerances, and preferences across life history stages. Pacific lamprey tolerate a range of temperatures from 41 to 77 °F (5 to 25 °C). Adult upstream migration and pre-spawning holding have been observed when daily average water temperatures are at or below 68 °F (20 °C) (Robinson and Bayer 2005, McCovey 2011, Starcevich and Clemens 2013). Although the upper and lower water temperatures at which spawning occurs are not well-defined, spawning has been observed at temperatures of 50–68 °F (10–20 °C) (Brumo 2006, Stone 2006). However, peak spawning occurs around 55-59 °F (13–15 °C) (USFWS 2019). Optimal embryo development occurs at water temperatures between 50 and 64 °F (10 and 18 °C). Meeuwig et al. (2005) found a sharp decline in embryo survival and increase in

[4] Elongate fishes with pelvic fins and girdle absent or reduced.

developmental abnormalities as incubation temperature increased from 64 to 71 °F (18 to 22 °C). Survival of larvae is optimal over a range of 50–64 °F (10–18 °C) with a sharp decline at 71 °F (22 °C). Water temperature suitability for juvenile downstream migration has not been documented. Although specific tolerances to DO are unknown, the species is known to be tolerant of low oxygen concentrations (Brumo 2006, Beamish 1980).

Pacific Lamprey Occurrence in the Fisheries Resources Study Area

Pacific lamprey have been documented in streams in the northern portion of Santa Clara County and are present in mainstem Coyote Creek and Upper Penitencia Creek (NMFS 2011; City of San José 2012; Valley Water 2020a, 2021a). Pacific lamprey larvae were reported in Coyote Creek by Leidy (2007). In Coyote Creek, Pacific lamprey larvae reportedly are common downstream of the percolation pond discharge (Smith 2013).

Recent observations of Pacific lamprey migrating upstream and downstream have occurred at the Coyote Percolation Facility Fish Ladder in 2019, 2020, and 2023 (Valley Water 2020a, 2021a, 2024 ~~2023d~~). Four adult Pacific lamprey were observed in Upper Penitencia Creek, in proximity to Highway 680, during a spawning survey in 2011 (NMFS 2011). Over the last three years, a few outmigrating juveniles have been observed in the tidally influenced part of the study area where Coyote Creek discharges into the South San Francisco Bay (Otolith Geochemistry & Fish Ecology Laboratory 2021, 2023) even though the sampling methods are not optimized to capture Pacific lamprey. The documented lamprey juveniles likely reared in Coyote Creek for 5-7 years before being observed in the University of California, Davis Trawl surveys, assuming they migrated from the closest river system to where they were observed. With the completed installation of the fish passage facility at Coyote Percolation Dam, it is reasonable to assume, depending on hydrologic conditions, that Pacific lamprey could migrate up Coyote Creek to the base of Anderson Dam.

Because monitoring for Pacific lamprey is opportunistic and few observations have occurred in Coyote Creek Watershed, there is no known changes in occurrence observed between Pre-FERC Order and existing conditions that can be deciphered from the data available.

Monitoring for lamprey in Coyote Creek upstream of the tidally influenced areas is opportunistic so their current occurrence in the watershed is unknown but lamprey adults were observed on the Vaki Riverwatcher at Coyote Percolation Facility in 2023 so they are present under existing conditions throughout Coyote Creek and likely in Upper Penitencia Creek (Valley Water 2024 ~~2023d~~).

Sacramento Hitch

Sacramento hitch occur in the study area and are a California species of special concern (CNDDB 2023 ~~CDFW 2018c~~).

Sacramento Hitch Life History

Sacramento hitch are omnivorous cyprinids that feed in streams on filamentous algae, as well as aquatic and terrestrial insects (Moyle 2002). They feed in open water, and juvenile Sacramento hitch (2–3 inches in length) will feed on drift at the heads of pools in the summer (Moyle 2002). Sacramento hitch primarily feed, and are most active, during the day (Moyle 2002).

Sacramento hitch can spawn as early as February and as late as July. Spawning is known to occur in riffles of streams after increased flows resulting from spring rains (Moyle 2002). Sacramento hitch require clean, fine to medium gravel for spawning, and water temperatures of 57–79 °F (14–26 °C) (Moyle 2002). Sacramento hitch prefer to spawn in shallow water; however, the species can also spawn in ponds and reservoirs. Sacramento hitch are known to hybridize with Sacramento blackfish and southern coastal roach (Moyle 2002).

Female Sacramento hitch have been known to contain more than 26,000 eggs, but larger numbers are likely possible in the correct conditions (Moyle 2002). Males fertilize the eggs immediately after release, and the fertilized eggs then sink into the gravel below (Moyle 2002). The eggs absorb water and swell considerably, about four times their original size, which lodges them into the gravel (Moyle 2002). Hatching occurs 3 to 7 days later at temperatures of 59–72 °F, with larvae free-swimming in 3 to 4 days (Moyle 2002). Young Sacramento hitch spend about 2 months in shallow water or near aquatic plant beds before moving to open water when they are around 2 inches in length (Moyle 2002). Juvenile rearing can occur year-round.

Sacramento Hitch Habitat Requirements

Sacramento hitch prefer warm, lowland waters, but are also known to be abundant in cool, clear streams (Moyle 2002). They can reside in clear streams, turbid sloughs, lakes, and reservoirs (Moyle et al. 2015). In streams, smaller fish are often associated with beds of aquatic or emergent vegetation that are utilized as cover, and larger fish reside in deep pools with overhanging trees (Moyle 2002). Sacramento hitch spawn primarily in riffles with clean, fine to medium sized gravels in low-gradient streams, although spawning may also occur in ponds or reservoirs (Moyle 2002). Juvenile (2–3 inches) Sacramento hitch have also been seen schooling at pool edges and adults have been observed in undercut banks bordering pools (Leidy 2007). Sacramento hitch are known to prefer stream habitat that includes riffles and shallow waters with smaller gravel (Moyle et al. 2015). Sacramento hitch are also associated with unshaded pools with low water clarity and silt or sand substrates, where they can occur in high densities (Leidy 2007). They are known to use flooded marshes as cover for their young (Moyle 2002). Like non-native fishes in the San Francisco estuary region, Sacramento hitch tend to utilize middle to lower reaches of large streams (Leidy 2007).

Sacramento hitch have the highest temperature tolerance of any native fish in the Central Valley, with juvenile fish able to acclimate to temperatures around 86 °F (29 °C) in the lab (Moyle 2002). However, adults tend to select temperatures of 80–84 °F (27–29 °C) and are most abundant in water temperatures cooler than 77 °F (25 °C) during the summer (Moyle 2002). Sacramento hitch can also survive in brackish water, with reports of Sacramento hitch being found in salinities as high as 9 parts per thousand (ppt) (Moyle 2002). There is little known about DO tolerances. However, because the species is tolerant of elevated temperatures, it is likely the species is tolerant of commonly associated low DO levels relative to other native fish (i.e., below 7 mg/L).

Sacramento Hitch Occurrence in the Fisheries Resources Study Area

In Coyote Creek, downstream of the Anderson Dam, Sacramento hitch have been documented in several surveys (Buchan and Randall 2003; Leidy 2007; Moore et al. 2008; Leicester and Smith 2014, Leicester and Smith 2015; Valley Water 2020a, 2021a, 2021g ~~2021d~~, 2022). Although there has not been comprehensive density sampling along the entire length of Coyote Creek for hitch, they seem to be in higher abundance or occur more often closer to the dam (Leicester and Smith 2014, Leicester and Smith 2015). Leidy (2007) observed large adult Sacramento hitch (less than 280 mm fork length) in Coyote Creek near undercut banks along pools, while schools of smaller Sacramento hitch (less than 125 mm fork length) were found along edges of pool habitats (Leidy 2007).

In Coyote and Anderson Reservoirs, California Department of Fish and Game (CDFG; now CDFW) reportedly collected Sacramento hitch during surveys conducted in the 1970s and 1980s (Leidy 2007). Valley Water did not document hitch in Anderson Reservoir during boat-based electrofishing and hook and line surveys in 2017 and 2019 (Valley Water 2020b) or in limited exploratory boat-based electrofishing surveys in 2023 (Valley Water 2023c ~~C. Leal Pers. comm. 2023~~). Also, while Valley Water did capture Sacramento hitch during the FOCP drawdown through fyke net trapping downstream of the reservoir (Valley Water 2021d ~~2021c~~), the fyke net was located over 30 meters downstream of the dam so it was not possible to differentiate if the Sacramento hitch came from the reservoir or were already using wetted areas between the fyke trap and the dam (Valley Water 2021d ~~2021c~~). However, Valley Water did document Sacramento hitch in Coyote Reservoir using boat-based electrofishing in 2019 (Valley Water 2020c); therefore, while abundance in Anderson Reservoir under existing conditions baseline is likely very low compared to total abundance throughout the watershed, there is still a possibility that Sacramento hitch can occur in Anderson Reservoir if they move from Coyote Reservoir down to Anderson Reservoir. It is also unknown if Sacramento hitch occur in the northern arm tributaries of Anderson Reservoir, but if they do, these tributaries could also seed Anderson Reservoir with this species.

Sacramento hitch have not been observed in Upper Penitencia Creek pre-FOCP or during current conditions.

Although monitoring for Sacramento hitch is opportunistic, there have been no major changes in occurrence observed between Pre- and Post-FERC Order conditions that can be deciphered from the data available. Sacramento hitch are abundant, less sensitive to water temperature than other native fish, and can spawn in a variety of habitat so they will likely occur anywhere that provides enough water depth and some kind of spawning habitat.

Although there have been no observations of Sacramento hitch within the tidally influenced portions of Coyote Creek Watershed, given the salinity tolerances outlined above, and the opportunistic monitoring that is conducted for this species as well as within the tidal reaches, it is possible Sacramento hitch could occur within the tidally influenced portions of Coyote Creek.

Southern Coastal Roach

Southern coastal roach occur in the study area and are a California Species of Special Concern (CDFW 2023).

Southern Coastal Roach Life History

Spawning is temperature dependent and typically occurs between March and July when water temperature exceeds 60 °F (Moyle et al. 2015). Southern coastal roach form large aggregations for spawning within habitats that are shallow in depth, contain flow, and contain coarse substrates 3–5 cm in diameter (Moyle 2002, Moyle et al. 2015). Females deposit eggs into crevices between rocks and males fertilize the eggs (Moyle et al. 2015). Eggs hatch within 2–3 days and larvae remain in the gravel until swimming abilities are developed (Moyle et al. 2015). The species usually becomes mature at 2, and sometimes 3, years of age (Moyle 2002).

Southern Coastal Roach Habitat Requirements

Southern coastal roach occur in a wide array of habitats and are tolerant of intermittent surface water (Moyle et al. 2015). The species is tolerant of varied temperatures (warmwater temperatures up to 95 °F [30-35 °C]) and low levels of DO (1-2 mg/L) (Moyle et al. 2015) but are intolerant of saline environments (Moyle 2002). Southern coastal roach are common in reaches that support native fish but may be less present in reaches that contain piscivorous (fish-eating) fish, particularly non-native species (Moyle 2002). The species is most abundant in reaches where between 0 and 2 other species are present (Moyle 2002). In streams, the species can be found in open waters of large pools as well as riffles and other shallow habitats (Moyle 2002). The species is omnivorous and feeds on filamentous algae, aquatic insects, and small crustaceans (Moyle 2002).

Occurrence in the Fisheries Resources Study Area

Southern coastal roach are present in the study area and have been recently observed from Ogier Ponds to Anderson Dam (Valley Water 2008a, 2008b ~~2008~~, 2021a, 2022). It is reasonable to assume that, depending on hydrologic conditions, southern coastal roach could be present within Coyote Creek from the estuary to Anderson Dam. Southern coastal roach are also present within Upper Penitencia Creek (Valley Water 2021a, Smith 2021).

Although monitoring for roach is opportunistic, there have been no major changes in occurrence observed between pre- and current conditions. Southern coastal roach are less sensitive to water temperature than other native fish, and can spawn in a variety of habitat so they will likely occur anywhere that provides enough water depth and some kind of spawning habitat.

Southern coastal roach have not been documented in the tidally influenced portions of Coyote Creek, and given the habitat requirements outlined above, it is unlikely the species is present within this reach.

San Francisco Bay-Delta Longfin Smelt

The San Francisco Bay-Delta DPS of longfin smelt (longfin smelt) occurs in the tidally influenced portions of Coyote Creek as well as Alviso Slough, ~~and~~ is a federal candidate species for ESA protection, is listed as endangered under the ESA (89 FR 61029), and is listed as threatened under the California Endangered Species Act (USFWS 2021, CDFW 2018b).

Longfin Smelt Life History

Longfin smelt are a facultatively anadromous smelt species that can tolerate a wide range of salinities (Moyle 2002, CDFW 2010). Most longfin smelt live for up to two years, although some age three longfin smelt have been observed (CDFG 2007, CDFW 2010). Adult and juvenile longfin smelt generally occur in the open waters of San Francisco Bay and coastal marine habitats during the late spring and summer months (Moyle 2002, Barros et al. 2022a ~~2021~~). Adults migrate to low-salinity tidal habitats beginning in October to begin spawning (Moyle 2002). Spawning typically occurs from February to April at water temperatures of 44.6–58.1 °F (7 °C–14.5 °C) but can occur as early as November and as late as June (Moyle 2002, Otolith

Geochemistry & Fish Ecology Laboratory 2021). Embryos hatch in about 40 days at 44.6 °F (7 °C) (Moyle 2002). Newly hatched longfin smelt are buoyant and are naturally swept downstream into more brackish parts of the estuary (Moyle 2002). In the Bay-Delta, they are most abundant in San Pablo and Suisun bays (Moyle 2002).

Longfin Smelt Habitat Requirements

Longfin smelt inhabit nearshore waters to estuaries and lower portions of freshwater streams (Garwood 2017). Little scientific literature exists regarding the habitat of each life-history stage of longfin smelt. Larvae, juveniles and adults are typically found in salinity ranges less than 2 ppt (Rosenfield 2010). Although exact locations of spawning adults are unknown, within the San Francisco Bay spawning appears to occur near the fresh-salt water mixing zone (Rosenfield 2010). It is thought the selection of a spawning site may be within an area that allows the transport of larvae into the fresh-salt water mixing zone as it is both a productive and turbid area within the San Francisco Bay (Rosenfield 2010).

Longfin smelt are found in a wide variety of water temperatures and salinities (including freshwater to almost pure seawater) during their life cycle (Moyle 2002, CDFG 2007). Longfin smelt prefer salinities in the range of 15–30 ppt and appear to be limited by high water temperatures, as they rarely are found in water temperatures greater than 68.0 °F (20 °C) (Moyle 2002, CDFG 2007, The Bay Institute et al. 2007, Rosenfield 2010). Longfin smelt forage in tidally influenced portions of river channels where copepods and mysid shrimp are abundant (Barros et al. 2022a ~~2021~~, Lewis et al. 2020, Valley Water 2013). Spawning occurs at night within sandy or gravelly substrates, rocks, and aquatic vegetation (Moyle 2002). Longfin smelt spawn adhesive eggs which are likely deposited on rocks or aquatic plants upon fertilization; however, exact locations of spawning and egg deposition remain unknown (Gross et al. 2022). Successful recruitment of longfin smelt appears to be positively correlated with winter and spring freshwater outflow, as higher inputs of freshwater likely provide greater quantities of brackish water rearing habitat for longfin smelt larvae (Moyle 2002, Lewis et al. 2020).

Longfin smelt occur in turbid environments and seem to tolerate and even prefer high levels of suspended sediment. Following several atmospheric rivers in December 2022 and January 2023, Coyote Creek suspended sediment and turbidity levels were very high. While turbidity and suspended sediment levels remained high where Coyote Creek discharges into the sloughs, the University of California, Davis trawl effort by the Otolith Geochemistry & Fish Ecology Laboratory documented over 200 longfin smelt in that area that appeared to be preparing for spawning (Otolith Geochemistry & Fish Ecology Laboratory 2023).

Longfin Smelt Occurrence in the Fisheries Resources Study Area

Longfin smelt occur in the South San Francisco Bay, including tidally influenced reaches of Coyote Creek and Alviso Slough, seasonally from October through April as adults and from April through May as post-larval recruits (Lewis et al. 2020; Moyle 2002; Otolith Geochemistry & Fish Ecology Laboratory 2021, 2022). Fish sampling in Coyote and Alviso sloughs has detected the species October through May (Hobbs et al. 2012 as cited in Valley Water 2013; Otolith Geochemistry & Fish Ecology Laboratory 2021, 2022, 2023). Adult longfin smelt have been observed spawning or preparing to spawn in restored salt ponds and tidal sloughs within the study area (Lewis et al. 2020, Barros et al. 2022a ~~2021~~; Otolith Geochemistry & Fish Ecology Laboratory 2021, 2022, 2023). Post-larval recruits forage in restored salt ponds and tidal sloughs of the South San Francisco Bay before leaving the study area and migrating seaward into deeper, cooler bay and coastal marine habitats during the summer (June through September) (Barros et al. 2022b ~~2022~~; Moyle 2002). To date, longfin smelt have only been documented in intertidal areas and have not been documented further upstream in Coyote Creek and Upper Penitencia Creek. Given habitat criteria outlined above, it is unlikely for longfin smelt of any life-history stage to occur upstream of the tidally influenced portions of Coyote Creek Watershed.

Under the Pre-FERC Order Baseline and through existing conditions, “Persistent and occasionally dense” aggregations of Longfin smelt have been observed in the tidally influenced reaches of Coyote Creek and Alviso Slough between 2011 and 2022 (Lewis et al. 2020; Otolith Geochemistry & Fish Ecology Laboratory 2021, 2022, 2023). Longfin are not present near the Seismic Retrofit construction area or in freshwater areas of Coyote Creek. The first documented adults in spawning condition occurred in 2017.The number of observed individuals has increased each subsequent year starting in 2011 with the highest number of individuals observed in 2022 and 2023 during existing conditions (Lewis et al. 2020; Otolith Geochemistry & Fish Ecology Laboratory 2021, 2022, 2023). The first documented adults in spawning condition ~~t~~ occurred in 2017.

White Sturgeon

White sturgeon occur in South San Francisco Bay and are a California Species of Special Concern.

White Sturgeon Life History

White sturgeon juveniles and adults migrate between fresh and salt water at multiple stages of their life cycle other than the spawning period. Reports of maximum size and age of white sturgeon are as great as 6-meter fork length (FL; the distance from the tip of the snout to the end of the middle caudal fin rays) (820 kg) and greater than 100 years old, although they generally do not exceed 2-meter FL or 27 years of age. Maturation depends largely on temperature and photoperiod, with males maturing in 10–12 (75–105 cm FL) years and females in 12–16 years (95–135 cm FL) (Moyle 2002).

White sturgeon have high fecundities and females may spawn up to 200,000 eggs. White sturgeon spawn in large, mainstem rivers, with the majority of white sturgeon in San Francisco Bay spawning in the Sacramento River, followed by the Feather and San Joaquin Rivers (Moyle 2002). Eggs become adhesive after fertilization and adhere to the substrate until they hatch 4 to 12 days later, depending on temperature. Once the eggs have been deposited, the adults move back downstream to the estuary. Larvae hatch in 12 weeks, depending on temperature.

Little is known about white sturgeon in the South San Francisco Bay due to their long lifespan and the difficulty of tracking over time (Schreier et al. 2022, Walter et al. 2022). However, they are similar to other sturgeon species, and exhibit delayed maturation and irregular reproduction (Zeug et al. 2014). Juvenile and adult white sturgeon can be found year-round in the San Francisco Bay and primarily spawn in the Sacramento River in late winter and spring (Zeug et al. 2014).

White Sturgeon Habitat Requirements

Although white sturgeon migrate between freshwater and salt water, they primarily occur in brackish portions of estuaries where they tend to concentrate in deep sections having soft substrate and cool water temperatures (59–71 °F [15–22 °C]) (Grans et al. 2010, Moyle 2002, Patton et al. 2020). They move according to salinity changes and may swim into intertidal zones to feed at high tide (Patton et al. 2020). White sturgeon are benthic feeders, and adults may move into food-rich areas to forage. Juveniles consume mainly crustaceans, especially amphipods and opossum shrimp (Moyle 2002). Adult diets include invertebrates (mainly clams, crabs, and shrimp), as well as fish, especially herring, anchovy, striped bass, and smelt (Otolith Geochemistry & Fish Ecology Laboratory 2021).

Spawning occurs in large mainstem rivers over deep gravel riffles or in deep pools with swift currents and rock bottoms between late February and early June when temperatures are between 8–19 °C (Moyle 2002).

White Sturgeon Occurrence in the Fisheries Resources Study Area

White sturgeon use the tidally influenced reaches of the study area for rearing and foraging. White sturgeon populations are estimated to be high in the tidally influenced reaches of Coyote Creek, likely due to historical inaccessibility (i.e., shelter from fishing) and abundance of prey (Buckmaster and Hobbs 2009). White sturgeon readily migrate into South San Francisco Bay sloughs in the springtime to feed on prey that are seasonally abundant (Otolith Geochemistry & Fish Ecology Laboratory 2021, 2022). White sturgeon migrate out of these sloughs when water temperatures increase, as they prefer temperatures from 59–71 °F (15–22 °C) (Grans et al. 2010). Fish sampling in Coyote and Alviso sloughs has detected the species during the cooler months (November through May), with limited detections during warmer summer months (June through October) (Otolith Geochemistry & Fish Ecology Laboratory 2021, 2022). To date, white sturgeon have only been documented in intertidal areas and have not been documented further upstream in Coyote Creek or Upper Penitencia Creek.

Because observations of white sturgeon are opportunistic during the University of California, Davis trawl effort by the Otolith Geochemistry & Fish Ecology Laboratory, as well as citizen science initiatives (iNaturalist 2023) in South San Francisco Bay, including the tidally influenced portions of Coyote Creek Watershed, there are no known changes in occurrence or abundance observed between Pre-FERC Order Baseline Conditions and the existing conditions baseline that can be deciphered from the data available.

Green Sturgeon Southern Distinct Population Segment

The Green Sturgeon Southern DPS (green sturgeon) occurs in South San Francisco Bay and is protected as Threatened under the ESA (CDFW 2021). Critical habitat is designated under the ESA within the lowermost, tidally influenced reaches of Coyote Creek to approximately 120 feet upstream of the North McCarthy Boulevard Bridge crossing over Coyote Creek (50 CFR Part 226).

Green Sturgeon Life History

Little is known about green sturgeon in the South San Francisco Bay. The species is currently thought to have spawning fidelity in natal streams and is only known to spawn in the Feather River and the upper reaches of the Sacramento River between April and July, although early spring and later summer spawning may also occur (NMFS 2018). Juvenile and adult green sturgeon could be in South San Francisco Bay year-round and some adults through San Francisco Bay to the Sacramento River during their spawning migration (NMFS 2018). Juveniles appear to spend 1 to 4 years rearing in fresh and estuarine waters (Beamesderfer and Webb 2002, Moyle et al. 1995).

Green Sturgeon Habitat Requirements

Green sturgeon spawn in deep pools in large, turbulent, freshwater river mainstems (Moyle et al. 1992). Juvenile green sturgeon may be found in freshwater or brackish water environments but are generally between 1-2 years old before entering seawater, while adults can be found in freshwater, brackish water, or seawater environments (Allen and Cech Jr. 2006). Although adult green sturgeon are often found in brackish water habitats, the energetic costs of individuals located in environments with salinities ranging between freshwater and brackish water were virtually the same (Allen and Cech Jr. 2006).

Critical habitat was designated for the DPS of green sturgeon on October 9, 2009 (74 Federal Register 52300) and includes coastal marine waters within 60 fathoms depth from Monterey Bay, California to Cape Flattery, Washington, including the Strait of Juan de Fuca to its United States boundary. Designated critical habitat also includes the Sacramento River, lower Feather River, lower Yuba River, Sacramento-San Joaquin Delta, Suisun Bay, San Pablo Bay. Critical habitat also includes San Francisco Bay encompassing all tidally influenced areas up to the mean high-water elevation in the bay and its tributaries (NMFS 2009); this designation includes the lowermost, tidally influenced reaches of Coyote Creek. The Primary Biological Features determined by NMFS to be essential for the conservation of the sDPS include deep holding pools (less than or equal to 16.4 feet for both upstream and downstream holding of adult or subadult fish), with adequate water quality and flow to maintain the physiological needs of the holding adult or subadult fish. Sediment quality (i.e., chemical characteristics) is necessary for normal behavior, growth, and viability of all life stages. This includes sediments free of elevated levels of contaminants (e.g., selenium, polyaromatic hydrocarbons, and pesticides) that may adversely affect green sturgeon.

Green Sturgeon Occurrence in the Fisheries Resources Study Area

Although green sturgeon have not been documented and are not generally expected to occur within the fisheries study area, critical habitat under the ESA is designated within the tidally influenced reaches of Coyote Creek. Green sturgeon presumably forage in the South San Francisco Bay; however, only one definitive record has been documented of a radio-tagged individual tracked to a telemetry receiver on the Dumbarton Railroad Bridge (Spenst et al. 2012 as cited in Valley Water 2013). Given no observations of green sturgeon have occurred during the monthly fish sampling in Coyote and Alviso sloughs (Otolith Geochemistry & Fish Ecology Laboratory 2023), it is unlikely for green sturgeon to occur within the tidally influenced portions of Coyote Creek, upstream of the tidally influenced portions of Coyote Creek, or Upper Penitencia Creek.

Riffle Sculpin

Riffle sculpin (*Cottus gulosus*) is listed by the State of California as a Species of Special Concern. Riffle sculpin are present in Upper Penitencia Creek but have not been observed in Coyote Creek. The population of riffle sculpin (*Cottus* sp.) in drainages flowing west or southwest along the Coast Range Mountains of California, including the Coyote Creek watershed, was determined to be genetically and geographically distinct from other populations in a recent, comprehensive review of the *Cottus gulosus* complex (Moyle and Campbell 2022). Moyle and Campbell (2022) now refer to sculpin in the Coyote Creek watershed as *Cottus ohlone* or coastal riffle sculpin. A subspecies was identified *C. o. ohlone* (Ohlone riffle sculpin), which includes *C. ohlone* in Coyote Creek watershed (Moyle and Campbell 2022), although the *C. ohlone* nomenclature has not been completely adapted yet by the scientific community at large and regulatory status of *Cottus ohlone* has not been formally reevaluated by the state of California at this time. Despite the inconsistencies of the species name at this time, "riffle sculpin" is generally used in this EIR.

Riffle Sculpin Life History

Riffle sculpin can grow up to 6 inches; however, most adults are typically 2–3 inches long (Moyle et al. 2015). Adults are thought to mature at the end of their second year, with spawning occurring from February through March (Moyle 2002). Spawning occurs under rocks in swift riffles or inside cavities in submerged logs (Moyle et al. 2015). Males choose spawning locations and remain in the nest to guard embryos until they hatch (Moyle et al. 2015). A female can lay between 400 and 1,000 eggs with embryos typically hatching within 11–24 days later at water temperatures ranging from 59–75 °F (15–24 °C) (Moyle 2002). Fry are benthic and do not move far after emerging from their nests. Juveniles and adults are poor dispersers and generally stay close to where their natal nests were located (Moyle et al. 2015).

Riffle sculpin are opportunistic feeders and feed mostly at night. They prey primarily on benthic macroinvertebrates, mainly the larvae of caddisflies, stoneflies, and mayflies, but also eat amphipods and small fish (Moyle 2002).

Riffle Sculpin Habitat Requirements

Riffle sculpin are found exclusively in permanent headwater streams with rocky or gravel substrates. They prefer cold, well-oxygenated streams with DO levels near saturation, which restricts their occurrences to areas with ample flowing water (Moyle et al. 2015). Riffle sculpin are most abundant in streams with water temperatures that do not exceed 77–79 °F (25–26 °C) while temperatures above 86 °F are typically lethal (Moyle 2002).

They occupy riffles and pools but prefer areas that have adequate cover in the form of rocks, gravel, woody debris, or undercut banks (Moyle et al. 2015). Riffle sculpin also require suitable habitat for benthic macroinvertebrates, their primary prey source (Moyle et al. 2015). Riffle sculpin are typically found in headwater streams and upper watersheds and generally utilize the same headwater and upper watershed habitats as steelhead and Pacific lamprey (Leidy 2007).

Riffle Sculpin Occurrence in the Fisheries Resources Study Area

Riffle sculpin are common throughout Upper Penitencia Creek (Valley Water 2021a). The species has not been observed in Coyote Creek (below Anderson Reservoir), Anderson Reservoir, and wouldn't be present in the intertidal portions of Coyote Creek Watershed.

Essential Fish Habitat

The study area includes areas designated as EFH for various life-history stages of coho and fall-run Chinook salmon in the Santa Clara Hydrologic Unit [2205], coastal pelagic species and Groundfish. Affected portions of coho and Chinook salmon EFH include migratory corridors, spawning habitat, and rearing habitat. Although there were potential historical reports of coho salmon in Coyote Creek Watershed, the habitat conditions likely did not support this species, and the credibility of the historic accounts is unknown. Coho salmon are not currently present but ~~were not historically present and are not currently present in the Coyote Creek Watershed,~~ coho salmon EFH is designated in Coyote Creek downstream of Anderson Dam (Leidy et al. 2005b, Leidy 2007). In this EIR, impacts on coho salmon EFH are indirectly addressed through evaluation of impacts on Chinook salmon and steelhead habitat. The tidal areas of Coyote Creek fall under Costal Pelagic and Groundfish EFH. These areas are defined as the waters and substrate necessary to fish for spawning, breeding feeding, or growth to maturity. The area of EFH for groundfish and pelagic fish affected by the Project is a very small proportion (<0.01%) of the total EFH designated for the species along the Pacific Coast. ~~These habitats are present in a very limited area of the study area and are not expected to be impacted by project actions.~~ Coastal pelagic and groundfish EFH would have similar impacts as those on the estuarine species' (i.e., Impacts FR-1f, FR-1g, and FR-1h) and are analyzed by applying the estuarine species impacts analysis to consideration of the impacts on pelagic and groundfish species and EFH. As described in Impacts FR-1f, FR-1g, and FR-1h, increased suspended sediment is not anticipated to substantially decrease the quality of estuarine species' habitat. In addition, groundfish and pelagic species are adapted to periodic pulses of high sediment and have the ability to swim away from areas of temporary poor habitat quality. Coastal pelagic and groundfish EFH would have similar impacts as those on the estuarine species' and can be considered indirectly analyzed through the impacts of these species.

3.4.1.2 Points of Interest in the Study Area

The FAHCE TWG identified POIs (**Figure 3.4-2**), selected to represent the most ecologically relevant results for salmonids, used as nodes (or important locations) in development of the FAHCE WEAP model whose output was used to help predict fisheries impacts. The locations are also useful to delineate geographic features used for discussion throughout the impact analysis.

The details of the POIs can be found in the *Methods for Establishing Reaches of Interest and Points of Interest* (FAHCE TWG 2016) and **Table 3.4-3** but some of the relevant geographic locations for this EIR are described here and shown in **Figure 3.4-2**. COYO1 is at Highway 237 which is near the most upstream extent of the tidally-influenced part of the study area, COYO 2 is downstream of the Coyote Creek confluence with Upper Penitencia Creek with Coyote Creek, while COYO 3 is downstream of the Coyote Creek confluence with Silver Creek. COYO6 is downstream of the Coyote Percolation Ponds. COYO7 is upstream of Golf Drive and downstream of Ogier Ponds which is near the extent of the CWMZ as defined in the FAHCE *Settlement Agreement.* COYO 8-10 are in the FCWMZ with COYO8 occurring directly upstream of Ogier Ponds, COYO9 near the Madrone gauge which is often used as an assessment point for measuring flows and water quality and COYO10 is closest to the dam. Finally, all of the UPEN POIs denote locations in Upper Penitencia Creek. Riffle sculpin are present and steelhead may be relocated, if needed, under the Fish Rescue and Relocation Plan (Stillwater Sciences 2020a; see Section 2.5.6.1.6.4) at UPEN4.

Figure 3.4-2. Points of Interest in Coyote Creek and Upper Penitencia Creek (sources: ESRI 2016 and Valley Water 2023a ~~2020a~~)

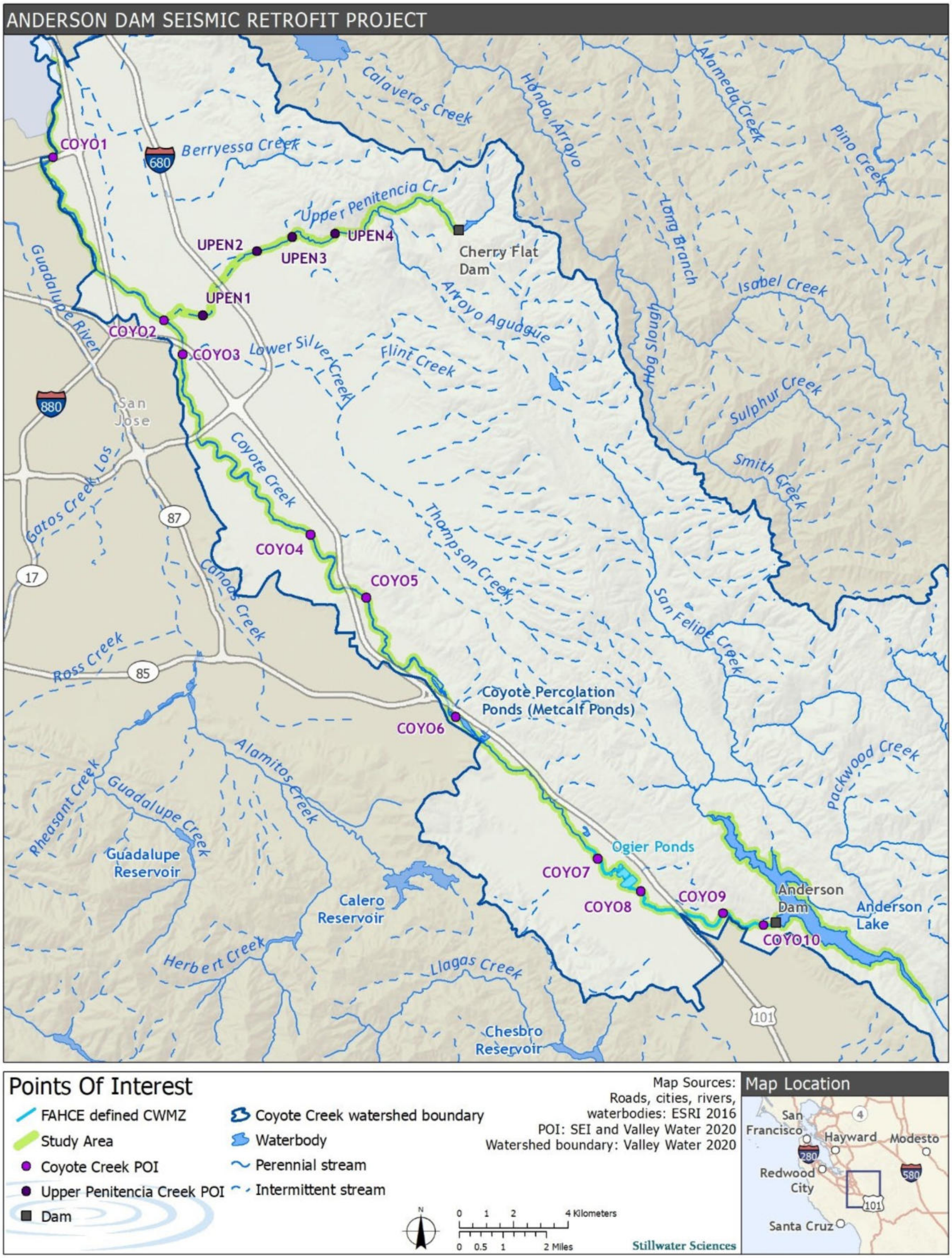


Table 3.4-3. Location of Points of Interest in Coyote Creek. Distances shown in feet upstream from San Francisco Bay

POI ID	Points of Interest	Distance to San Francisco Bay (feet)
COYO1	Highway 237	59,000
COYO2	Downstream of Penitencia Creek	87,800
COYO3	Downstream of Silver Creek	92,800
COYO4	Singleton Road	127,500
COYO5	Above Hellyer Avenue	141,500
COYO6	Downstream of Coyote Percolation Pond	167,500
COYO7	Above Golf Drive	192,000
COYO8	Above Ogier Ponds	204,000
COYO9	Below San Felipe Pipeline	214,400
COYO10	Below Anderson Reservoir	222,600
UPEN1	Upper Penitencia Creek below Mabury Diversion	94,000
UPEN2	Upper Penitencia Creek at Piedmont Road	105,000
UPEN3	Upper Penitencia Creek at Dorel Drive	110,000
UPEN4	Upper Penitencia Creek at Alum Rock YSI	121,500

3.4.1.3 Hydrology

Anderson Dam is an on-stream reservoir on Coyote Creek. The inflow into Anderson Reservoir can be split into two separate sub-watersheds:

1. Uncontrolled natural inflow from the northern arm reservoir tributaries (Packwood Creek and Las Animas Creek), excluding flows from Coyote Reservoir; and
2. Flows from Coyote Reservoir (controlled releases from the dam outlet and uncontrolled flow when the Coyote Reservoir is spilling).

In normal water years (50 percent exceedance probability), monthly uncontrolled natural inflow to Anderson Reservoir ranged from 8 AF in the late summer (September) to 2,489 AF in the winter (February). In wet water years (10 percent exceedance probability), monthly natural inflow ranges from 129 AF in the late summer to 11,070 AF in the winter. In dry water years (90 percent exceedance probability), monthly inflow ranges from 0 AF in the late summer to 215 AF in early spring (April). Controlled releases from Coyote Reservoir enter Anderson Reservoir as inflows after water losses in the reach of the creek between the two water bodies. The losses consist mainly of evapotranspiration. The losses average 1 to 2 cfs depending on the season. These conditions are the same for both Pre-FOCP and existing conditions. The construction activities do not alter hydrology in the upper portions of the watershed or releases from Coyote Reservoir.

Since the construction of Anderson Dam in 1950, high flows in Coyote Creek have been attenuated by the reservoir and uncontrolled spill release events occur on average every nine years via a surface release spillway, impeding sediment transport and promoting channel incision downstream of the dam. Due to regulated flows, in the Pre-FERC Order Baseline condition, Coyote Creek downstream of Anderson Dam has been mostly perennial, generally with higher summer flows and lower winter flows than would occur if the dam were not in place. During summer months, Valley Water has typically released a combined flow rate of between 20 and 60 cfs into Coyote Creek from Anderson Reservoir and from the CDL. The modeled 50 percent exceedance flows (i.e., a 2-year recurrence interval) in the FCWMZ (POI COYO9) are approximately 50 cfs from May–September. Of the water released downstream of Anderson Dam, approximately 8–9 cfs has been percolating into groundwater in the FCWMZ during the summer months (Valley Water, unpublished data).

Predicted monthly average streamflow for 10–90 percent exceedance probabilities and median streamflow by water year type at POI COYO9 in Coyote Creek downstream of Anderson Reservoir under modeled 2015 (pre-FERC order) conditions. Data are from Valley Water's WEAP model (SEI and Valley Water 2020). Anderson Reservoir Inflow percent exceedance (year) is based on Anderson Reservoir natural inflow (1936–2020).

Table 3.4-4. Predicted monthly average stream flow (CFS) exceedance for Pre-FERC Order conditions at COYO9 generated by the WEAP Model

Statistic	Flow (cfs)											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	45	43	40	142	401	296	155	51	52	53	52	49
20%	43	43	39	74	170	135	48	51	51	51	50	48
30%	43	43	38	44	46	52	48	51	51	51	50	48
40%	43	43	38	43	43	44	48	51	51	51	50	48
50%	43	43	38	43	43	44	48	51	51	51	50	48
60%	43	43	38	43	43	43	43	50	51	49	48	47
70%	43	42	37	43	42	41	39	45	50	46	47	47
80%	43	39	36	38	33	38	39	41	50	44	45	47
90%	42	38	35	31	27	29	38	38	45	40	44	47
% Exceedance (year)	***Average***											
<10%	43	40	38	70	291	384	260	44	51	45	46	47
10–50%	40	39	36	90	113	71	47	47	51	48	48	47
51–90%	44	42	39	41	40	41	46	48	49	49	50	45
>90%				43	42	43	48	52	52	53	53	50

Source: Unpublished WEAP Model outputs

Under Pre-FERC Order Conditions, during the winter months, Valley Water refills Anderson Reservoir and reduces flows released to Coyote Creek downstream of the dam to store local water that will serve as a cold pool in the summer. Under the Pre-FERC Order Baseline, storm flows are captured by the reservoir and winter peak flows in Coyote Creek are muted—particularly in early winter. While modeled 50 percent exceedance flows in the FCWMZ (POI COYO9) under Pre-FERC Order Baseline remain within a relatively narrow range (37–46 cfs) from

October–April, the modeled daily average flows at this location exhibit considerable fluctuation between about 40 and 200 cfs during this period.

Under Pre-FERC Order Baseline, inter-annual flow variability occurs, with substantial differences in the occurrence of peak flows between dry and wet water years, and with only minor variations in baseflows between years regardless of water year type. Intra-annual flow variability under Pre-FERC Order Baseline is apparent, with peak flows occurring primarily during the wet season, but with little variation in baseflows between the wet and dry season.

Since Anderson Reservoir is to be kept at Deadpool for the duration of FOCP and Project, releases from the reservoir will not be available during the summer months and winter and spring flows will be based on natural precipitation events. Flow is expected to be maintained to at least 10 cfs at gage 5082 during the project. Flow increase may occur during winter periods from precipitation events or increase releases of imported water. From the outlet of Anderson Dam to Gage SF07, less than one mile upstream of the Coyote Percolation Pond, percolation and evaporation can reduce winter flows to around 7 to 10 cfs under existing conditions. Loss of surface flow continues downstream past the Coyote Percolation Pond, at which point flows increase in a downstream direction as a result of groundwater emergence and inflow from Lower Silver Creek and Upper Penitencia Creek.

3.4.1.4 Non-Native Species

Non-native fish species are discussed here because the impact analysis considers whether Project implementation could increase adverse effects that non-native species might have on special status species. Furthermore, with the release of imported water to Coyote Creek, new non-native species may be introduced during the Project. Some non-native species are competitors with or predators on special status fish.

Several non-native species occur within the study area as a result of historical stocking for angling purposes, stocking by anglers for bait fish, incidental transfer through vessels, domestic animals, and other anthropogenic activities. Many of the non-native species present are managed by CDFW as game fish, even though they can have negative impacts on native species. Piscivorous species may prey upon special-status fish or compete for resources, affecting growth and condition factor (Swales 2006). The non-native fish species that occur within the study area are generally more tolerant of warm water than many of the native fish species.

New Zealand mudsnails (*Potamopyrgus antipodarum*) which are non-native and invasive, are also present in the study area in Coyote Creek.

Valley Water monitors for zebra mussels (*Dreissena polymorpha*) and quagga mussels (*Dreissena bugensis*) in Anderson Reservoir but have not detected any to date.

In the Pre-FERC Order Baseline Condition, although the relatively high baseflows year-round promote abundant habitat for special status fish, Yarnell et al. (2015) cite lack of seasonality of baseflows and constant high dry season baseflows promote conditions for non-native species (Kiernan and Moyle 2012) or can lead to an accumulation of silt and reduction in habitat diversity (Moyle and Mount 2007). However, releases from the Dam to provide habitat and flow variability generally supports conditions more favorable for native species.

Under existing conditions and construction the assemblage or distribution of non-native fish species in Coyote Creek is not expected to change. Changes associated with the project will not provide habitat that is more suitable. The Anderson Reservoir drawdown activities could create conditions that may allow for increase access of non-native species to Coyote Creek. Actions taken by Valley Water in FERC-ordered Invasive Species Monitoring and Control Plan during sampling activities and construction related dewatering will help reduce the abundance of non-native species.

Occurrence of Non-Native Fish Species in Anderson Reservoir

In the Pre-FOCP condition, a variety of non-native fish species occurred in Anderson Reservoir including: largemouth bass (*Micropterus salmoides*), red ear sunfish (*Lepomis microlophus*), bluegill (*Lepomis macrochirus*), catfish (*Ictalurus* and *Ameiurus* spp.), common carp (*Cyprinus carpio*), golden shiner (*Notemigonus crysoleucas*), threadfin shad (*Dorosoma petenense*), and inland silverside (*Menidia beryllina*), black crappie (*pomoxis migromaculatus),* white crappie (*Pomoxis annularis*), and koi (Leidy 2007; CDFW 2020; Valley Water 2020b, 2020c; 2023c ~~C. Leal, Pers, Comm. 2023).~~ CDFW has previously managed Anderson and Coyote Reservoirs as a fishery for non-native game fishes, such as largemouth bass, sunfish, black crappie, and catfish. Historically, since at least the 1960’s. CDFW stocked both Anderson and Coyote Reservoirs with a variety of native (rainbow trout) and non-native fish species (largemouth bass, red ear sunfish, bluegill, various catfish species, black crappie, etc.). The last CDFW stocking record that Valley Water was able to locate was from Coyote Reservoir in 2004 and it consisted of rainbow trout. No recent stocking of any fish species occurred in Anderson Reservoir prior to implementation of the FERC Order, as non-native populations appear to be self-sustaining. Coyote Reservoir has not been stocked by CDFW since 2004 and no additional non-native fish have been observed in Coyote Reservoir that are not present in Anderson Reservoir (Valley Water 2020b, 2020c).

Exploratory sampling in Anderson Reservoir using boat-based electrofishing in the spring of 2023, documented the following nonnative species in the reservoir under existing conditions: largemouth bass, common carp, black crappie, threadfin shad, inland silverside, bluegill, and koi. Only one native species, detected in the sampling effort was Sacramento sucker (*Catostomus occidentalis*) (Valley Water 2023c ~~C. Leal Pers. Comm. 2023~~).

Occurrence of Non-Native Fish Species in Coyote Creek downstream of Anderson Dam

The first non-native species in Coyote Creek appeared prior to construction of Anderson Dam in 1941 (Leidy 2007). Post-Anderson Dam construction, the seven non-native species known to occur in Coyote Creek, previously only observed downstream of Coyote Percolation Dam, were documented upstream of Coyote Percolation Dam, likely a result of migration from Anderson Reservoir (Buchan and Randall 2003). Currently, spotted bass, largemouth bass, green sunfish, bluegill, black crappie, channel catfish, common carp, golden shiner, red shiner (*Cyprinella lutrensis*), brown bullhead (*Ameiurus nebulosus*), yellow bullhead (*Ameiurus natalis*), western mosquitofish (*Gambusia affinis*), fathead minnow (*Pimephales promelas*), threadfin shad, and inland silverside are known to occur in Coyote Creek downstream of Anderson Reservoir (Leidy 2007; CDFW 2020; Valley Water 2008b, Valley Water, unpubl. data).

Since implementation of the FERC Order under existing conditions, non-native species persist in Coyote Creek downstream of Anderson Dam. Electrofishing surveys in the CWMZ by Valley Water have captured largemouth bass, spotted bass, bluegill, green sunfish, threadfin shad, inland silverside, and common carp. A fyke trap at the outlet of Anderson Dam deployed during late September through late November 2020 captured non-native largemouth bass, black crappie, bluegill, common carp, threadfin shad, and inland silversides during the reservoir drawdown (Valley Water 2021d ~~2021c~~). Other non-native species such as channel catfish have been documented on the Vaki Riverwatcher (Valley Water 2020e ~~2020d~~). Slow water refugia in Coyote Creek, such as Ogier and Coyote Percolation Ponds, continue to provide optimal habitat for warmwater non-native fishes which may prey upon or compete for habitat with native fishes.

In addition, New Zealand mud snails have recently been documented in Coyote Creek downstream of Anderson Dam (Valley Water unpublished data, USGS 2023).

Occurrence of Non-Native Fish Species in Upper Penitencia Creek

In the Pre-FERC Order Conditions, few non-native fish are documented and abundance is low in Upper Penitencia Creek; however, golden shiner, goldfish (*Carassius auratus*) and largemouth bass were documented during previous surveys (Valley Water 2008a, 2008b, 2019~~a~~). Under existing conditions, the abundance, assemblage, and distribution of non-native fish species in Upper Penitencia Creek is not expected change. Actions associated with the project will take proper precautions to avoid the transfer of non-native species. ~~[Suggest insert any post-FERC Order existing conditions data here, or state no expected changes in Existing condition]~~

3.4.2 Regulatory Setting

This section summarizes the federal and State laws, regulations, policies, and plans pertinent to the evaluation of the Project's impacts on aquatic biological resources.

3.4.2.1 Federal Laws, Regulations, and Policies

Clean Water Act

See Section 3.14, *Water Quality,* regarding Sections 401 and 404 of the Clean Water Act (CWA).

Endangered Species Act

The federal ESA (16 USC Section 1531 et seq.) protects fish and wildlife species that are listed as threatened or endangered and designated critical habitats. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction in all or a significant portion of their range. *Threatened* refers to species, subspecies, or distinct population segments that are considered likely to become endangered in the future. The ESA prohibits unauthorized "take" of any fish or wildlife species listed by the federal government as endangered or threatened (*take* is defined as harassment, harm, pursuit, hunting, shooting, wounding, killing, trapping, capture, or collection, or the attempt to engage in any such conduct). The ESA is administered by the USFWS for terrestrial and freshwater species and by the National Oceanographic and Atmospheric Administration's NMFS for marine species and anadromous fishes.

USFWS and NMFS can authorize incidental take through federal consultation under Section 7 of the ESA or through an incidental take permit and HCP under Section10(a)(1)(B). CCC steelhead (*Oncorhynchus mykiss*) and southern green sturgeon (*Acipenser medirostris*) populations are fish species that are protected under the Endangered Species Act that may occur in the study area and are undergoing Section 7 consultation between the FERC, USACE, and NMFS. Longfin Smelt, which also may occur in the study area, are proposed for listing as endangered by USFWS and are undergoing Section 7 consultation between FERC and USACE and USFWS. The VHP is an HCP that is relevant to the Project. While it provides incidental take coverage for several terrestrial species (see Terrestrial Biological Resources), it does not provide incidental take coverage for fish species. However, several VHP conditions benefit native fish species in Coyote Creek.

The ESA also requires that USFWS and NMFS designate critical habitat for the listed species they manage. The ESA defines critical habitat as "the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed that are determined by the Secretary to be essential for the conservation of the species." The study area includes designated critical habitat for central California coast steelhead and green sturgeon.

With respect to the Project, ESA Section 7 will be used to address any incidental take and adverse modifications of critical habitat for listed fish species, including steelhead and green sturgeon, and, if listed, longfin smelt, because FERC and USACE must consult with NMFS and USFWS under ESA Section 7 before issuing authorizations for the construction activities necessary to implement the Project.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson Stevens Fishery Conservation and Management Act, as amended (16 USC Section 1801 et seq.), requires that all federal agencies consult with NMFS on activities or proposed activities authorized, funded, or undertaken by that agency which may adversely affect essential fish habitat (EFH). EFH is identified for anadromous Pacific salmon stocks and coastal pelagic fish managed by the PFMC under the Pacific Coast Salmon Fishery Management Plan (FMP). These managed salmon include most of the Chinook salmon (*Oncorhynchus tshawytscha*) stocks from Washington, Oregon, Idaho, and California. The geographic extent of freshwater EFH is specifically identified in the FMP as all water bodies currently or historically occupied by PFMC-managed salmon in Washington, Oregon, Idaho, and California. The study area includes EFH in Coyote Creek for Chinook salmon and Coho salmon (*Oncorhynchus kisutch*) and South San Francisco Bay for groundfish and coastal pelagic species. Consultation under this Act was combined with ESA Section 7 consultation for the Project.

3.4.2.2 State Laws, Regulations, and Policies

California Endangered Species Act

CESA (Fish and Game Code section 2050 et seq.) protects wildlife and plants listed as *threatened* and *endangered* by the California Fish and Game Commission, as well as species identified as candidates for such listing. It is administered by the CDFW. CESA requires state agencies to conserve threatened and endangered species (section 2055) and thus restricts all persons from take of listed species except under certain circumstances. CESA defines *take* as any action or attempt to "hunt, pursue, catch, capture, or kill". The state definition does not include "harm" or "harass" as the federal definition does. As a result, the threshold for take under CESA is typically higher than that under the FESA.

Under certain circumstances, CDFW may authorize limited take, except for species designated as fully protected unless certain conditions are met (see discussion of fully protected species ~~under California Fish and Game Code below~~ in the regulatory setting for Section 3.5, *Biological Resources—Wildlife and Terrestrial Resources*). The requirements for an application for an incidental take permit under CESA are described in section 2081 of the Fish and Game Code and in final adopted regulations for implementing sections 2080 and 2081.

Longfin smelt are a state threatened species that occur in the study area. In the event that *take* (as defined under CESA) of longfin smelt might occur as a result of adverse impacts of the otherwise lawful implementation of the Project (which is unlikely), Valley Water may obtain an incidental take permit under CESA section 2081 to authorize that take. Central Valley fall-run Chinook salmon, Pacific lamprey, Sacramento hitch, southern coastal roach, white sturgeon, and riffle sculpin, although not listed under CESA, are designated Species of Special Concern by CDFW.

Porter-Cologne Water Quality Control Act

See Section 3.14, *Water Quality,* regarding the Porter-Cologne Water Quality Control Act.

Water Quality Control Plan for the San Francisco Bay Basin

The San Francisco Bay RWQCB developed, adopted, updated, and currently implements the San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan) (San Francisco Bay RWQCB 2019).

The Basin Plan establishes water quality standards that protect the biological, chemical, fisheries and recreational quality of waters of the state, as required by the federal CWA and the Porter-Cologne Water Quality Control Act. Water quality standards include two components: designated beneficial uses of water, and water quality objectives to protect those uses. Related to fisheries, existing beneficial uses designated for study area water bodies include cold freshwater habitat, warm freshwater habitat, fish migration, preservation of rare and endangered species, and fish spawning (San Francisco Bay RWQCB 2019) (**Table 3.4-5)**.

In making a decision whether to grant a Water Quality Certification for the Project, which involves FERC authorization and issuance of a section 404 permit by the USACE, the SWRCB considers whether the federally-regulated activity will comply with the water quality standards established in the Basin Plan., including both water quality objectives and beneficial uses.

Table 3.4-5. Aquatic Life Beneficial Uses in the Study Area defined by the San Francisco Bay Regional Water Quality Control Board Basin Plan 2019

Waterbody	Commercial and Sport Fishing	Cold Freshwater Habitat	Estuary Habitat	Fish Migration	Preservation of Rare and Endangered Species	Fish Spawning	Warm Freshwater Habitat
Anderson Reservoir	X	X	N/A	N/A	N/A	X	X
Coyote Creek (nontidal)	X	X	N/A	X	X	X	X
Upper Penitencia Creek	N/A	X	N/A	X	X	X	X
Tidal Coyote Creek Coyote Slough)	N/A	N/A	X	X N/A	X	N/A	N/A
Alviso Slough	N/A	N/A	X	X	X	N/A	N/A
San Francisco Bay	X	X	X	X	X	X	N/A

Source: San Francisco Bay Regional Water Quality Control Board Basin Plan 2019)

Key: X = existing beneficial use

N/A = not applicable

For additional information about the Basin Plan, see Section 3.14, *Water Quality*.

Fish and Game Code Section 1600 et seq. – Lake and Streambed Alteration Program

Pursuant to Fish and Game Code section 1600 et seq., CDFW regulates any project proposed by any person that will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds". Regarding the definition of a river or stream or lake, at a minimum, CDFW claims jurisdiction over the water body's bed and bank. Where riparian habitat is present, the outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats. Fish and Game Code section 1602 requires an entity to notify CDFW of any proposed activity that may modify a river, stream, or lake. If CDFW determines that proposed activities may substantially adversely affect fish and wildlife resources, an LSAA must be prepared. The LSAA sets reasonable conditions necessary to protect fish and wildlife. The applicant may then proceed with the activity in accordance with the final LSAA.

Several Project components would result in impacts to the bed and banks of streams regulated by CDFW under Fish and Game Code section 1600 et seq. Valley Water will apply for and obtain a Lake and Streambed Alteration Agreement before impacting CDFW-regulated stream and riparian habitats.

Fish and Game Code Sections 5901 and 5937

Section 5901 of the Fish and Game Code states that it is unlawful to construct or maintain any device in a stream which prevents, impedes, or tends to impede the passing of fish upstream and downstream. Fish and Game Code section 5937 requires dam owners to allow sufficient water to pass to keep any fish existing below the dam in good condition. These sections of the code are relevant to the Project because they include operations of dams, retrofits of a dam, in-channel Conservation Measure construction, and long-term flow operations.

Natural Community Conservation Planning Act

The NCCP Act identified a need for "broad-based planning to provide for effective protection and conservation of the state's wildlife heritage while continuing to allow appropriate development and growth" (Fish and Game Code section 2801[b]). The Act describes the use of natural community conservation planning as a tool to protect species diversity and reduce conflict. An NCCP is a conservation plan that focuses on the conservation of natural communities at a landscape level. It provides a means of complying with the NCCP Act (Fish and Game Code section 2835) and securing CESA take authorization at the state level in exchange for conservation of natural communities. The VHP discussed below is both an NCCP and an HCP that provides for the conservation and protection of, as well as authorized incidental take of 18 "covered species," including California tiger salamander, California red-legged frog, foothill yellow-legged frog, and western pond turtle, all which are addressed in the Terrestrial Biology section of this EIR.

The primary objective of the NCCP program is to conserve natural communities at the ecosystem scale and contribute to species' recovery while accommodating compatible, lawfully adopted land uses and authorizing incidental take associated with those land uses. To be approved by CDFW, an NCCP must provide for the conservation of species and protection and management of natural communities, as well as listed species associated with those communities, in perpetuity within the area covered by permits.

3.4.2.3 Regional and Local Laws, Regulations, and Policies

Santa Clara Valley Habitat ~~Conservation~~ Plan

The VHP (ICF 2012) provides a framework for promoting the protection and recovery of natural resources, including terrestrial special-status species, while streamlining the state- and federally listed species permitting processes for planned development, infrastructure, and maintenance activities. The VHP allows the County, Valley Water, the Santa Clara Valley Transportation Authority (VTA), and the cities of Gilroy, Morgan Hill, and San José (collectively, the Local Partners or Permittees) to receive permits authorizing incidental take of listed species covered by the plan for activities and projects they conduct and those under their jurisdiction. The Santa Clara Valley Open Space Authority also contributed to the VHP preparation. The VHP protects, enhances, and restores natural resources in specific areas of the county and contribute to the recovery of endangered species. Rather than separately permitting and mitigating individual projects, the VHP evaluates natural-resource impacts and mitigation requirements, including impacts and mitigation requirements for aquatic resources, comprehensively in a way that is more efficient and effective for at-risk species and their essential habitats.

The VHP was developed with and approved by the USFWS and CDFW and in consultation with stakeholder groups and the general public. The USFWS has issued the Permittees a 50-year permit that authorizes incidental take of covered listed species under the federal ESA, while CDFW has issued a 50-year permit that authorizes take of all covered listed species under the NCCPA. This approach allows the Permittees to streamline future mitigation requirements, including those for aquatic and riparian species, into one comprehensive program. In addition to obtaining take authorization for each participating agency's respective activities, the cities and County are able to extend take authorization to project applicants under their jurisdiction.

USFWS and CDFW also have provided assurances to the Permittees that no further commitments of funds, land, or water would be required to address impacts on covered species beyond those described in the Plan to address changed circumstances. In addition to strengthening local control over land use and species protection, the Plan provides a more efficient process for protecting natural resources by creating new habitat reserves that will be larger in scale, more ecologically valuable, and easier to manage than the individual mitigation sites created under the current approach.

The VHP and associated documents have been approved and adopted by the six Local Partners (the cities of Gilroy, Morgan Hill and San José, the County, VTA, and Valley Water).

Although the VHP does not provide take authorization for fish species, it does identify particular conservation objectives for aquatic and riparian resources, and several VHP conditions would avoid and minimize impacts on aquatic habitat and species. Consequently, on January 28, 2021the USACE renewed and re-issued Regional General Permit 18 (RGP 18)[5] for impacts to USACE jurisdictional waters of the United States resulting from projects constituting covered

[5] USACE first issued RGP 18 November 18, 2015, then renewed and reissued the regional permit on January 28, 2021.

activities pursuant to VHP. In issuing RGP 18, USACE determined that the VHP establishes a watershed plan sufficient and appropriate under federal compensatory mitigation regulations to assure that project proponents implement a watershed approach to the provision avoidance, minimization and mitigation to compensate for the loss of aquatic resources within the VHP Plan Area resulting from discharges of dredged and fill material. USACE further determined that mitigation consisting of payment of VHP fees to VHA for implementation of aquatic habitat restoration, creation, enhancement and preservation fully complies with the federal Clean Water Act Mitigation Rule (33 CFR Part 332) (“Federal Mitigation Rule”). *Compensatory Mitigation Strategy for Santa Clara Valley Habitat Plan Regional General Permit Prior to Approval of a Proposed In-Lieu Fee Program* (USACE January 15, 2016) (“RGP Mitigation Strategy”). Based on that comprehensive analysis, USACE determined that permit applicants providing mitigation for covered activity impacts on aquatic habitats via payment of VHP fees would comply with all requirements of the Federal Mitigation Rule, including requirements designed to implement the state and federal “no net loss” of wetlands policy. In fact, USACE determined that providing mitigation by payment of VHP fees for impacts to aquatic habitat types “would provide a ‘net gain’ of aquatic resource functions and acreage.”

Similarly, the California Porter Cologne Water Quality Control Act authorizes the provision of permittee-responsible mitigation to offset impacts to aquatic habitat types within the VHP Plan Area by payment of VHP fees. Pursuant to Section V of the SWRCB’s Procedures for Discharge of Dredge or Fill Material to Waters of the State (April 2, 2019) (the “Procedures”), the VHP, which was approved by USFWS and CDFW before December 31, 2020, and includes biological goals for wetland and aquatic resources, “shall be used by the permitting authority as a watershed plan for such aquatic resources”. The VHP therefore sets a framework for compensatory mitigation determinations in the issuance of 401 certifications for impacts on aquatic resources. The Procedures also incorporate the Federal Mitigation Rule almost verbatim into Appendix 1, Subpart J of the Regulations. For all the reasons set forth in the RGP Mitigation Strategy, payment of VHP fees to VHA for VHA’s use to restore, create, enhance and preserve aquatic habitat types as described in the VHP may constitute acceptable compensatory mitigation for impacts to aquatic resources under Subpart J, Section 230.93(b)(4) of those regulations.

Safe, Clean Water, and Natural Flood Protection Program (Measure B – the Safe, Clean Water and Natural Flood Protection Program)

The Safe, Clean Water, and Natural Flood Protection Program is designed with five priorities, including: (1) ensure a safe, reliable water supply; (2) reduce toxins, hazards, and contaminants; (3) protect the water supply from earthquakes and natural disasters; (4) restore wildlife habitat and provide open space; and (5) provide flood protection. Valley Water prepares an annual report providing a progress update for each of these program priorities, along with fiscal year accomplishments. This program benefits aquatic resources through restoration activities, monitoring, and preserving natural lands.

Water Resources Protection Ordinance of the Santa Clara Valley Water District (as amended by Ordinance 08-1)

The Water Resource Protection Ordinance (as amended by Ordinance 08-1) was adopted by Valley Water to help implement the Guidelines and Standards for Land Use near Streams (Santa Clara Valley Water Resources Protection Collaborative 2006). The ordinance is intended to protect the water resources managed by Valley Water and provides a set of model guidelines and standards for land use along stream corridors, and it regulates access to and use of Valley Water's facilities and easements. The ordinance specifies the project review and permitting process for projects located on and/or require use of ~~within 50 feet of a creek or waterway, or within 50 feet of a~~ Valley Water-owned property or easement. The Water Resources Protection Manual provides guidance for complying with the ordinance. This ordinance protects aquatic resources and guides land use activities to reduce impacts to aquatic habitats.

Valley Water Stream Maintenance Program

Under the SMP, work occurs annually to improve the environment, reduce the risk of flooding, and keep communities safe. Work under the SMP can improve fish habitat (Horizon Water and Environment 2011).

Santa Clara County General Plan

The Resource Conservation Element of the Santa Clara County General Plan (1994) includes the following conservation and management strategies that are relevant to fisheries resources:

- Reduce Non-Point Source Pollution
- Restore Wetlands, Riparian Areas, and Other Habitats That Improve Bay Water Quality
- Prepare and Implement Comprehensive Watershed Management Plans
- Improve Current Knowledge and Awareness of Habitats and Natural Areas
- Protect the Biological Integrity of Critical Habitat Areas

City of Morgan Hill General Plan

The City of Morgan Hill General Plan (2017 ~~2016~~) contains the following goals, policies, and actions that are relevant to fisheries resources and the Project Area:

Natural Resources and Environment (NRE)

Goal NRE-6: Protection of native plants, animals, and sensitive habitats.

Policy NRE-6.1: Natural State of Habitat. Preserve all fish and wildlife habitats in their natural state whenever possible. Consider development impacts upon wildlife and utilize actions to mitigate those environmental impacts.

Policy NRE-6.2: Habitat Conservation Plan. Support the implementation of the Santa Clara Valley Habitat Plan to protect wildlife, rare and endangered plants and animals, and sensitive habitats from loss and destruction.

Policy NRE-6.4: Tree Preservation and Protection. Preserve and protect mature, healthy trees whenever feasible, particularly native trees, historically significant trees, and other trees which are of significant size or of significant aesthetic value to the immediate vicinity or to the community as a whole.

Policy NRE-6.5: Soil and Erosion. Require development to be designed to conserve soil and avoid erosion. (South County Joint Area Plan 13.06)

Policy NRE-6.6: Use of Native Plants. Encourage use of native plants, especially drought-resistant species, in landscaping.

Policy NRE-6.7: Habitat Protection and Enhancement. Encourage the protection, restoration, and enhancement of remaining native grasslands, oak woodlands, marshlands, and riparian habitat.

Action NRE-6.A: Standard Measures for Construction Activities. Develop a set of standard measures requiring construction activities to avoid disturbance to natural features to the extent feasible.

Envision San José 2040 General Plan

The *City of San Jose General Plan* (2023 ~~2011~~) contains the following goals and policies relevant to biological resources and the Project Area:

Goal ER-4: Preserve, manage, and restore habitat suitable for special-status species, including threatened and endangered species.

Policy ER-4.1: Preserve and restore, to the greatest extent feasible, habitat areas that support special-status species. Avoid development in such habitats unless no feasible alternatives exist, and mitigation is provided of equivalent value.

Goal ER-5: Protect migratory birds from injury or mortality.

Policy ER-6.6: Encourage the use of native plants in the landscaping of developed areas adjacent to natural lands.

3.4.3 Methodology and Approach to Impact Analysis

The following impact analysis evaluates impacts on fisheries resources that would occur as a result of the following activities:

- Seismic Retrofit Construction (construction activities and instream flows during construction resulting from construction phase dewatering pursuant to implementation of the Project Construction Period Reservoir Operations and Drawdown Plan, including the two-stage reservoir dewatering plan and flow related Conservation Measures),
- Conservation Measures Construction
- Construction Monitoring
- Post-Construction Anderson Dam Facilities ~~Instream Flows~~ Operations and Maintenance
- ~~Anderson Dam and~~ Post-Construction Conservation Measures ~~Post-Construction~~ Operations and Maintenance
- Post-Construction Project and FAHCE Adaptive Management

For each of these aspects of the Project, impacts were assessed for the Seismic Retrofit Project Area, the Conservation Measures Project Area, downstream portions of the study area to the confluence of Alviso Slough in South San Francisco Bay, as well as the tributary Upper Penitencia Creek, aided by the evaluation of modeling results for baseline, construction phase and post-construction phase depth, temperature, velocity and other in-stream conditions at POIs within Coyote Creek and Upper Penitencia. The analysis of impacts on fisheries resources is also based on the results of field surveys, habitat assessments, and desktop analyses conducted for fisheries resources and on the baseline conditions with respect to presence/absence, locations of occurrence, and abundance/extent of biological resources, as well as the life-history traits and timing of fish species that influence how they may be impacted by Project activities.

Impacts on fisheries resources were first evaluated qualitatively to describe how Project activities may adversely impact fisheries resources, and then, where applicable, quantitative data and/or modeling were available to inform the analysis. Impacts were assessed relative to baseline conditions. For the purpose of the analysis of Seismic Retrofit Construction and Conservation Measures Construction, baseline conditions are the existing conditions present at the time of EIR preparation as modified by FOCP implementation. However, to best assess effects on fisheries, instream flows during construction impacts are assessed relative to the Pre-FERC Order Baseline representing normal, historical flow conditions within the study area, as well as relative to the ~~Post-FERC Order Existing Conditions~~ Existing Conditions baseline as modified by FOCP, to fully evaluate the effects of construction phase dewatering, including the implementation of the Project Construction Operations Technical memorandum . The effects of post-construction operations were analyzed relative both to the Pre FERC Order Baseline and the Future Baseline to assure an understanding of effects as compared to “business as normal” operations prior to the FERC Order and what would have been “business as normal” operations after completion of seismic retrofit.

The impact evaluation also considered whether adverse impacts or benefits to instream flows or the in-channel environment would be “short-term” or “long-term,” with short-term adverse impacts occurring temporarily for a fixed amount of time and long-term impacts (or often benefits) continuing into the future after construction of the Project.

After qualitative and, where applicable, quantitative analysis of an impact was performed, the impact was then evaluated with the application of Valley Water BMPs (**Table 3.4-6**)**,** VHP Conditions (**Table 3.4-7**), and applicable AMMs (**Table 3.4-8**). A determination was then made regarding whether the impact was significant (and thus requires mitigation). For impacts that would remain significant even with implementation of BMPs, VHP conditions, and VHP AMMs, feasible mitigation measures are identified, and the significance of the impacts were then re-evaluated to determine if mitigation measures would reduce impacts to a less-than-significant level.

The following sections provide additional detail for how each of the Project components was evaluated—Seismic Retrofit construction (both construction activities and instream flows during construction), Conservation Measures construction, construction monitoring, and post-construction operations, maintenance, and monitoring (including Project and FAHCE adaptive management)—for impacts on fisheries resources.

Table 3.4-6. Summary of Valley Water BMPs to be Implemented for Seismic Retrofit Construction, Conservation Measure Construction, Maintenance, and Adaptive Management[6]

BMP	Fisheries Resources (FR) Impact								
	FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
ANI-5 Slurry Mixture near Waterways	x	x	x	x	x	x	x	x	
BI-2 Minimize Impacts to Steelhead	x	x	x					x	
BI-3 Temporary Fill Removal	x	x	x	x	x				
BI-8 Local Plant Species Use	x	x	x	x	x				
BI-9 Restore Channel Bottom	x	x	x	x	x				
BI-11 Minimize Predator Attraction	x	x	x	x	x				
GEN-1 In-Channel Work Window (for maintenance)	x	x	x						
GEN-4 Minimize Disturbance Area	x	x	x	x	x				
GEN-16 In-Channel Minor Activities	x	x	x	x	x				
GEN-17 Employee/Contractor Training	x	x	x	x	x				
GEN-20 Erosion and Sediment Control	x	x	x	x	x	x	x	x	
GEN-21 Staging and Stockpiling	x	x	x	x	x	x	x	x	
GEN-22 Sediment Transport	x	x	x	x	x	x	x	x	
GEN-23 Stream Access	x	x	x	x	x	x	x	x	
GEN-24 On-Site Hazardous Materials	x	x	x	x	x	x	x	x	
GEN-25 Existing Hazardous Materials	x	x	x	x	x	x	x	x	
GEN-26 Spill Prevention and Response	x	x	x	x	x	x	x	x	

[6] The BMPs summarized in Table 3.4-6 includes a wide range of BMPs from the *Best Management Practices Handbook* (Valley Water, 2014) that would be applicable to the Project Area in addition to other BMPs included in the *2019–2023 Stream Maintenance Program Manual* (Valley Water 2019; Appendix A), to reduce impacts to Project activities conducted at or near surface waters in areas downstream of Anderson Dam.

BMP	Fisheries Resources (FR) Impact								
	FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
GEN-28 Fire Prevention	x	x	x	x	x	x	x	x	x
GEN-30 Vehicle Maintenance	x	x	x	x	x	x	x	x	
GEN-31 Vehicle Cleaning	x	x	x	x	x	x	x	x	x
GEN-32 Vehicle Fueling	x	x	x	x	x	x	x	x	
GEN-35 Pump/Generator Operations and Maintenance	x	x	x	x	x	x	x	x	
HM-8 Vehicle Fuel & Maintenance	x	x	x	x	x	x	x	x	x
REVEG-1 Seeding	x	x	x	x	x	x	x	X	
REVEG-2 Planting Material	x	x	x	x	x	x	x	x	
SED-1 Groundwater Management	x	x	x	x	x	x	x	x	
SED-2 Prevent Scour	x	x	x	x	x	x	x	x	
SED-3 Restore Channel Features	x	x	x	x	x				
SED-4 Berm Bypass	x	x	x	x	x				
VEG-1 Minimize Local Erosion	x	x	x	x	x				
VEG-2 Non-native Plant Removal	x	x	x	x	x	x	x	x	
VEG-3 Appropriate Equipment for Instream Removal	x	x	x	x	x				
WQ-1 Work from Top Bank	x	x	x	x	x	x	x	x	
WQ-2 Vehicle Use Instream	x	x	x	x	x				
WQ-3 Pumps & Generator Use	x	x	x	x	x				
WQ-4 Staging & Stockpiling	x	x	x	x	x				
WQ-5 Construction Entrance/Exit	x	x	x	x	x				
WQ-6 Concrete Use Near Water	x	x	x	x	x	x	x	x	
WQ-8 Minimize Hardscape Bank Protection	x	x	x	x	x				
WQ-9 Native Seeding	x	x	x	x	x	x	x	x	
WQ-10 Prevent Scour Downstream of Sediment Removal	x	x	x	x	x	x	x	x	
WQ-11 Clean Work Site	x	x	x	x	x				

BMP	Fisheries Resources (FR) Impact								
	FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
WQ-15 Prevent Water Pollution	x	x	x	x	x	x	x	x	
WQ-16 Prevent SW Pollution	x	x	x	x	x	x	x	x	
WQ-17 Manage Sanitary Waste	x	x	x	x	x	x	x	x	

Source: Valley Water 2014c

Table 3.4-7. Summary of Santa Clara Valley Habitat Plan Conditions Applicable to Each Project Impact on Fisheries Resources

Santa Clara Valley Habitat Plan Condition	Fisheries Resources (FR) Impact								
	FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
Condition 3: Maintain Hydrologic Conditions and Protect Water Quality	x	x	x	x	x	x	x	x	
Condition 4: Avoidance and Minimization for In-stream Projects	x	x	x	x	x				
Condition 5: Avoidance and Minimization for In-stream Operations and Maintenance	x	x	x	x	x				
Condition 11: Stream and Riparian Setbacks	x	x	x	x	x				

Source: ICF 2012

Table 3.4-8. Summary of Santa Clara Valley Habitat Plan-Required Aquatic Avoidance and Minimization Measures Related to Conditions 3, 4, 5, and 11 that are Applicable to Each Project Impact on Fisheries Resources

ID	Avoidance and Minimization Measure (AMM)	Fisheries Resources (FR) Impact								
		FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
General										
2	Reduce stream pollution by removing pollutants from surface runoff before the polluted surface runoff reaches local streams.	X	x	x	x	x	x	x	x	
3	Maintain the current hydrograph and, to the extent possible, restore the hydrograph to more closely resemble predevelopment conditions.	X	x	x	x	x	x	x	x	
4	Reduce the potential for scour at stormwater outlets to streams by controlling the rate of flow into the streams	x	x	x	x	x				
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	x	x	x	x	x				
6	Activities in the active (i.e., flowing) channel will be avoided, or AMMs in this table will be applied.	X	x	x	x	x				
7	Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels.	X	x	x	x	x	x	x	x	
8	Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).	X	x	x	x	x	x	x	x	

ID	Avoidance and Minimization Measure (AMM)	Fisheries Resources (FR) Impact								
		FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
9	Personnel shall implement measures to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means when removing sediments from streams	x	x	x	x	x	x	x	x	
11	Vehicles shall be washed at approved areas. No washing of vehicles shall occur at job sites.	X	x	x	x	x	x	x	x	x
12	No equipment servicing shall be done in the stream channel or immediate floodplain unless equipment cannot be readily relocated.	X	x	x	x	x	x	x	x	
13	Personnel shall use the appropriate equipment for the job that minimizes disturbance to the stream bottom.	X	X	x	x	x				
14	If high groundwater is present in a work area, pump it out of the work site carefully to remove sediment prior to the water re-entering a creek.	X	x	x	x	x				
15	Implement native aquatic vertebrate relocation plan when ecologically appropriate as determined by a qualified biologist.	X	x	x	x	x				
17	Install cofferdams both upstream and downstream not more than 100 feet from the extent of the work areas.	X	x	x	x	X				
18	Small in-channel berms that deflect water to one side of the channel may be constructed of channel material in channels with low flows.	X	x	x	x	X				
20	Diversions shall maintain ambient stream flows below the diversion, with no reduction or degradation.	X	x	x	x	x				

ID	Avoidance and Minimization Measure (AMM)	Fisheries Resources (FR) Impact								
		FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
21	If stream bed design changes are not part of the project, the stream bed will be returned to as close to pre-project condition as appropriate.	X	x	x	x	x				
22	Remove all temporary diversion structures and the supportive material no more than 48 hours after work is completed.	X	x	x	x	x				
23	Temporary fills, such as for access ramps, diversion structures, or cofferdams, shall be completely removed upon finishing the work.	X	x	x	x	x				
24	To prevent increases in temperature and decreases in dissolved oxygen, properly size bypass pipes or use a low-flow channel.	X	x	x	x	X				
25	Diversions shall maintain fish passage under specified project conditions.	X	x	x	x	X				
26	Any sediment removed from a project site shall be stored and transported in a manner that minimizes water quality impacts.	X	x	x	x	x	x	x	X	
28	Where practical, the removed sediments and gravels will be re-used	x	x	x	x	x				
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.	X	x	x	x	x				
30	Vegetation control and removal in channels, on stream banks, and along levees and maintenance roads shall be limited.	X	x	x	x	X				
31	When conducting vegetation management, retain as much understory brush and as many trees as feasible.	X	x	x	x	x				

ID	Avoidance and Minimization Measure (AMM)	Fisheries Resources (FR) Impact								
		FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
32	The top of the bank shall be protected by leaving vegetation in place to the maximum extent possible.	X	x	x	x	x				
33	Regional Board objectives for temperature change in receiving waters shall not be exceeded.	X	x	x	x	x				
Project Design										
34	Use the minimum amount of impermeable surface (building footprint, paved driveway, etc.) practicable.	X	x	x	x	x				
35	Use pervious materials, such as gravel or turf pavers, in place of asphalt or concrete to the extent practicable.	X	x	x	x	x				
36	Use flow control structures such as swales, retention/detention areas, and/or cisterns to maintain the existing (pre-Project) peak runoff.	X	x	x	x	x				
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.	X	x	x	x	x				
39	Minimize alterations to existing contours and slopes, including grading the minimum area necessary.	X	x	x	x	x				
40	Maintain native shrubs, trees, and groundcover whenever possible and revegetate disturbed areas with local native or non-invasive plants.	X	x	x	x	x				

ID	Avoidance and Minimization Measure (AMM)	Fisheries Resources (FR) Impact								
		FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
41	Combine flow-control with flood control and/or treatment facilities in the form of detention/retention basins, ponds, and/or constructed wetlands.	X	x	x	x	x				
42	Use flow-control structures, permeable pavement, cisterns, and other methods to ensure no change in peak runoff.	X	x	x	x	x				
43	Assess site conditions to determine if designs such as bioengineered bank treatments with live vegetation can be successfully utilized.	X	x	x	x	X				
44	Maintain natural stream characteristics, such as riffle-pool sequences, riparian canopy, sinuosity, floodplain, and a natural channel bed.	X	x	x	x	x				
45	Stream crossings shall incorporate a free-span bridge unless infeasible due to engineering or cost constraints or unsuitable based on minimal size of stream. If a bridge design cannot free-span a stream, bridge piers and footings will be designed to have minimum impact on the stream.	X	x	x	x	x				
49	The project or activity must be designed to avoid the removal of riparian vegetation, if feasible.	X	x	x	x	x				
51	All projects will be conducted in conformance with applicable County and/or city drainage policies.	X	x	x	x	x	x	x	x	
53	When possible, maintain a vegetated buffer strip between staging or excavation areas and receiving waters.	X	x	x	x	x				

ID	Avoidance and Minimization Measure (AMM)	Fisheries Resources (FR) Impact								
		FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
54	Outside of the construction footprint, maintain deep pools within stream reaches as refugia for fish and wildlife.	X	x	x	x	x				
55	For stream maintenance projects that result in alteration of the stream bed during project implementation, its low-flow channel shall be returned to its approximate prior location with appropriate depth for fish passage without creating a potential future bank erosion problem.	X	x	x	x	x				
56	Bank stabilization site design shall consider hydraulic effects immediately upstream and downstream of the work area.	X	x	x	x	x				
58	Use existing access routes/levee roads to minimize impacts of new construction in special-status species habitats and riparian zones.	X	x	x	x	x	x	x	x	x
61	Minimize ground disturbance to the smallest area feasible.	X	x	x	x	x				
62	Use existing roads for access and disturbed area for staging as site constraints allow.	X	x	x	x	x				
63	Prepare and implement sediment erosion control plans.	X	x	x	x	x	x	x	x	
64	No winter grading shall occur unless approved by City Engineer and specific erosion control measures are incorporated.	X	x	x	x	x	x	x	x	
65	Control exposed soil by stabilizing slopes (e.g., with erosion control blankets) and protecting channels.	X	x	x	x	x	x	x	x	
66	Control sediment runoff using sandbag barriers or straw wattles.	X	x	x	x	x	x	x	x	

ID	Avoidance and Minimization Measure (AMM)	Fisheries Resources (FR) Impact								
		FR-1a: Steelhead	**FR-1b: Chinook**	**FR-1c: Lamprey**	**FR-1d: Hitch**	**FR-1e: Roach**	**FR-1f: Smelt**	**FR-1g: W. Sturgeon**	**FR-1h: G. Sturgeon**	**FR-1i: Riffle Sculpin**
67	No stockpiling or placement of erodible materials shall occur in waterways or along areas of natural stormwater flow.	X	x	x	x	x	x	x	x	
68	Stabilize stockpiled soil with geotextile or plastic covers.	X	x	x	x	x	x	x	x	
69	Maintain construction activities within a defined project area to reduce the amount of disturbed area.	X	x	x	x	x				
70	Only clear/prepare land which will be actively under construction in the near term.	X	x	x	x	x				
71	Preserve existing vegetation to the extent possible.	X	x	x	x	x	x	x	x	x
72	Equipment storage, fueling, and staging areas will be sited on disturbed areas or non-sensitive habitat outside of a stream channel.	X	x	x	x	x	x	x	x	
73	Avoid wet season construction.	X	x	x	x	x				
74	Stabilize site ingress/egress locations.	X	x	x	x	x				
75	Dispose of all construction waste in designated areas and prevent stormwater from flowing onto or off of these areas.	X	x	x	x	x	x	x	x	
76	Prevent spills and clean up spilled materials.	X	x	x	x	x	x	x	x	x
78	In-stream projects occurring while the stream is flowing must use appropriate measures to protect water quality and native aquatic species.	X	x	x	x	x	x	x	x	x

ID	Avoidance and Minimization Measure (AMM)	Fisheries Resources (FR) Impact								
		FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
80	All personnel working in or adjacent to the stream setback will be trained by a qualified biologist in AMMs.	X	x	x	x	x	x	x	x	x
83	Sediments will be stored and transported in a manner that minimizes water quality impacts.	X	x	x	x	x				
84	Appropriate erosion control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on site.	X	x	x	x	x				
87	Vehicles operated within and adjacent to streams will be checked and maintained daily to prevent leaks.	X	x	x	x	x				
88	Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas.	X	x	x	x	x	x	x	x	x
90	All trash will be removed from the site daily to avoid attracting potential predators to the site.	X	x	x	x	x	x	x	x	x
91	To prevent the spread of exotic species and reduce the loss of natives, aquatic species will be netted; natives will be released, exotics removed.	X	x	x	x	x				x
92	To minimize the spread of pathogens, all staff working in aquatic systems will adhere to equipment decontamination guidelines.	X	x	x	x	x	x	x	x	x
94	Personnel shall use existing access ramps and roads if available.	X	x	x	x	x	x	x	x	x
97	Erosion control measures shall be in place at all times during construction.	X	x	x	x	x				

ID	Avoidance and Minimization Measure (AMM)	Fisheries Resources (FR) Impact								
		FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
98	When needed, utilize in-stream grade control structures to control channel scour, sediment routing, and headwall cutting.	X	x	x	x	x				
Post-Construction										
100	Potential contaminating materials must be stored in covered storage areas or secondary containment impervious to leaks and spills.	X	x	x	x	x	x	x	x	
101	Runoff pathways shall be free of trash containers or trash storage areas. Trash storage areas shall be screened or walled.	X	x	x	x	x	x	x	x	x
102	Immediately after project completion and before close of seasonal work window, stabilize all exposed soil.	X	x	x	x	x				
103	All disturbed soils will be revegetated with native plants and/or grasses or sterile non-native species.	X	x	x	x	x				
104	Measures will be utilized on site to prevent erosion along streams (e.g., from road cuts or other grading).	X	x	x	x	x				
110	If debris blockages threaten bank stability and may increase sedimentation of downstream reaches, debris will be removed.	X	x	x	x	x				
111	If bank failure occurs due to debris blockages, bank repairs will use compacted soil and reseeding with native/sterile non-native plants.	X	x	x	x	x	x	x	x	x

ID	Avoidance and Minimization Measure (AMM)	Fisheries Resources (FR) Impact								
		FR-1a: Steelhead	FR-1b: Chinook	FR-1c: Lamprey	FR-1d: Hitch	FR-1e: Roach	FR-1f: Smelt	FR-1g: W. Sturgeon	FR-1h: G. Sturgeon	FR-1i: Riffle Sculpin
112	Pumps and generators shall be maintained and operated in a manner that minimizes impacts on water quality and aquatic species.	X	x	x	x	x				

Source: ICF 2012

Notes:

These measures are paraphrased from Table 6-2 of the VHP (as revised via a minor modification dated March 17, 2016, which removed redundant measures) and are required for VHP Conditions 3, 4, and 5. This table indicates which specific AMMs pertain to each identified biological resources impact attributed to implementation of the Project.

A blank cell indicates that the measure is not applicable to that specific biological resources impact. VHP AMMs that are not applicable to any impact mechanism attributed to implementation of the Project are not included in this table.

3.4.3.1 Seismic Retrofit Project Construction

Seismic Retrofit construction activities that are relevant to fish resources involve mobilization (staging and stockpiling), maintaining reservoir elevations below FERC-restricted levels, further dewatering of the reservoir at the beginning of each construction season, temporary localized dewatering of Coyote Creek for pile driving in channel for one temporary bridge and the temporary dike structures, excavating and filling areas where dam facilities will be constructed, constructing temporary buildings and roads, installing temporary dikes, using temporary water treatment system, installing temporary diversions, using new intake structures, and retrofitting the dam, as well as demolishing the staging and stockpiling areas, temporary roads, bridges, dikes, and buildings, and restoring the Project Area to pre-Project or ecologically improved conditions, as feasible. Seismic Retrofit construction activities would also include blasting, grading, excavation and fill.

During implementation of Seismic Retrofit construction, there would be two categories of impacts on fisheries resources: (1) construction activities impacts (e.g., localized dewatering, earthwork, and facility construction) and (2) changes in instream flows downstream of the Seismic Retrofit Project Area as a result of continued maintenance of the reservoir at relatively low surface water elevation and further drawdown of the reservoir prior to and during the dry construction season (see the Project Construction Period Reservoir Operations and Drawdown Plan).

The impacts on fisheries resources from Seismic Retrofit construction activities in Coyote Creek and Anderson Reservoir were assessed qualitatively using the existing conditions baseline (as modified by FOCP implementation). Instream flows that would occur downstream of the dam and their water quality during Seismic Retrofit construction was assessed qualitatively and quantitatively using the Pre-FERC Order Baseline to account for continued maintenance of water surface elevations at a restricted level that was also carried through FOCP, as well as the Existing Conditions baseline. Significance conclusions for impacts related to construction phase hydrology are based on comparison to the Pre-FERC Order Baseline conditions to assure a full and accurate evaluation of all potential hydrology effects on fisheries relate to the extension of drawdown conditions starting with FOCP drawdown and extending through Project implementation. Unlike impacts related to construction of Project improvements and facilities, which can be accurately evaluated using an existing conditions baseline as modified by FOCP implementation, the fisheries effects of FOCP and Project drawdown are more accurately evaluated by comparison of Project construction phase operations to the Pre-FERC Order Baseline.

Qualitative impact analysis focused on Project Area construction activities in or near the channel, in and near the reservoir, and any resultant impacts on fisheries resources. Impacts would derive from localized dewatering, in-channel earth work, changes in water quality, reliance on imported water to maintain flows during construction, and incidental introduction, propagation, or movement of non-native species and pathogens. Construction activities and their timing were compared with temporal spatial expectations for the life history of each species assessed. When individuals of a special-status species were expected to be present and there was overlap in timing with a construction activity or change in water quality, impacts were identified and described and then considered with the application of components of the Project Description that avoid and minimize fish resources impacts, BMPs, and AMMs.

Seasonal timing and fish rescue and relocation are the major impact avoidance and minimization Project components for fish resources during construction activities for both the seismic retrofit and Conservation Measures construction. Throughout the construction analysis, the term “dry season work window” is used to convey the work window for dewatering and construction that is defined in the Project Description and may potentially be refined in minor ways or further restricted through permitting processes. Ultimately, timing most construction activities, particularly in-channel work in the dry season avoids and minimizes many impacts but not all to migrating anadromous fish in the study area and each species life-history timing is compared to the dry season work window to interpret impacts.

There are two types of fish rescue outlined in the Project Description with their differences explained here to avoid confusion throughout the impact analysis. One occurs based on monitoring data in coordination with the appropriate resource agencies and involves relocating steelhead and Pacific lamprey if water quality deteriorates and therefore is more relevant to the instream flows analysis with respect to water quality downstream of the dam during Seismic Retrofit construction. This type of fish rescue occurs under the Fish Rescue and Relocation Plan as defined in the Project Description.

A second type of fish rescue occurs when construction activities require localized dewatering in a specific location prior to doing in channel work. For Seismic Retrofit Construction this would occur for driving piles or casting piles in place for temporary bridge supports or installing temporary dike structures for the outlet and ATS, LLOW Construction, Cochrane Road realignment, and post-construction demolition. Localized dewatering would also occur for the ~~North Channel Extension,~~ Ogier Ponds~~,~~ and Phase 2 Coyote Percolation Dam Conservation Measures, and may occur for Maintenance of the North Channel Reach and is discussed in those respective Conservation Measure sections. In general, fish rescue during localized dewatering is covered under a Project component call a dewatering and aquatic species rescue and recovery plan that will be prepared as appropriate for each localized dewatering event by the respective contractor(s) and would require approval from the appropriate resource agencies and would cover all special status fish that could occur in the defined area of dewatering during the defined time of year required for that component. This may be one plan, or, more likely, multiple plans that cover different localized dewatering events for different construction components.

The quantitative part of the instream flows analysis used flow, temperature, and DO data from during the FOCP project in limiting months (dry construction season) to infer what flows might be during these months under Project and compare that to the Pre-FERC Order Baseline hydrology and water quality data. Additionally, quantitative analysis for water quality also used modeled sediment transport during construction to predict impacts on special status fish. Detailed methods are provided in Appendix F in the *Suspended Sediment Analysis* section. Generally, a USEPA Environmental Fluid Dynamics Code model was used to simulate erosion, deposition, and transport of sediment in Anderson Reservoir. Prediction of flow and sediment concentrations leaving the reservoir were used as input into the Coyote Creek HEC-RAS sediment model. URS (2020a, 2020b, and 2021) developed the combined sediment transport model and ran simulations with documented assumptions (in Appendix F) that provided predicted concentrations and durations of suspended sediment downstream of Anderson Reservoir under different phases and seasons of construction and at varying distances from the dam downstream to the estuary. Preliminary FOCP monitoring of suspended sediment concentrations suggests that the URS models slightly overestimate suspended sediment concentrations and therefore adverse suspended sediment impacts described for fish may be overestimated (Stillwater Sciences 2024).

The suspended sediment predictions were used to calculate the expected exposure of special-status fish to changes in suspended sediment concentration and duration with modeled constant flow and precipitation events. Using the modeled exposure concentration and durations, impacts on fisheries resources were predicted using the severity of ill effects (SEV) scale from Newcombe and Jensen (1996) to predict the likely impacts and their severity on each special-status fish species, as well as how that may impact the population on a larger scale. The calculations of the SEV values and how they apply to impact interpretation are explained in more detail in Appendix F, but the SEV scale goes from 0 to 14, where 0 is "nil effect" or no behavioral effect and 14 is greater than 80-100 percent mortality, with a spectrum of predicted impacts in between (SEVs 1-13) (see Table 2 in Appendix F).

For steelhead, an additional instream flow assessment was available that was prepared for Federal Endangered Species Act Section 7 consultation that provides quantitative modeling of steelhead habitat in the FCWMZ, the primary spawning and rearing reach, at flows ranging from 11-60 cfs (Stillwater Sciences 2021). These model results were used in the hydrology analysis to examine available habitat for rearing steelhead in the FCWMZ, particularly during the low flow, dry construction season work window when downstream flows would be partially or entirely made up of chilled imported water released from the CDL. This study allowed for the amount of available habitat to be determined at flows that will occur during the dry season construction period to better understand any potential impacts to steelhead.

This study used habitat criteria mapping (HCM) for fry rearing and juvenile rearing habitat. The HCM delineated a sampling framework consisting of a hierarchical channel network divided up into reaches within the FCWMZ and habitat units. Study reaches were defined based on broad-scale geomorphic channel characteristics. Habitat units (e.g., pool, riffle, run) were used to define individual sampling sites.

Information from aerial imagery, FAHCE POI reaches, channel type designations (Entrix 2000), and GIS spatial data for Coyote Creek was used to assess reach characteristics including channel gradient, channel confinement, bedform morphology, and drainage area and/or contributing flow. Three distinct study reaches were identified between Anderson Dam and Ogier Ponds. The frequency and distribution of habitat units in Coyote Creek were based on the October 2019 habitat inventory (AECOM 2021 ~~2020, unpubl. data~~), which delineated habitat based on CDFW Level III habitat types following Flosi et al. (2010). Sites that could be efficiently and effectively sampled were selected using a stratified sampling approach based on the following criteria:

- Suitable access to site and safe sampling conditions
- Suitable site conditions for high-resolution photography:
  - Because some sections of Coyote Creek have relatively dense vegetation and canopy that can obstruct imagery of stream channel features, these conditions were considered in site selection.
  - Site selection was reviewed after imagery was acquired and image quality was considered in final site selection.
- Suitable site conditions for efficient and effective data collection:

    - Sites with moderate length (not too long to limit time required for sampling), and not too short (pool [~5–40 m], riffle [~5–40 m], flatwater [~10–80 m]) were prioritized.
    - Cascade habitats were not sampled because they typically provide relatively little habitat and may be difficult to sample effectively.
    - Preference for sequences of two or more contiguous habitat units

- Spatial distribution of sites within each reach
- Representation of habitat types with greatest frequency by length
- Target sampling frequency greater than 10 percent of the reach by length

Estimation of habitat availability over a range of conditions requires habitat mapping to occur over a range of flows. Mapping flows were selected to represent a range of flow releases that may be under consideration for management (e.g., summer baseflow, winter baseflow, summer low flow). The four flow releases targeted for mapping and the actual flows during mapping surveys are shown in **Table 3.4-9**.

Table 3.4-9. Habitat Criteria Mapping Dates, Flows, and Rationale

Survey Dates	Targeted Flow Release (cfs)	Average Streamflow During Mapping Surveys (cfs)[a]	Rationale
May 14 and 15, 2020	60	60	Approximate upper end of flow release required for full groundwater recharge and additional surface flow
June 23 and 24, 2020	40	41	Approximate flow release required for full groundwater recharge
August 17 and 18, 2020	26	27	Approximate flow release required for minimal groundwater recharge (still groundwater depleting) when not a low-storage year
August 19 and 20, 2020	10	11	Approximate lowest winter baseflow and approximate minimum summer flow release

Notes: cfs = cubic feet per second

[a] Flows based on values reported in Coyote Creek at the Madrone stream gage location (Gage ID 5082).

HCM relies on binary habitat criteria to represent suitable habitat conditions for the target species and life stages of interest. Since HCM mapping criteria are binary, they are typically selected to represent “suitable” habitat, and not the full range of habitats that could be used. In application, field mapping was performed separately for the fry rearing and juvenile rearing life stages by delineating polygons that collectively met all the mapping criteria specific to each life stage (**Table 3.4-10**).

Table 3.4-10. Mapping Criteria for Estimating Steelhead Habitat Availability in Coyote Creek

~~1~~	Depth (ft)	Velocity (ft/s)	Proximity to Cover (ft)[1]	Minimum Polygon Area (ft^2)
Fry rearing [2]	0.1–1.2	<0.9	<2.4	6
Juvenile rearing [2, 3]	0.4–5.0	0.1–2.5	<4.8	6

Notes:

[1] CDFW (2014) defines cover as crevices among cobbles and boulders, ledges, aquatic vegetation, submerged overhanging branches of riparian vegetation, submerged organic debris, bent-over emergent sedges, low-hanging branches of riparian vegetation, high-flow debris clinging to overhanging riparian vegetation, and riverbank features.

[2] BasedI HSI ≥0.5 (CDFW 2014).

[3] Criteria for juvenile steelhead 2.4-5.9 inches (CDFW 2014). Maximum depth for juvenile rearing based on USFWS (2011).

Field mapping was performed on high-resolution orthorectified photographic base maps of the selected sites or series of contiguous sites. Imagery was collected utilizing an Unmanned Aircraft System along selected reaches of Coyote Creek downstream of Anderson Dam. A two-person crew mapped suitable habitat for focal life stages at each sampling site based on the mapping criteria described above. Mapping variance was assessed by conducting replicate surveys by different field crews within a subset of sample sites including one flatwater, one pool, and one run habitat. HCM was conducted separately by two different field crews for each of the three sample sites during each of the four flows assessed. Field mapping datasets were digitized in GIS and the areas mapped by each crew were compared. Suitable habitat area was calculated in GIS for each polygon delineated in the field based on the habitat criteria. Confidence intervals were calculated based on the combined variance in the measured habitat area per unit length by habitat type.

3.4.3.2 Conservation Measures Construction

Non-flow related Conservation Measures that are proposed for construction as part of the Project and analyzed are the Ogier Ponds Conservation Measure (Ogier Ponds CM), Maintenance of the North Channel Reach ~~North Channel Extension,~~ Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach, the Sediment Augmentation Program for the CWMZ ~~Ogier Ponds and Live Oak Reach~~, and Phase 2 Coyote Percolation Dam Fish Passage Enhancements (Phase 2 Coyote Percolation Dam CM). Impacts associated with construction and implementation of these Construction Measures require earth-moving construction in or near the channel downstream of Anderson Dam. Construction activities were assessed qualitatively compared with the existing conditions baseline (as modified by FOCP implementation). The qualitative analysis focuses on activities affecting the in-water environment: dewatering, diversion of water around a Project site, in-channel grading and grubbing, placement of gravel piles, and revegetation. Construction activities and their timing were compared with temporal and spatial expectations for the life history of each species assessed and, where there was overlap and the species was expected to be present at the time of the construction activity, impacts were identified, described, and considered with application of dewatering and aquatic species rescue and relocation plans (see Section 3.4.3.1 Seismic Retrofit Project Construction for more details and explanation), BMPs and AMMs.

3.4.3.3 Construction Monitoring

Construction Monitoring activities relevant to fisheries resources are:

- Construction Phase Water Quality Monitoring
  - General Water Quality Monitoring
  - Sediment Deposition Monitoring
  - Suspended Sediment Monitoring
  - Groundwater Monitoring
- Construction Phase Vegetation Monitoring
  - Construction Phase Wetland and Riparian Habitat Dryback Monitoring
  - Construction Phase *Phytophthora* Pathogen Management and Monitoring
- Construction Phase Fisheries Monitoring
  - Juvenile Rearing and Growth Comparative Studies
  - Environmental DNS Monitoring
  - VAKI Riverwatcher Adult Escapement Monitoring
  - ~~Construction Phase~~ Fish Rescue and Relocation Pla
  - Migration Flow Monitoring
  - Migration Study (PIT)
  - Spawning Surveys
  - Spawning Habitat Quality and Pool Depth Monitoring
  - Habitat Restoration Monitoring ~~n; Juvenile Rearing, Migration, and Growth Monitoring~~
- ~~Construction Phase Suspended Sediment Monitoring~~
- ~~Construction Phase Sediment Deposition Monitoring~~
- ~~Construction Phase Invasive Species Monitoring and Control~~
- ~~Construction Phase Wetland and Riparian Habitat Dryback Monitoring~~
- Construction Phase Reptile Monitoring
  - Northwestern ~~Western~~ Pond Turtle Monitoring
- Construction Phase Invasive Species Monitoring and Control
- ~~Coyote Creek Groundwater Monitoring~~
- ~~Construction Phase *Phytophthora* Pathogen Management and Monitoring~~

The impact analysis considers which of the monitoring activities actually occurs in or near the stream channel, and whether there would be any pathway for impacts to occur to special-status fish. For those activities that occur in or near the stream channel, they were assessed with regard to temporal spatial overlap with the life-history timing and occurrence of special-status fish or, with regard to fisheries monitoring, there may be direct impacts targeting fish (capture, handling, tagging) with the goal to improve information about how to best protect special-status fish, primarily steelhead. These impacts were then assessed for severity and population scale effects, as appropriate relative to the Existing Conditions, baseline as modified by FOCP.

3.4.3.4 Post-Construction Seismic Retrofit Operations (FAHCE Rule Curves and Instream Flows)

The FAHCE rule curves are intended to provide spawning and rearing habitat for steelhead and Chinook salmon, passage for adult steelhead and Chinook salmon to reach suitable spawning and rearing habitat, and adequate passage for the out-migration of juveniles. The FAHCE rule curves provide winter base flows, pulse flows to aid migration, and summer base flows to support each life stage, and provide a framework for ramping flows and reservoir operations under low-flow conditions. Winter base flows would be adequate to provide 5 cfs base flow at the Madrone stream gage November 1–April 30. If the combined storage in Anderson and Coyote reservoirs exceeds 80,000 acre-feet, and it is safe to do so, spring pulse flows of 50 cfs for a period of 5 consecutive days would be released from Anderson Reservoir twice during the period of February 1–April 30, with flood releases and spill events in excess of 50 cfs for 5 consecutive days during this period considered a pulse flow event. Summer base flows would target maintaining 64.4 °F (18 °C) in as much of the CWMZ as possible from May 1–October 31. Flows would be ramped up and down to allow aquatic animals to acclimate to changing flows.

Valley Water would release imported water to the downstream end of the CWMZ, via the ~~CVP~~ Cross Valley Pipeline Extension, when supplies are available, and releases are necessary for managed aquifer recharge and/or to meet minimum flow requirements. These releases would occur if stream flow from Anderson Dam does not reach the Cross Valley Pipeline Extension outfall and areas of dryback are present downstream. Since the creek would be dry in proximity of the Cross Valley Pipeline Extension, no temperature restrictions would apply to these releases. Such releases would provide flows in lower reaches of Coyote Creek to prevent further dryback, as well as replenish groundwater storage that is important for maintaining aquatic, wetland, and riparian habitats along the creek and in North Coyote Valley, while not influencing conditions in the CWMZ that is wetted from Anderson Dam releases. ~~WEAP modeling flows and water temperature~~

WEAP modeling flows and water temperature

Valley Water's FAHCE WEAP model uses known hydrology from the historical record (January 1, 1991, to December 31, 2010) and measured habitat variables and applies different scenarios to see how salmonid habitat changes with different instream flow operations. The general methods are summarized here with a more detailed technical methods discussion in Appendix F ~~G~~. The WEAP model was used to provide a quantitative basis from which to assess impacts of post-construction implementation of the FAHCE reservoir re-operation rule curves (i.e., post-construction Seismic Retrofit instream flow operations) on fisheries resources compared with the Pre-FERC Order Baseline Conditions and Future Baseline conditions. The way that FAHCE flows would interact with additional habitat created under the Ogier Ponds CM , the Maintenance Activities at the Live Oak Restoration Reach, and the Sediment Augmentation Program for the CWMZ, in combination with the changes in conveyance and passage under the North Channel Extension (completed during FOCP), Ogier Ponds CM~~,~~ and Phase 2 Coyote Percolation design was also incorporated into the analysis to provide a comprehensive understanding of how the FAHCE flows would benefit or impact fish resources.

The WEAP model was developed specifically for steelhead and Chinook salmon. The WEAP model predicts incubation adjusted spawning habitat (spawning habitat that incorporates time and conditions for successful egg incubation), fry rearing habitat, juvenile rearing habitat, adult migration conditions, and smolt migration conditions based on available and suitable substrate, water temperature, depth, velocity, and other variables as appropriate (Appendix F). Appendix F provides detail on how each of these habitat statistics are defined for steelhead and Chinook salmon, and how the model applies prior field surveys to habitat availability predictions and model calibration.

Pacific lamprey, Sacramento hitch, and Southern coastal roach were not the focus of the WEAP model, but it was possible to use a semi-quantitative approach with some qualitative interpretation. However, the WEAP model can be used to assess habitat availability when habitat needs overlap steelhead or, when that is not possible, changes in flows, temperature, wetted area, and thalweg depth were used to infer relative changes in habitat for each relevant life-history stage (incubation-adjusted spawning, fry rearing, juvenile rearing, and conditions for smolt and adult migration) (Appendix F). Relevant scientific studies were then applied qualitatively to interpret how these relative changes may benefit or impact these three species compared with baseline conditions.

The impacts of post-construction operations on the intertidal species (longfin smelt, white sturgeon, and green sturgeon) were based on qualitative assessment of the intertidal areas, how much freshwater flow would change under the FAHCE rule curves, and the seasonal presence of these species when available.

Riffle sculpin do not occur downstream of Anderson Dam and are found in Upper Penitencia Creek; therefore, there would be no impact on this species from post-construction operations so there is no method described for assessment.

3.4.3.5 Seismic Retrofit and Conservation Measures Post-Construction Operations and Maintenance

Post-construction operations, maintenance, and monitoring activities for the Project are:

- Seismic Retrofit (Anderson Dam) and instream flow operations to implement FAHCE rule curve flows for the benefit of steelhead and Chinook salmon
- Anderson Dam (Seismic Retrofit) maintenance
- Ogier Ponds operations and maintenance
- North Channel Reach operations and maintenance
- Sediment Augmentation Program operations
- Live Oak Restoration Reach maintenance
- Maintenance and Operation of Phase 2 Coyote Percolation Dam Fish Passage Enhancements
- ~~Maintenance of gravel augmentation in the Live Oak Restoration Reach, Ogier Ponds restored and reclaimed channel, and the related Sediment Augmentation Program to address geomorphic processes within the CWMZ~~

- ~~North Channel Extension, Ogier Ponds and Phase 2 Coyote Percolation Dam~~
- ~~North Channel Extension, Ogier Ponds (including channel, wetlands and pond habitat), and Phase 2 Coyote Percolation Dam maintenance~~

Anderson Dam Post-Construction Operation and Maintenance

Post-Construction Seismic Retrofit (Anderson Dam) and Instream Flow Operations

Following construction, Anderson Dam would be operated with the new multi-level intake and higher conveyance capacity, and in accordance with the FAHCE rule curves. This is considered for each species in the impact analysis in how water can be drawn from the reservoir at multiple levels enhancing temperature control downstream and water can be conveyed at a much greater rate for emergency drawdowns, which incidentally provide higher flows downstream than under the Pre-FERC Order Baseline. The impact analysis qualitatively considers these changes and applies relevant science to interpret any impacts or benefits from the post-construction dam operations.

Post-Construction Seismic Retrofit (Anderson Dam) Maintenance

Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP and PMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP Program EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). The DMP and the PMP includes BMPs and mitigation measures like gravel augmentation and large wood placement to reduce biological resources impacts. For most biological resources impacts, impacts of the Project's post-construction maintenance activities would not differ substantially from those impacts identified in the DMP EIR. Furthermore, previously identified DMP impacts would not be exacerbated with implementation of the Project.

Conservation Measures Operations and Maintenance

Operations and Maintenance of Ogier Ponds CM

The restored channel created via the Ogier Ponds CM will operate and function as a natural creek channel. There will be no management of flows or manipulation of features as a result of the new creek channel operations. High flow weirs leading to the ponds will be activated infrequently when flow levels reach 2000 cfs, and will be spillover, not requiring any operational actions.

For the Ogier Ponds CM, maintenance would include vegetation management, vegetation restoration, and inspection and repair of the berms, weirs, habitat enhancement, and erosion protection. These maintenance activities were analyzed using the same methods as Conservation Measure Construction. Maintenance of the Ogier Ponds CM will be covered under the SMP and SMP EIR.

~~*Operations and Maintenance of Anderson Dam Outlet*~~ *Operations and Maintenance of the North Channel Reach* ~~*Extension*~~

~~The distribution of flow between the south and north channels will be achieved by construction of a weir on each channel. The intent is to maintain the south channel as the primary flow path at low flows while reducing the potential for erosion in the south channel during higher flows. The north channel will become wetted at flow ranges above the normal operations under the FAHCE rule curves; flow will overtop the north weir at flows above 228 cfs. Releases in this range occur when storage levels within Anderson Reservoir are high and Valley Water needs to maintain storage capacity in the reservoir. Releases above 228 cfs will be infrequent and the release rates during these events will be variable and based on the level of storage, anticipated rain events, downstream flow conditions, and other factors. As high flow releases return to the normal FAHCE range of operations, reservoir releases will ramp down according to rules established in the FAHCE *Settlement Agreement*.~~

Long-term maintenance of ~~Maintenance for~~ the North Channel Reach ~~Extension~~ would include removal of debris or vegetation from the channel, and possibly dewatering and grading of the channel, if necessary, so that the channel maintains positive drainage (to avoid fish stranding). These maintenance activities ~~were analyzed using the same methods as Conservation Measure Construction Maintenance of the Anderson Dam Outlet North Channel Extension~~ will be covered under the SMP and SMP EIR.

Maintenance of ~~Sediment Augmentation Program and~~ Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach

The impacts of maintaining the ~~both Ogier CM and~~ Live Oak Restoration Project~~, and the Sediment Augmentation Program (associated with Live Oak Restoration Project and Ogier Pond CM maintenance) were~~ was analyzed using the same methods as Conservation Measure Construction. ~~Implementation of the Sediment Augmentation Program, maintenance~~ Maintenance of the Live Oak Restoration Reach~~, and maintenance of the new creek channel created as a part of the Ogier Ponds CM~~ will be consistent with SMP and its EIR.

Operations of the Sediment Augmentation Program

The impacts of operating the Sediment Augmentation Program were analyzed using the same methods as Conservation Measure Construction. Implementation of the Sediment Augmentation Program will be consistent with SMP and its EIR.

Maintenance and Operation of Phase 2 Coyote Percolation Dam Fish Passage Enhancements

Maintenance for the Phase 2 Coyote Percolation Dam CM would include periodic removal of sediment, vegetation management, repair of rock slope protection, and replacement of any in-channel bio-engineered habitat enhancements, as needed. These operations and maintenance activities were analyzed using the same methods as Conservation Measure Construction. Maintenance of the Phase 2 Coyote Percolation Dam CM will be covered under the ~~SMP and~~ DMP and will undergo CEQA review under that program.

Consistent with current operational rules of the Coyote Percolation bladder dam, installed as a part of FOCP to allow more flexible operations for the benefit of steelhead than are possible with a flashboard dam ~~Dam~~, the bladder dam would be lowered only during high flow events (exceeding approximately 250 ~~320~~ cfs) and then be raised after high flow events have receded. The facility would pass flows up to 250 ~~320~~ cfs via a combination of the fish ladder and a new overshot weir which is replacing one of the existing radial gates. When flows are predicted to exceed 250 ~~320~~ cfs, releases would be made from the percolation pond via an overshot weir to reduce storage and then deflate the dam when safe to do so.

Post-Construction Project and FAHCE Adaptive Management

The Project and FAHCE AMP would guide post-construction adaptive management of flow and non-flow Conservation Measures. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting:

Measurable Objectives. The FAHCE *Settlement Agreement* (2003) and the FHRP provide measurable objectives for steelhead and salmon fisheries and their habitats. These objectives would be achieved through implementation of FAHCE flow and non-flow measures for Coyote Creek, along with implementation of additional conservation measures identified in this Project description (see Appendix D).

Monitoring. Monitoring activities would focus on compliance, validation, effectiveness, and long-term trends. Systematic monitoring would be conducted of actual habitat conditions affected by the post-construction operations flow measures and non-flow conservation measures implemented under the FAHCE, FOCP, and Project to determine whether the conservation measures are contributing to the achievement of measurable objectives. Monitoring activities would evaluate the performance of the entire program in improving habitat quality and availability for steelhead and salmon, as well as the performance in each phase of the program in reducing or eliminating limiting factors affecting various life stages of steelhead and salmon, where such conditions are directly attributable to Valley Water facilities and operations in Coyote Creek.

Adaptive Actions. The Project and FAHCE AMT, including NMFS, other regulatory agencies, and non-governmental organizations (NGOs), would review potential adaptive actions and prioritize these actions for implementation. This may include modification of post-construction operations flow measures and non-flow conservation measures identified under FAHCE and in this EIR, as well as individual regulatory agency requirements, as appropriate, to help achieve measurable objectives.

Reporting. The AMT would synthesize and analyze results, evaluate progress attained by flow and non-flow measures, and identify potential adaptive actions where needed.

Appendix D summarizes the adaptive management goals, measurable objectives, monitoring types, methods and frequency, triggers for potential management actions, and potential management actions to be considered for implementation by Valley Water in coordination with the regulatory agencies of the FAHCE AMT (Project AMT).

The monitoring program to inform selection of adaptive management measures to implement in response to management triggers has been organized into four ~~three~~ categories, as follows:

- Compliance monitoring includes administrative metrics such as reservoir releases and cold-water pool volume, compliance with the schedule for implementing a particular program element (such as a site-specific passage impediment remediation project), or progress on planning or feasibility studies.
- Validation monitoring includes physical monitoring of instream flows, depth, velocity, water temperatures within the CWMZ and FCWMZ, areas of enhanced habitat, jump height and pool depth for passage impediments, habitat mapping to assess suitability for various life stages of salmonids, validating flow-habitat relationships, and other elements of the program.
- Effectiveness monitoring evaluates the progress made towards the overall restoration objective established for the FAHCE Program by the FAHCE Settlement Agreement.
- Long-term trend monitoring includes evaluation of ecosystem responses to management actions and/or natural drivers, including monitoring adult salmonid abundance, juvenile steelhead density, salmonid migration, steelhead genetics, ~~,~~water quality, and overall species composition.

The Project and FAHCE AMT would play an important role in adaptive management decision making, as described in detail in the FAHCE AMP. Considerations for adaptive management decision making include inter-annual and seasonal variation in hydrologic conditions, other constraints and limiting factors affecting achievement of the overall management objectives, monitoring results of the actual habitat enhancement measures already implemented, opportunities for improving habitat for other fish, wildlife, and plant species, and more generally, the ecological conditions of the watersheds. Data and analysis from compliance, validation, effectiveness, and long-term trend monitoring, evaluated using measurable objectives, would help determine whether refinements need to be made to post-construction operations reservoir releases, fish passage projects or habitat restoration projects carried out as part of the FOCP and Project to incrementally improve instream fisheries habitat conditions.

While the Project and FAHCE AMP would be implemented pursuant to the adaptive management framework established by the FAHCE Program, the Project and FACHE AMP also supplements the FAHCE AMP, which would continue to provide for study, evaluation and selection of future Coyote Creek FAHCE Phase 2 measures, if required, as outlined in the FAHCE Settlement Agreement (2003) and FHRP. The FAHCE Settlement Agreement contained a menu of potential Phase 2 measures that have not been defined or evaluated for feasibility. Once Phase 1 measures are fully implemented and 10-year monitoring results are analyzed, a determination of whether or not Phase 2 measures (e.g., revised water releases from Anderson to provide for continuous stream flows to approximately Metcalf Road, remediate Priority No. 2 barriers, implement a trap and truck operation to relocate adult steelhead into upper watershed habitat, etc.) are necessary will be discussed through the FAHCE AMP decision making process.

The AMP consists primarily of monitoring and determination of what incremental modifications of Project reservoir releases and Conservation Measures, including those that are also FAHCE Phase 1 measures, need to be made to optimize their effectiveness for fisheries resources.~~;~~ Therefore, over the long-term these activities would benefit fisheries resources.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Valley Water would also collaborate with the NOAA Fisheries Southwest Fisheries Science Center regarding sampling methodologies to ensure that fisheries population status and trends can be established over time. Impacts of these monitoring activities are evaluated in the impact analyses below. They would be minor and similar to the impacts of ~~Consruction~~ Construction Monitoring. Small numbers of people conducting the monitoring will be visiting a number of areas throughout the Seismic Retrofit and Conservation Measures Project Areas. Those people, their vehicles, and equipment may result in minor, localized, and temporary disturbance of aquatic, wetland, and riparian habitats, vegetation, and special-status fish.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. These impacts are considered here at a programmatic level because the detailed characteristics, timing, and/or locations of the proposed adaptive measures are not known at the time of EIR preparation. Project-specific CEQA review would be undertaken in the future, as necessary, when specific projects are proposed and project-specific details are available. Impacts of these adaptive actions are evaluated in the impact analyses below.

Impacts of Project and FAHCE AMP monitoring and adaptive actions are included below in the Post Construction Operations, Maintenance, and Monitoring sections below.

3.4.3.6 Thresholds of Significance

In the following analysis, an adverse impact is referred to as an "impact", and beneficial impacts are referred to as "benefits" or the Project "benefitting" the species. The term "no impact" does not imply that there is no benefit; only that there is no adverse impact considered in the context of the thresholds of significance from the Project components on the fish species. For the purposes of this EIR, and consistent with *CEQA Guidelines* Appendix G, the Project would result in a significant impact to fisheries resources if it would:

> **FR-1**: Have a substantial adverse effect, either directly, through habitat modifications, or through substantial interference with movement of any fish species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS, in the fisheries resources study area.

Fish species is interpreted to mean the species' population in the Coyote Creek Watershed meaning that a substantial adverse effect to the population is considered a significant impact.

Issues Dismissed from Further Review

Appendix G of the *CEQA Guidelines* states that a project may have a significant environmental effect if it would interfere substantially with the movement of any native resident or migratory fish species. For migratory (anadromous) fish species that move substantial distances, this impact is evaluated in Impact FR-1. For native resident fish species, this EIR does not evaluate movement impacts because these species are not migratory, and the Project does not introduce any new passage barriers in the study area.

Appendix G of the *CEQA Guidelines* also states that a project should be assessed for a conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP. The only HCP, NCCP, or other approved local, regional, or state HCP relevant to the study area is the VHP. Several plant and animal species are covered by the VHP; however, no specific fish species are included in the VHP. Therefore, impacts on fish species covered in this impact assessment would not conflict with an adopted HCP, NCCP, or other approved HCP with respect to fisheries resources. The potential conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP as it applies to terrestrial and other non-fish aquatic resources is analyzed in Section 3.5, *Biological Resources – Wildlife and Terrestrial Resources*.

Also, payment of VHP Fees is excluded from the analysis because payment of the fees would not have any adverse impacts, but rather may result in result in the SCVHA using the fees to acquire, preserve, manage, and restore sensitive habitats that are impacted by the Project.

Chinook salmon EFH is included in the analysis for Chinook salmon (FR-2). Coho EFH would have the same impacts as Chinook salmon EFH but coho salmon are not present in the study area, so impacts on EFH were not assessed further. Coastal pelagic and groundfish EFH would have similar impacts as those on the estuarine species' habitat analyzed in this document (i.e., increased sediment transport and an extremely small change in salinity in the intertidal zone) but the impacts would be even less because the only potential impacts would be increased sediment transport to the bay, which would have no impact on coastal pelagic and groundfish EFH and may actually benefit this habitat; therefore, there is no further analysis of coastal pelagic and groundfish EFH.

Finally, the following construction monitoring components: Water Quality Monitoring, Suspended Sediment Monitoring, Wetland and Riparian Dryback Monitoring, Phytophthora Pathogen Management and Monitoring, Western Pond Turtle Monitoring, and Milkweed Monitoring were eliminated from the fisheries resources impact analysis because either the methods used for monitoring do not affect fish habitat or the methods occur from the bank, and the monitor can conduct the monitoring without entering the water; therefore, there would be no impact to fisheries resources.

3.4.4 Impact Analysis

***Impact FR-1: Have a substantial adverse effect, either directly, through habitat modifications, or through substantial interference with movement on any species identified as a candidate, sensitive, or special-status fish species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS in the fisheries resources study area* (Less than Significant)**

Impact FR-1a: Central California Coast Steelhead (Less than Significant)

Seismic Retrofit Construction

Seismic Retrofit Construction Activities

Seismic Retrofit construction activities could impact steelhead individuals or their habitat from immediately downstream of the dam to Alviso Slough. Seismic Retrofit construction activities upstream of the dam in the reservoir would not impact protected steelhead individuals directly, as they are not present in this area. However, there would be increased sediment transport compared with the existing conditions baseline when the reservoir is held at lower elevations. The lowered water elevations in the reservoir would result in sediment that would be normally inundated in the reservoir being exposed, and therefore becoming more erodible and mobilizing as water flows into and then out of the reservoir. While associated with construction activities, sediment transport is more applicable to the flow operations during construction that would carry sediment downstream; therefore, impacts from increased sediment transport are analyzed in the next section *Instream Flows during Seismic Retrofit Construction*, while this section analyzes the impacts of Seismic Retrofit construction activities (e.g., use of heavy equipment, pile driving, blasting, staging, and stockpiling, etc.).

Impacts on steelhead from Seismic Retrofit construction activities (pile driving, earth moving, construction of roads, etc.) <u>downstream of the dam</u> would be minimized through the in channel work window (June 15 to October 15) as defined in *Section 2.5.1.1 – Schedule*. BMP BI-2 will also protect steelhead by avoiding routine use of vehicles and equipment in Coyote Creek downstream of Anderson Dam between October15 and June 15.

Seasonal timing is important for steelhead life-history stages. The dry season work window limits in-channel construction activities <u>downstream of the dam</u> during adult upstream migration and spawning. Rearing juvenile steelhead could always be present downstream of the dam.[7] Construction activities occurring downstream of the dam could impact steelhead located in the immediate vicinity of the activity through noise or vibration. Noise and vibration disturbance could happen during use of heavy equipment in or near the stream channel, pile driving or casting piles in place in or near the stream channel for all bridges and dike structures constructed in Years 1 and 2, and during demolition of the temporary bridges and dike structures in Year 7. Pile driving for the in-reservoir cofferdam in Year 2 would be too far away to impact steelhead and is not considered further. To facilitate these in-channel construction

[7] It is rare but possible that adult steelhead could occur in the summer if they migrated into the system during the wet season and did not migrate out but also did not die post-spawning. Because BMPs apply generally to *O. mykiss*, these fish would also be protected if they were to occur.

activities and avoid impacts on steelhead, localized dewatering would take place and steelhead would be excluded from the work area. Implementation of BMPs and AMMs as well as the dewatering and aquatic species rescue and relocation plan for dewatering activities will minimize impacts that may occur during localized dewatering activities.

Localized dewatering has the potential to strand steelhead or trap them in pools, subjecting them to increased predation pressure and water quality degradation or they could be taken up into pumps used for dewatering surface water or bypassing water around the work area. Steelhead would be rescued and relocated during localized dewatering according to the relevant approved dewatering and aquatic species rescue and relocation plan. BMP BI-2 will also protect steelhead by avoiding routine use of vehicles and equipment in Coyote Creek downstream of Anderson Dam between October 15 and June 15. BMPs GEN-35 and WQ-3, as well as AMM-17, will also require any pumps that are used for either dewatering or diverting waters around the work area to be screened, in accordance with NMFS and CDFW criteria, to prevent the uptake of fish, and minimize the potential for fish to be injured and/or killed during the dewatering process. Therefore, impacts from localized dewatering would not be significant.

Rescue and relocation plan capture methods could include backpack electrofishing, seining, dip netting and/or capturing by hand. Impacts to fish may include stunning, netting, capturing, and handling, all of which may cause acute physiological stress that is temporary. All fish are expected to recover, but injury or mortality to fish can happen occasionally. Most steelhead tolerate short duration capture and handling well. Expected acute physiological stress during rescue and relocation would be a lesser impact than mortality due to stranding, predation, and/or deteriorating water quality conditions if rescue and relocation efforts during localized dewatering events were not implemented.

The Invasive Species Monitoring and Control Plan and AMM-91 may also reduce predation pressure and/or competition from nonnative fish, crayfish, American bullfrogs, and red-eared sliders in these areas, at least in the short-term (long term benefits are less likely unless eradication is achieved). BMP BI-11 and AMM-90 will further minimize impacts from predators by requiring that trash be removed daily from the construction area, limiting attraction to the site by predators.

Construction activities also have the potential to degrade water quality downstream of the work area due to increased suspended sediment or other materials in the water which could impact rearing steelhead located downstream of the dam. BMPs GEN-20 and WQ-16, as well as AMM-66, AMM-84, and AMM-97, will reduce sediment entering the channel from the work area during precipitation events by installing erosion control measures (e.g., silt fences, straw bales, etc.) and visually inspecting erosion control measures during and following extended storm events. BMPs GEN-26, GEN-31, GEN-30, GEN-32, WQ-11, and HM-8, as well as AMM-7, AMM-8, AMM-11, and AMM-100 will minimize the pollution from vehicle fluids or other oily, greasy, or sediment-laden materials that could enter the creek from the work area by maintaining clean conditions at work sites, keeping spill kits available onsite to clean up any accidental spills, training personnel to properly use spill kits, fueling and cleaning vehicles and equipment offsite, utilizing secondary containment for any fluid changes onsite and storing contaminating materials, keeping vehicles maintained and clean, and inspecting vehicles and equipment daily for leaks prior to initiation of work. BMP WQ-15 will protect steelhead downstream of the work area from impacts of degraded water quality by keeping any oily, greasy, or sediment-laden substances away from places they may enter the waterway and monitoring water turbidity changes downstream of the work area and any discharge points.

Noise and vibration disturbance could occur during use of heavy equipment in or near the stream channel downstream of the dam, pile driving or casting piles in place in or near the stream channel for all bridges and dike structures constructed in Years 1 and 2, and during demolition of the temporary bridges and dike structures in Year 7. Pile driving/casting would occur in the dewatered northern channel which would be at least 200 feet from where steelhead could occur. Because steelhead would be over 200 feet from the pile driving/casting and the activity would not occur in the water, pile driving/casting is not likely to result in injury or mortality but could cause temporary acute physiological stress and could result in fish moving from the area or rearing steelhead temporarily switching from foraging to hiding under cover. Pile driving activities would be temporary, and fish would behaviorally regulate their exposure by swimming away or hiding. Upon completion of pile driving/casting, fish could return to previously abandoned areas or come out from hiding and would likely recover from the acute physiological stress and foraging disturbance. BMP BI-2 and the dry season work window will minimize impacts to migrating and spawning steelhead from noise and vibration injury from pile driving or casting in place for the North Channel Temporary Bridge. This work window minimizes impacts to migrating steelhead, because adults ~~outmigrate~~ immigrate December through April and smolts outmigrate February through May. BMP BI-2 would also protect steelhead by avoiding routine use of vehicles and equipment in Coyote Creek downstream of Anderson Dam between January 1 and June 15. Rearing juveniles occur in Coyote Creek year-round; however, steelhead are less likely to be close to the pile driving activities because, as described above, in-channel work would require localized dewatering and exclusion of steelhead from the work area, and it is likely that the North Channel would already be dry at that time. It is possible that steelhead excluded from the work area may still be subject to noise and vibration disturbance, though any noise and vibration disturbance would attenuate prior to reaching locations where steelhead are present, any impacts would be sublethal and short-term and therefore less than significant.

In Year 5, blasting at the BHBA could directly impact steelhead. Blasting would occur throughout Year 5 (11 months) and blasting noise and vibrations may cause acute physiological stress, changes in behavior (e.g., changing from foraging to hiding), and, in extreme cases, injury or death if the noise and vibrations are substantial, close by, and/or repeated. However, BHBA is located about a quarter mile away from the Coyote Creek channel on the other side of the dam; therefore, sound waves from blasting would attenuate prior to reaching in-channel areas where steelhead are present, potentially causing some acute physiological stress or temporary behavior changes, but injury and death would be unlikely. Blasting procedures would be developed by a qualified blaster to control noise, air-overpressure, ground vibration, flyrock, and dust. The contractor would be required to implement minimization measures to limit noise generated by blasting to 75 dBA or less towards residential receptors which would also minimize noise and vibration impacts on steelhead. Overall, impacts on steelhead from noise and vibration disturbance from blasting at the Basalt Hill Borrow Site would be less than significant.

A 1,300-foot-long temporary access road would be established on the downstream slope of the dam, connecting to an approximately 1,900-foot-long access road along the Anderson Dam Trail from the existing dam down into Staging Area 1 (Live Oak Picnic Area). Earthwork for establishing the road would be out of the channel in upland areas and require minor vegetation removal and grading. Noise or vibration from the earthwork may result in acute physiological stress with the same impacts as described above for pile driving and blasting. Grading and compaction of roads could allow more runoff to the channel during precipitation events than under the existing conditions baseline. This could introduce sediment and pollution from vehicle fluids to the creek and, if exposure was high enough and long enough, could result in behavior changes (moving downstream where pollution is more diluted), injury, illness, and, in extreme cases, mortality.

Implementation of BMPs GEN-20 and WQ -16, as well as AMM-66, AMM-84, and AMM-97 will reduce sediment entering the channel from the temporary access road during precipitation events by installing erosion control measures (e.g., silt fences, straw bales, etc.) and visually inspecting erosion control measures during and following extended storm events. BMPs GEN-26, GEN-31, GEN-32, WQ-11, and HM-8, as well as AMM-7, AMM-8, and AMM-11 will minimize the pollution from vehicle fluids entering the creek from the temporary access road by keeping spill kits available onsite to clean up any accidental spills and training personnel to properly use spill kits, fueling and cleaning vehicles and equipment offsite, keeping vehicles maintained and clean, and inspecting vehicles and equipment daily for leaks prior to initiation of work. These BMPs will minimize impacts on the steelhead population from temporary access road construction so that they are less than significant.

Staging and stockpiling areas located immediately downstream of the dam could introduce sediment to the channel during precipitation events. Pollution could also be introduced from vehicles and equipment in these staging and stockpiling areas. If exposure to increased sediment and pollution was high enough and for a long enough duration, steelhead could exhibit behavior changes (moving downstream where pollution is more diluted), injury, illness, or mortality. BMPs GEN-21 and WQ-4, as well as AMM-66, AMM-67, AMM-68, AMM-84, and AMM-97 will reduce sediment entering the channel from staging and stockpiling areas downstream of the dam by covering sediment piles or surrounding areas with erosion control measures, filtering runoff, limiting the length of time materials can be stockpiled, and not placing sediment where it could spill into water bodies or storm drains. BMPs GEN-26, GEN-31, GEN-32, WQ-11, and HM-8, as well as AMM-7, AMM-8, and AMM-11, will minimize the pollution entering the channel by maintaining clean conditions at staging and stockpiling areas downstream of the dam, keeping spill kits available onsite to clean up any accidental spills and training personnel to properly use spill kits, cleaning vehicles and equipment off-site, keeping vehicles maintained and clean, inspecting vehicles and equipment daily for leaks prior to initiation of work, and utilizing secondary containments when fueling vehicles and equipment in staging and stockpiling areas. These BMPs and AMMs will minimize impacts on the steelhead population from staging and stockpiling so that they are less than significant.

Once Seismic Retrofit construction is complete, temporary access roads would be removed and access road areas would be restored to pre-construction conditions as discussed in Section 2.5.6, *Site Restoration*. Demolition could result in temporary acute physiological stress and behavior changes from noise and vibration similar to those described above for pile driving, blasting, and access road construction. Downstream of the dam, BMP BI-2 and the in channel work window will protect most steelhead during migration and spawning from noise and vibration injury. This work window minimizes impacts to migrating steelhead because adults immigrate December through April and smolts outmigrate February through May. BMP BI-2 will also protect steelhead by avoiding routine use of vehicles and equipment and dewatering in Coyote Creek downstream of Anderson Dam between October 15 and June 15. However, rearing juveniles occur in Coyote Creek year-round. Impacts from road demolition would be temporary, sublethal, and less than significant to the steelhead population for the same reasons described for pile driving and access road construction.

Following demolition, disturbed areas would be restored to pre-construction conditions and seeding will occur to replace removed vegetation through BMP REVEG-1 downstream of the dam. Reestablishing native vegetation and riparian habitat downstream of the dam would benefit steelhead in the long term by shading the creek and providing habitat complexity. Additionally, the retrofitted dam would be allowed to refill once ~~seismic~~ restrictions are lifted allowing more storage for cold water pool management post-construction compared to the existing conditions baseline, which would benefit steelhead by allowing more consistent suitable rearing habitat throughout the dry season. Finally, the seismically retrofitted dam would have a new, multi-level intake structure that would allow more precise temperature control on downstream releases benefiting steelhead relative to the existing conditions baseline in the long term.

Overall, Seismic Retrofit construction activities may adversely impact steelhead, but the impacts will not be substantial with the application of BMPs, AMMs, the dry season work window, and the aquatic species rescue and relocation plans for any in-channel work that requires localized dewatering ; therefore, Seismic Retrofit construction impacts from the above-described construction activities would be less than significant on steelhead and their habitat in the short-term. The complete retrofitted dam would benefit steelhead in the long-term relative to existing conditions due to changes proposed in post-construction operations facilitated by completion of the retrofit and other Conservation Measures.

Instream Flows during Seismic Retrofit Construction

This section analyzes the impacts of instream flows downstream of Anderson Dam during Seismic Retrofit construction on steelhead compared with the Pre-FERC Order, Future, and existing conditions baseline when applicable. During Seismic Retrofit construction, there would be wet seasons, spring reservoir drawdown, and dry construction seasons (i.e., the work window when in-channel work could occur downstream of the dam). Reservoir water surface elevation would be restricted to deadpool. Any inundation behind the dam would be drawn down as fast as the outlet capacity would allow. During the wet season, all inflows to the reservoir would be diverted and released downstream as quickly as possible given the type of diversion (Stage 1 or Stage 2) to maintain an elevation at deadpool. In April, or when conditions allow following April, the reservoir would be drawn down to the Stage 1 or Stage 2 elevation at or below deadpool as needed to conduct construction activities during the work window. The rate of drawdown would depend on antecedent conditions in the watershed and the type of diversion in place (Stage 1 or Stage 2) but should take about 2-4 weeks. Once the reservoir has been drawn down to the correct elevation to initiate in-channel work, then the construction activity for that year would commence and any inflows coming into the reservoir would be diverted (or sometimes pumped) around the work area and released downstream. As described in Section 2.5.3.1 and 2.5.4.2, localized groundwater that is pumped from the dam footprint throughout construction would be pumped from the site and routed through an ATS. The ATS would remove sediment, reduce turbidity, and balance pH from these waters prior to release into Coyote Creek, downstream of the dam. Pumping would occur within the construction activity season (i.e., the dry season work window). Diverted water would not be treated.

Construction Phase Hydrology and Hydrology Conservation Measures

Project seismic retrofit construction will necessitate about seven more years (beyond FOCP) of maintaining the reservoir at the FERC-restricted elevation, during the wet season, and drawing it down to lower elevations to accommodate construction activities during the work window. In order to maintain the reservoir at the restricted elevation, inflows will be bypassed through the reservoir and released to Coyote Creek as quickly as possible, depending on the diversion in place at the time. Inflows into the reservoir bypassed to Coyote Creek will come from run off from unaltered tributaries of the reservoir (Las Animas and Packwood creeks) and releases from Coyote Reservoir, which will follow normal operations. Normal operation of Coyote Reservoir, an FOCP Conservation Measure, will continue during the Project construction period, such that dry-season flows released from Coyote Reservoir would continue as in the existing conditions and would be transferred through Anderson Reservoir, then released downstream of Anderson Dam through the stage 1 or stage 2 diversion system as applicable. Most losses between Coyote and Anderson Reservoirs are due to evaporation (at elev. 490 ft, 1 cfs loss due to evaporation relative to inflow during the dry season), with minimal infiltration. Losses are countered by natural springs that emerge into Coyote Creek where it enters Anderson Reservoir.

During Project construction, Valley Water would continue to implement the FOCP Conservation Measure of releasing 10 cfs of local water through the stage 1 or stage 2 diversion system (as applicable), and/or imported water released from the CDL to maintain flow within the FCWZ. The ability to maintain instream flow during the dry season is supported by hydrological analyses. Even in a hypothetical, complete drought year during which there is no inflow to Coyote Reservoir, there is adequate storage in Coyote Reservoir to maintain a steady 5 cfs release throughout the entire year (Schaaf & Wheeler & Black & Veatch 2019). Furthermore, storage in Coyote Reservoir at the beginning of May was greater than 7,000 AF in all years from 1999 to 2015, including three critically dry years. A release of 8 cfs from May 1 through November 1 would require around 3,000 AF of water, which would leave 4,000 AF or more for carryover to the next year, for contingency release during a dry November and December, or losses to evaporation.

The water bypassed and released through the dam diversion systems would be supplemented with imported water released via the CDL pursuant to the Construction Period Imported Water Releases for FCWMZ Conservation Measure. The 4 to 9 cfs that would flow through from Coyote Reservoir through the stage 1 or stage 2 diversion systems under normal operation of Coyote Reservoir with bypass flows would not be adequate to maintain streamflow through the FCWMZ during most years, accounting for losses due to evaporation and percolation. Therefore, pursuant to the Conservation Measure, Valley Water would release imported water at the CDL to maintain a flow of 10 cfs into the FCWMZ. The remainder of the 11 to 56 cfs of Cross Valley Pipeline water that will be needed during the dry season to maintain groundwater recharge and streamflow farther downstream will be released into Coyote Creek just downstream of the Ogier Ponds through the Cross Valley Pipeline Extension. Therefore, there will be times when flow downstream of Anderson Dam will be made up primarily or solely of bypassed native flow only and times when flows would be made up of combined bypassed native flow plus imported water releases from the CDL (FCWMZ) and Cross Valley Pipeline Extension (downstream of Ogier Ponds). Together, these releases will be sufficient during a typical year to support groundwater recharge and surface flow downstream in Coyote Creek, through Coyote Percolation Pond, to where streamflow would otherwise be perennial due to groundwater emergence and inflow from Lower Silver Creek and Upper Penitencia Creek.

Connection between Coyote Creek and San Francisco Bay under the Project construction period, as for FOCP, would depend on the amount of inflow from Fisher Creek, Lower Silver Creek, Upper Penitencia Creek and other inflow sources; and groundwater emergence, which typically supports perennial flow beginning between Montague Expressway and Berryessa Road. These inflows would allow surface flow to continue to San Francisco Bay and help prevent dry-back in the reaches of Coyote Creek between Ogier Ponds and the Highway 237 bridge. Valley Water will also implement a Dryback Monitoring Plan to assess conditions in Coyote Creek and inform management actions.

With the lack of storage to provide summer reservoir releases, the only flows downstream of Anderson Dam during the dry construction season will be what occurs naturally from upper Coyote Creek Watershed passed through Anderson Dam and the imported water releases from the CDL (released into the south channel) and the Cross Valley Pipeline Extension (released downstream of Ogier Ponds). Flows from the unaltered tributaries of Anderson Reservoir and Coyote Creek are expected to taper during each dry season and become negligible by season end.

In the dry season work window, flows downstream of Anderson Dam will likely be very similar to those during the Existing Conditions baseline. FOCP construction seasons to date (minus the initial 2020 drawdown to deadpool) are shown in **Table 3.4-11**. Flows recorded during the dry season work window under FOCP (existing conditions) are likely similar to the flows that will be available during the work window in the Project construction phase because flows during the work window are almost always below maximum conveyance capacity even for these early years of FOCP when the existing outlet can only pass up to 500 cfs, with 2023 being a potential rare exception due to above average precipitation through the entire wet season .

Table 3.4-11. Mean Daily Flow Per Month within the FCWMZ Measured at Madrone Gage 5082 (COYO9) for the In-Channel Construction Season

FOCP Year	Mean Monthly Flow Downstream of Anderson Dam (cfs)						
	Apr	May	June	July	Aug	Sept	Oct
FOCP Year 2 (2021)	46	52	23	10	14	30	36
FOCP Year 3 (2022)	13	12	19	19	15	20	12 [a]
FOCP Year 4 (2023)	452 [a]	NA	NA	NA	NA	NA	NA

Notes:

[a] Estimated from provisional data

Key: NA = Not Available at the time of preparation

Table 3.4-11 shows that flow releases from Anderson Dam and the CDL maintain flow within the FCWMZ during Existing Conditions between 10 cfs at the very low end (lowest level during drought) and 452 cfs at the very high end, as shown in April of the extremely wet 2023 water year. 2023 was a very wet year and flows that high are less likely to occur again during the Project (less than 10 percent probability). Given the extremes of the years recorded thus far for FOCP, it is most likely that flows in the FCWMZ will be somewhere in between these two extremes and most likely in the 10-23 cfs range. Based on the HCM instream flows study (Stillwater Sciences 2021), all flows in this range are anticipated to continue to provide plenty of suitable rearing habitat within the FCWMZ throughout the dry season work window.

In the wet season, precipitation-driven water discharges will be elevated compared with both existing conditions and Pre-FERC Order Baselines due to FOCP completion of the ADTP tunnel and increased outlet capacity <u>as well as the increased channel conveyance from the North Channel Extension (completed as part of FOCP)</u>. Conservation Measures are designed to accommodate the increased <u>Project</u> water discharges including <u>conveyance through</u> the North Channel <u>Reach</u> ~~Extension~~.

Wet-season flows under existing conditions and during Anderson Dam construction will include peaks in runoff from the northern branch tributaries associated with precipitation. As these flows are passed through Anderson Reservoir to Coyote Creek downstream, the shape of the downstream hydrograph (how flows change through time) will be more responsive to individual runoff events than the Pre-FERC Order Baseline, more closely approximating an unimpaired hydrograph <u>with increased flow variability</u> which may be a benefit to steelhead and their critical habitat, particularly migration conditions. In addition, <u>increased</u> flow variations associated with runoff events could boost natural processes such as sediment sorting and maintenance of aerated gravels that are important habitat for invertebrates (prey for rearing steelhead) and for steelhead spawning and would also mean that steelhead may experience wet season flows higher than the Pre-FERC Order Baseline or existing conditions (see Section 3.11, *Hydrology*) after completion of the Stage 2 Diversion ~~and the North Channel Extension~~<u>. Increased flow variability may also impair non-native fish populations benefitting steelhead as well as other native species.</u> By retaining the ability to store and release water through Normal Operation of Coyote Reservoir, bypassing flows through Anderson Reservoir to Coyote Creek, augmentation of streamflow in the FCWMZ using native water released through the dam, supplemented by imported water released through CDL, and additional downstream instream flow augmentation via the Cross Valley Pipeline Extension following its construction, Valley Water would maintain suitable habitat for rearing steelhead in the FWCMZ and reduce the potential for drying of Coyote Creek downstream of the FCWMZ due to drawdown of Anderson Reservoir and associated changes to flows during Seismic Retrofit construction relative to Pre-FERC Order Baseline. The Stage 2 Diversion will allow for greater streamflow fluctuations in Coyote Creek and more closely approximate an unimpaired hydrograph. Sufficient surface water flow is expected such that the impacts on fisheries resources, including steelhead, would not be significant due to changes in Project construction phase hydrology as compared to the Pre-FERC Order Baseline or existing conditions.

<u>Construction Phase Water –Quality - Dissolved Oxygen and Temperature During Dry Season and Drawndown Reservoir</u>

Water quality impacts the ability for steelhead to migrate, spawn, incubate, and rear. Water quality parameters that are important for assessing the impacts on this species include changes in temperature, DO (discussed in this section), and suspended sediment (discussed in the section below).

During the construction phase, when Anderson Reservoir is drawn down during the work window, the Normal Operation of Coyote Reservoir will provide flows that will mix with the flows from the other tributaries of Anderson Reservoir not controlled by any major dam, diversion, or reservoir, and will be conveyed to Coyote Creek downstream of Anderson Dam through either the Stage 1 or or Stage 2 Diversion structure (as applicable). These bypass flows may be supplemented by imported water releases via the CDL to assure releases of at least 10 cfs to maintain sufficient flows within the FCWMZ. Imported water releases of up to 10 cfs may be passed through chillers prior to release to Coyote Creek from the CDL in attempt to maintain temperatures within the FCWMZ of 18 °Celsius during the summer rearing period. The continuation of these bypass flows supplemented by imported water releases, and the use of chiller will minimize reductions in water quality, mainly DO and temperature, within the FCWMZ that would otherwise occur during the construction phase dry season.

To date, Valley Water collected DO and temperature data for the first 3 years of FOCP. During that time, DO has not become unsuitable for steelhead and only July and August 2021 came close to the upper limit of suitable rearing conditions for temperature (greater than 75 °F [23.9-°C]) for juvenile steelhead at the Madrone Gage 5082 in the FCWMZ. Valley Water has also documented steelhead successfully rearing through the summer despite times of temperatures above the “suitable” range (Valley Water 2021a, 2021b, 2022). These temperatures were recorded for releases from the dam and/or CDL that were not chilled; therefore, temperatures are likely higher than the temperatures of instream flows that would occur during Seismic Retrofit construction when the chillers are installed and functioning, particularly in temperature-limiting months in the dry season. Therefore, water temperatures in the primary rearing area from the CDL to Ogier Ponds would be the same or lower during the Project. Accordingly, these conditions would be better for steelhead when compared with the existing conditions baseline.

Based on estimates generated from temperature records from 1999 to 2019, the average temperature of imported water that would be released to Coyote Creek downstream of Anderson Dam reaches nearly 64.4 °F (18 °C) before the end of June and exceeds 68 °F (20 °C) from July through October (Valley Water, unpubl. data). During construction, if imported water releases are determined to be too warm for *O.* mykiss or likely to produce temperatures in the FCWMZ that exceed 18 °C, chillers installed under the FOCP would be used to cool up to 10 cfs of imported water prior to release via the CDL into Coyote Creek to retain cooler temperatures within the FCWMZ. Additional un-chilled imported water would be released via the Cross Valley Pipeline Extension downstream of Ogier Ponds to continue to provide surface flow for groundwater recharge below the FCWMZ. A total of three chillers (two chillers would be used with a third chiller available in reserve) would take an 800-amp current to chill a combined flow of up to 10 cfs by up to 7 °C to provide cooler temperature flow from the CDL to the FCWMZ. Therefore, chillers will allow colder water from the CDL than was feasible under the Pre-FERC Order Baseline. Also, downstream dryback would be reduced and groundwater recharge would continue through releases at the Cross Valley Pipeline Extension and would incidentally support aquatic and riparian habitats resulting in no additional adverse impacts from water temperature during Project on steelhead and benefits to rearing steelhead in the dry season relative to Pre-FERC Order baseline.

In addition to using electric chillers to minimize temperature impacts on steelhead, Valley Water would continue to monitor temperatures and DO at the base of the dam (COYO10), Madrone Gage 5082 (COYO9), upstream of Ogier Ponds (COYO8), and downstream of the FCWMZ. ~~They~~ Valley Water would also monitor for rearing juveniles in the FCWMZ, migrating adults at the Coyote Percolation Dam, and eDNA in the FCWMZ. This provides Valley Water with insight on the distribution of steelhead in the reach. According to the Fish Rescue and Relocation Plan, fish rescue would be initiated if a MWAT of 75 °F (24 °C) is reached or predicted to be reached in the entire FCWMZ with consultation from state and federal resource agencies (see the *Construction Monitoring* section for more discussion). Other factors, such as DO levels less than 7 mg/l will also be considered in determining the need for a fish rescue but, in general, the water quality data gathered during FOCP before chillers were implemented indicate that temperature and DO maximums should not be exceeded during Project construction. Furthermore, this monitoring data collected prior to and during Seismic Retrofit construction would be used in ongoing TWG discussions to consider in coordination with the regulatory agencies the risks of capture and relocation with the risks of allowing steelhead to remain in the FCWMZ under suboptimal conditions and determine the best course of action to minimize any unanticipated adverse effect of increase temperature or reduced DO on fisheries.

Under existing and Pre-FERC Order Conditions steelhead rearing is limited downstream of the FCWMZ, due to high water temperatures associated with the presence of the Ogier Ponds complex. Therefore, currently steelhead primarily use the habitat within the FCWMZ. Habitat within the FCWMZ will further be enhanced through restoration activities and will continue to support rearing.

Through the use of Coyote Reservoir bypass, imported water releases to the FCWMZ, use of the chillers for CDL releases, downstream Cross Valley Pipeline Extension releases, water quality monitoring and determination of flow and fish management actions in coordination with the Technical Working Group, and the implementation of the Fish Rescue and Relocation Plan when necessary, Project construction phase reservoir drawdown and operations impacts from changes in DO and temperature would be less than significant on the steelhead population.

Construction Phase Water Quality - Sediment Transport During Wet Seasons and Spring Drawdown

During the wet seasons of Years 1 and 2, the Stage 1 diversion would be in place allowing for a faster drawdown of up to 2,500 cfs, a considerably higher conveyance capacity than the up to 500 cfs capacity under the Pre-FERC Order Baseline. Following the Year 2 dry construction season, the Stage 2 diversion would be constructed, allowing for an even faster drawdown of up to 6,000 cfs, a considerably higher conveyance capacity than Years 1 and 2 as well as the Pre-FERC Order Baseline. Drawing water down faster and keeping a lower elevation in the reservoir so that in-reservoir sediments are exposed to precipitation and flow would result in increased sediment erosion and transport downstream during drawdowns and high flows for a period of days following the precipitation events. This section looks at the impacts on steelhead of increased sediment in Coyote Creek due to increased erosion and sediment transport when bypassing flows through the drawn-down reservoir during the wet season, and during spring drawdowns relative to the Pre-FERC Order Baseline.

CCC steelhead have evolved in flashy watersheds that frequently have high suspended sediment and associated turbidity during and following storm events, particularly the first storm events of the water year. Suspended sediment concentration is the concentration of sediment particles [8] suspended in water, usually measured in mg/L. Turbidity is a measure of water clarity (how much light is scattered in a liquid). Turbidity is related to suspended sediment and is usually measured as nephelometric turbidity units (NTU). Turbidity is easier to measure in the field and

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[8] Suspended sediment concentration is a measure of the amount of organic and inorganic particles in water. TSS which is ~~the~~ also a measure of the concentration of ~~all~~ organic and inorganic particles in water is ~~also~~ used sometimes instead of suspended sediment concentration. TSS only measures the weight of solids captured on a filter which can result in larger particles not being measured, therefore suspended sediment concentration is generally considered more accurate. The EIR uses suspended sediment concentration but ~~suspended sediment concentration correlates with~~ TSS also measures particles in water so either one could be used when discussing impacts to fish.

is often used as a proxy for relative levels of suspended sediment concentration. However, when discussing impacts, it is important to distinguish the two while acknowledging their relationship.

Turbidity alone does not impact fish gills or fish physiology directly but can result in the decrease of visual predation efficiency. Some fish have been shown to be attracted to turbid water over clear water, most likely to avoid predators or to conceal themselves from their prey as they are visual predators (Gradall and Swenson 1982, Cyrus and Blaber 1992, both as cited in Wilber and Clarke 2001). While turbidity can reduce foraging success, low levels of turbidity can function as cover to reduce predation in riverine, estuary, and nearshore marine environments (Gregory and Levings 1998, Wilber and Clarke 2001, Gadomski and Parsley 2005). Therefore, increased turbidity can be either an adverse or beneficial impact depending on the context. ~~When a fish is a visual predator, turbidity decreases foraging success and when the fish is prey, turbidity decreases predation risk; therefore, increased turbidity can be adversely impactful or beneficial depending on the context.~~

Suspended sediment can affect a fish’s gills and/or physiology directly (see reviews by Newcombe and MacDonald 1991, Newcombe and Jensen 1996, Kemp et al. 2011, Kjelland et al. 2015). Fish have evolved to tolerate different ranges of suspended sediment concentration depending on their specific habitat conditions during different life history stages. However, every fish has an upper maximum limit of suspended sediment concentration exposure at which the suspended sediment affects the fish’s gills and physiology ranging from minor physiological stress to injury and mortality with several levels of severity in between (Newcombe and Jensen 1996; Appendix F). When mortality occurs, it is usually due to either asphyxia because the gills are too badly damaged or clogged with particles that the fish cannot breathe enough oxygen to maintain essential life functions, or due to injured gills being a source of infection. Naturally, fish try to avoid this consequence and seek refuge in places where suspended sediment concentration is lower and/or perform a behavior called “coughing” where the fish opens its mouth wide and forces water through the gills at higher velocities to try to dislodge the particles from the gills. Fish can also respond to higher suspended sediment concentration by adjusting their gill morphology (e.g., producing excess gill mucous and growing additional protective cells; Hess et al. 2015), and it is assumed that fish have also evolved different gill morphologies or physiological adaptations to tolerate relevant ranges of suspended sediment concentration for their habitat.

Information on both concentration and duration of suspended sediment is important for understanding the severity of its effects on salmonids (Newcombe and MacDonald 1991). Herbert and Merkens (1961) stated that “there is no doubt that many species of fresh-water fish can withstand extremely high concentrations of suspended solids for short periods, but this does not mean that much lower concentrations are harmless to fish which remain in contact with them for a very long time.” Effects of suspended sediment on fish can also be exacerbated by other stressors (e.g., high water temperature and disease) (Redding et al. 1987, Servizi and Martens 1991).

As described in Section 3.4.3.1, this analysis used sediment transport modeling to estimate the likely exposure levels (derived from duration and magnitude of elevated suspended sediment) which was then translated into the likely impacts predicted for exposed steelhead in Coyote Creek downstream of the dam under varying conditions (back to back 2-year storm events, constant inflow to the reservoir and outflow to Coyote Creek, 2-year storm events, and/or 5-

year storm events). The impact analysis described here is a summary of the results with the more detailed technical methods and analyses described in Appendix F.

During and for a short time immediately following simulated back-to-back 2-year or greater precipitation events in the wet seasons of Year 1 and Year 2, if adult steelhead choose to migrate up Coyote Creek and remain there, they would experience minor physiological stress, increased rates of coughing, and increased respiration rates. Temporary, minor physiological stress usually has no long-term impacts on an animal and is an adaptive response that allows animals to cope with normal, stressful events (Sapolsky 2021 ~~2004~~). However, minor physiological stress and increased respiration rates across long durations can result in sublethal impacts like impaired reproduction and increased susceptibility to disease and parasites. In recent years, no adult steelhead have been observed in Coyote Creek and adult steelhead could behaviorally regulate their exposure and choose not to enter and migrate up Coyote Creek, potentially straying to a different watershed. They could also migrate up Upper Penitencia Creek, or they may continue to migrate up Coyote Creek and reproduce there. Some steelhead die after spawning and some return to the ocean and can reproduce again in Coyote Creek or select a different watershed to spawn. It is not entirely clear what the impacts of prolonged minor physiological stress and increased respiration would be, but some decrease in reproductive fitness is probable due to increase sediment and erosion compared with the Pre-FERC Order Baseline.

Under modeled back to back 2-year or greater storm events with the Stage 1 diversion, incubating eggs could experience 0-20 percent mortality (Appendix F) and juveniles may experience minor physiological stress during and for a short period immediately following precipitation. Like adults, minor physiological stress over short durations would have little impact on juveniles, but prolonged physiological stress even if “minor” could result in sublethal effects such as slower growth, decreased foraging efficiency, and increased susceptibility to disease and parasites potentially decreasing their overall fitness during their lifetime. However, juveniles may benefit from higher turbidity through decreased predation pressure as long as the associated suspended sediment is not too high to cause prolonged physiological stress (Newcombe and Jensen 1996, Gregory and Levings 1998, Wilber and Clarke 2001).Collectively, increased suspended sediment under back to back 2-year storm events in the wet seasons of construction Years 1 and 2 and could decrease productivity of the steelhead population in Coyote Creek due to these sublethal effects on spawning adults, juveniles, and effects on incubating eggs compared to Pre-FERC Order Conditions.

Under the Pre-FERC Order Baseline, conditions supported abundant spawning and rearing habitat in Coyote Creek and the project may result in increased mortality of eggs and an overall decrease in productivity of the steelhead population due to increased sediment transport during seismic retrofit construction. Steelhead utilizing Upper Penitencia Creek would not be subjected to the increased sediment transport from Seismic Retrofit construction so there would still be habitat for adults, egg incubation, and rearing in the watershed that would not be subject to these stresseors. Although low flows in recent years have resulted in estimated low abundance of *O. mykiss* in Upper Penitencia Creek, the species is persisting and a high abundance was observed in the Arroyo Aguague in 2022 and 2023. Specifically, flows in Upper Penitencia Creek were low during the 2020-2022 extreme drought. This time period represents extreme conditions and is one of the driest periods in the historical rainfall record. The conditions observed in Upper Penitencia Creek during those years are thought to be worse case scenario and the species remained. Heavy rains in the winter of 2023 improved habitat conditions and increased *O. mykiss* densities in the system, including within Upper Penitencia Creek, greatly (Valley Water 2024). The physical habitat conditions at all sites in summer and fall of 2023 were suitable to support *O. mykiss* and capture of fish in their first and second year, indicating that conditions supported some level of rearing even during the extreme drought conditions (Valley Water 2024).

During the wet season in Years 3, 4, 5, 6, and 7, the reservoir would be allowed to fill up to elev. 467 feet and the Stage 2 diversion would be used to maintain the reservoir at that elevation. During constant inflow to the reservoir, erosion of sediment, and outflow to Coyote Creek in December through April, migrating adult steelhead could experience increased respiration rates, coughing, and minor physiological stress (Appendix F) due to sediment in flows. For the reasons outlined for the wet seasons of Years 1 and 2, some decrease in reproductive fitness is possible, but impacts to adults would not be substantial.

Under modeled constant inflows to the reservoir, erosion of sediment, and outflows to the creek, incubating eggs could experience 0-20 percent mortality (Appendix F) and juveniles may experience minor physiological stress. Like adults, minor physiological stress over short durations would have little impact on juveniles, but prolonged physiological stress even if "minor" could result in sublethal effects such as slower growth, decreased foraging efficiency, and increased susceptibility to disease and parasites potentially decreasing their overall fitness during their lifetime. However, juveniles may benefit from higher turbidity through decreased predation pressure as long as the associated suspended sediment is not too high to cause prolonged physiological stress (Newcombe and Jensen 1996, Gregory and Levings 1998, Wilber and Clarke 2001).

Under the Pre-FERC Order Baseline, conditions supported abundant spawning habitat in Coyote Creek, collectively, increased suspended sediment under constant flows in the wet seasons of construction would decrease productivity of the steelhead population in Coyote Creek during Project wet seasons (Years 3-7) due to egg mortality, sublethal effects on adults, and minor physiologeical stress to rearing juveniles. Redds in Upper Penitencia Creek would not be subjected to the increased sediment transport from Seismic Retrofit construction so there would still be incubating eggs in the watershed that would have a lower mortality rate.

Constant inflow to the reservoir was modeled as 180 cfs, which would often be higher than wet season baseflows but could occur for a prolonged time following a high flow event (e.g., the tail end of a hydrograph or the time between flow peaks from different storm events). While this is possible, the likelihood is low, so impacts are likely overestimates. Also, even with mortality of eggs, steelhead lay enough eggs that there could be enough fry to occupy the available habitat even with a large percent of mortality from incubating eggs so a decrease in survivorship of eggs may not be limiting to the population overall.

During 2-year and 5-year precipitation events, if adult steelhead choose to migrate up Coyote Creek and remain there, they would experience minor to moderate physiological stress, increased rates of coughing, and increased respiration rates due to the increase sediment concentration associated with the project. These effects would be temporary and sublethal and would likely result in some impaired reproduction. Juveniles would experience moderate physiological stress and the effects would be temporary and sublethal but, prolonged physiological stress even if "moderate" could result in sublethal effects such as slower growth, decreased foraging efficiency, and increased susceptibility to disease and parasites potentially decreasing their overall fitness during their lifetime. As such, overall reproductive fitness would likely decrease as compared to the Pre-FERC Order Baseline, but sediment concentration data are not available for Pre-FERC Order Baseline, so a direct comparison cannot occur. Incubating eggs could experience 0-20 percent mortality. In addition, 2- and 5-year flow events could lead to increased pool depths, reduced spawning gravel quantities, reduced access to low-terrace floodplain habitat from increased channel incision, and reduced benthic macroinvertebrate (BMI) production but would only occur in limited areas within Coyote Creek. Lower quality spawning habitat and reduced BMI production (food supply for rearing juveniles) may reduce the survival of incubating eggs as well as the growth of fry and juveniles rearing within these limited areas, but steelhead would not be impacted in this way throughout most of the creek, and the Live Oak Restoration Project would have enhanced rearing habitat prior to the start of the Project, buffering this impact further. Collectively, increased suspended sediment under precipitation events in five wet seasons of construction would decrease productivity of the steelhead population in Coyote Creek during Seismic Retrofit construction (Years 3-7) but the impact would not be substantial for the population in the watershed as a whole and impacts would be less than significant.

Although it would not be possible to always avoid temporal impacts to steelhead and their habitat in the short-term, Valley Water would conduct suspended sediment monitoring continuously and sediment deposition monitoring annually and ~~the~~ gravel augmentation ~~program and general Sediment Augmentation Program~~ initiated during FOCP through the Live Oak Restoration Project, which will be in place before this Project starts. The gravel ~~and sediment~~ augmentation ~~programs~~ would be maintained during seismic retrofit construction of this Project. In addition, Valley Water proposed to implement post-construction sediment and sediment deposition monitoring, Live Oak Restoration Reach and Ogier Ponds CM maintenance, North Channel Reach maintenance, ongoing Sediment Augmentation Program ~~sediment augmentation~~, and adaptive management. Therefore, construction phase sediment transport impacts would be minimized through the ongoing monitoring and augmentation programs during and after construction over the long term. Because spawning gravels ~~and sediment~~ would be replaced as needed based on the monitoring throughout the Seismic Retrofit construction years and the programs would continue into the future through the Project and FAHCE AMP and SMP, over the long-term, the temporary sediment transport impacts during Seismic Retrofit construction would not only be remediated, but used to restore spawning habitat to an improved condition.

In spring (April) of Years 3, 4, 5, and 6, drawing the reservoir down to elevation 450 feet would occur with the Stage 2 diversion allowing up to 6,000 cfs to pass directly through to downstream. The drawdown from 467 feet to 450 feet would be a much smaller magnitude change compared to the change from deadpool to 450 feet. Storm events are less likely in April (less than 10 percent) and become less likely into late spring and summer, but smaller storm events may occur, and the modeling simulated a 2-year storm event, in addition to constant inflows in the absence of a storm event. Under constant inflow as well as the storm events, if migrating adults are present in April (the end of the migration season), they could experience moderate physiological stress, but effects would be sublethal and temporary and most adults would have already migrated and spawned by this time. Juveniles could experience moderate physiological stress under both elevated constant inflow and storm event conditions. Moderate physiological stress in juveniles for a prolonged period could result in sublethal effects such as slower growth, decreased foraging efficiency, and increased susceptibility to disease and parasites decreasing their overall fitness during their lifetime. However, juveniles may benefit from decreased predation pressure associated with higher turbidity because they would be less visible to predators in the more turbid water and the increase in flows downstream during the drawdown would encourage and support outmigration of smolts. Any smolts that outmigrated would have a more limited exposure duration to the elevated suspended sediment and therefore less impacts. Incubating eggs could experience 0-20 percent mortality representing a worst case scenario in the FCWMZ. Collectively, increased suspended sediment under constant flow and storm events during spring would decrease productivity of the steelhead population in Coyote Creek during Years 3, 4, 5, and 6 of the Project adding to the short-term impacts identified for wet seasons above but, due to the reasons outlined for wet seasons, these impacts would be less than significant on the population as a whole in the watershed. In the long term, impacts would be reversed and there would be a net benefit to the steelhead population from the gravel and sediment augmentation programs associated with maintaining the Live Oak Restoration Project and the Ogier Ponds CM and informed by the construction phase sediment monitoring, and ongoing Sediment Deposition Monitoring that will occur annually during these construction years with an aim to detect and reverse any impacts of sediment deposition on spawning gravels in the FCWMZ as quickly as possible.

Following Year 6, the reservoir would start to refill via inflows and, if possible, imported water up to the new maximum level. Once the reservoir fills to operable levels, exposed sediments would be covered by reservoir water, and then the FAHCE rule curves would be initiated. The refilling of the would occur over 1-2 years depending on the watershed inflows. With the reservoir refilled, suspended sediment would decrease during constant inflow or precipitation events because the full reservoir would ~~not~~ have less exposed erodible sediment and releases would decrease so conditions would return to near-Pre-FERC Order Baseline and would not be expected to impact steelhead further.

Overall, sediment transport in instream flows during Seismic Retrofit construction could result in periodic, temporary less than significant impacts to steelhead in the short-term (during the construction phase) during and immediately following wet season precipitation events and during the spring reservoir drawdowns during Seismic Retrofit construction. Suspended sediment monitoring, sediment deposition monitoring, the gravel and sediment augmentation programs, and the Ogier Ponds CM would prevent the long-term degradation of spawning habitat and would reverse the spawning and productivity impacts, resulting in less than significant impacts, and a net benefit to the steelhead population and its habitat in the long-term.

Non-native Species Effects During Construction Phase Drawdown and Operations

Some aquatic non-native species prey on juvenile steelhead and compete for habitat and food resources (Carey et al. 2011, Thompson et al. 2012). The non-native fish species present throughout Coyote Creek that pose the most significant risk to native fish and wildlife are the predatory largemouth bass (*Micropterus salmoides*), spotted bass (*Micropterus punctulatus*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*), crappie species (*Pomoxis* spp.), and catfish species (*Ictalurus* and *Ameiurus* spp.) ~~.~~Reservoir drawdown during Seismic Retrofit construction may increase the rate of introduction of new non-native species from upstream of the dam to downstream of the dam and may continue to be introduced ~~i~~through imported water releases.

Several non-native fish species occur in Anderson Reservoir including competitors and predators. A fyke trap was deployed at the outlet of Anderson Dam during late September through late November 2020 and from March through April 2021 to monitor fish species passing from Anderson Reservoir downstream to Coyote Creek during FOCP dewatering. The fyke net captured nearly 300 non-native largemouth bass, and a few black crappie, bluegill, common carp, threadfin shad, and inland silversides potentially leaving Anderson Reservoir (Valley Water 2021d ~~2021c~~). However, all of the species captured already occurred in Coyote Creek and the FCWMZ under Pre-FERC Order Baseline so no new species are predicted to be released from Anderson Reservoir to Coyote Creek during Project construction.

The use of chillers to cool the FCWMZ would reduce the suitability of conditions for non-native species while promoting suitability for special-status species. For example, largemouth bass prefer temperatures for rearing between 25–30 °C (Moyle 2002), which are unlikely to occur within the FCWMZ, and likely to occur in Ogier Ponds and further downstream. Habitat conditions downstream will likely remain the same as Pre-FERC Order Conditions and should not provide additional habitat for non-native species. Additionally, Valley Water would dispatch non-native fish trapped during monitoring or dewatering activities. Therefore, impacts from the release of non-native species from Anderson Reservoir downstream to special-status fish would be less than significant compared with the Pre-FERC Order Baseline.

Instream Flows During Construction Summary

Overall, instream flows during construction would maintain steelhead throughout the entire construction phase of the Project because expected flow depths, temperatures, and DO are within a range that can support steelhead migration, spawning, incubation, and rearing in the FCWMZ throughout Seismic Retrofit construction. This is made possible by the Normal Operation of Coyote Reservoir, Construction Period Imported Water Releases and use of chillers for such releases to the FCWMZ, and Cross Valley Pipeline Extension releases to provide in-stream flow downstream of the CWMZ~~, and operation of the North Channel Extension for high flow releases~~. Minimization of these impacts on steelhead would also be aided by the Maintenance Activities at Live Oak Restoration Reach and North Channel Reach, and offset by the improvement of creek habitat associated with the Ogier Ponds CM, and the implementation of the CWMZ Sediment Augmentation Program. Sediment transport would be the main impact to instream flows and fisheries habitat during construction phase drawdown and operations. causing sublethal physiological stress in adults and juveniles and some (up to 20 percent) mortality of incubating eggs. Sublethal physiological stress over short durations would have little impact on juveniles, but prolonged physiological stress could result in sublethal effects such as slower growth, decreased foraging efficiency, and increased susceptibility to disease and parasites potentially decreasing their overall fitness during their lifetime. Similarly, if adults chose to migrate during periods of high suspended sediment loads they would experience physiological stress, increased rates of coughing, and increased respiration rates. Physiological stress and increased respiration rates across long durations can result in sublethal impacts like impaired reproduction and increased susceptibility to disease and parasites These effects would in turn decrease productivity of the steelhead population during construction compared with the Pre-FERC Order Baseline, resulting in short-term less than significant impacts.

Although non-native species could be introduced as a result of imported water releases during construction, imported water releases that may contain non-native species would not be greater than releases compared with the Pre-FERC Order Baseline. In addition, the ability to release imported water from a new location downstream of the CWMZ as a result of FOCP construction of the Cross Valley Pipeline Extension would reduce imported water and related non-native invasive species introduced into the FCWMZ as compared to Pre-FERC Order conditions.

Construction phase suspended sediment, sediment deposition monitoring throughout Project construction and during post-construction, and implementation of the following Conservation Measures would minimize and remediate these impacts: Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach, implementation of the Ogier Ponds CM to enhance and enlarge fry and juvenile rearing habitat and improve migration, implementation of the Phase 2 Coyote Per Dam to improve migration, implementation of the Sediment Augmentation Program in the CWMZ combined with Maintenance of the North Channel Reach ~~Extension~~ to protect portions of CWMZ from scouring flows, post-construction implementation of FAHCE rule curves and flows as well as adaptive management of all of these Conservation Measures would restore, increase, enhance, and maintain spawning and rearing habitat and reverse temporary, periodic, construction phase sediment transport impacts.

Conservation Measures Construction

Conservation Measures that constitute physical improvements to be constructed are analyzed here and are: Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach, Sediment Augmentation Program, and Phase 2 Coyote Percolation~~.~~ Dam CM (see Section 2.6, *Conservation Measures Construction*).

Ogier Ponds Conservation Measure

The Ogier Ponds CM would restore approximately 6,500 linear feet of river channel and connect the channel to the floodplain and is predicted to enhance over 67,000 square feet of steelhead rearing habitat (Valley Water and Stillwater Sciences 2024). Construction activities include creating a defined creek channel by separating the existing hydraulic connection between Coyote Creek and Ogier Ponds, returning the creek to a riverine channel, and adding ecological enhancements to the channel and floodplain. In addition to creating a large amount of rearing habitat, separating the Ogier Ponds from Coyote Creek would benefit steelhead and their habitat by improving water quality via lowering temperatures in the creek downstream of the ponds. It would also eliminate migration delays that likely occur under existing conditions when migrating salmonids arrive at the slack waters of the current ponds. Although a managed hydrological connection (through weirs) would be maintained between the Creeks and the ponds to avoid degradation of pond water quality, the Ogier Ponds CM would allow the full CWMZ as defined in the FAHCE *Settlement Agreement* to function. Because the ponds would no longer result in the significant warming of the creek flow, the existing elevated temperature of creek water downstream of the CWMZ would also be colder which would further benefit steelhead in Coyote Creek.

Under both the Pre-FERC Order Baseline and the existing conditions baseline, it was determined that the water from Ogier Ponds is often too warm for steelhead rearing, the slow water within the ponds may discourage migrating steelhead from swimming into or through the ponds, and the risk of predation increases in the pond environment. The separation of the ponds from the main channel would allow steelhead to migrate more efficiently both up and downstream within Coyote Creek or with reduced predatory pressure and improved water quality following completion of the Conservation Measure construction.

While the Ogier Ponds CM would provide substantial benefits to steelhead once complete, the construction of the Conservation Measure would have short-term impacts to rearing juveniles that may be present during construction during dewatering and diversion activities. Implementation of the in-channel work window and BMP BI-2 will minimize impacts to adult steelhead and spawning activities during dewatering and impacts from increased suspended sediment in the channel by restricting dewatering activities and routine vehicle use in-channel to times when steelhead are not spawning and adults are not present in the system. This work window minimizes impacts to migrating steelhead because adults immigrate December through April and smolts outmigrate February through May. However, rearing juveniles occur in Coyote Creek year-round. Coffer dams upstream and downstream of the Ogier Ponds work area would be removed at the end of each dry season providing fish passage during the wet season. This would avoid and minimize adult and smolt migration impacts as well as impacts to movement of fry and rearing juveniles.

Construction of the Ogier Ponds CM would begin in Year 6 and end in Year 8, which would minimize overlap of this project with Seismic Retrofit construction. Construction would occur over a three-year period, during the in-channel work window. Construction of the Ogier Ponds CM would require dewatering of the pond areas to be filled, diversion of creek flow around the work area, and control of groundwater to minimize expected seepage into the work areas, which would be implemented annually during the in-channel work window (i.e., three times during the construction of the Ogier Ponds CM).

Rearing juveniles occur in Coyote Creek year-round. Localized dewatering during construction activities has the potential to strand steelhead or trap them in pools subjecting them to increased predation pressure or water quality degradation; therefore, under the dewatering and aquatic species rescue and relocation plan for the Ogier Ponds CM, *O. mykiss* would be excluded with block nets and/or captured and relocated prior to and during dewatering for construction. Capture methods would include backpack electrofishing, seining dip netting and/or capturing by hand. Impacts would include stunning, netting, capturing, and handling, causing acute physiological stress. Injury or mortality can happen occasionally but is rare, as most steelhead tolerate capture and handling. Two fish rescues have been conducted under FOCP according to the Fish Rescue and Relocation Plan approved by NMFS resulting in the capture of 235 *O. mykiss* (~~Valley Water and Stillwater Sciences 2020~~, Valley Water 2020d; Valley Water 2021c ~~2021h~~). During these rescues, Valley Water documented mortality of 4 individual *O. mykiss* (less than 2 percent of captured *O. mykiss*). Expected acute physiological stress during rescue and relocation would be a lesser impact than likely mortality due to stranding, predation, and/or deteriorating water quality conditions if rescue and relocation during localized dewatering were not implemented.

BMPs GEN-35 and WQ-3, as well as AMM-17, will protect steelhead from being injured or killed during dewatering activities or pumping streamflow around the work site by using pumps and intake hoses screened, according to NMFS and CDFW criteria to prevent uptake of fish and other vertebrates. The dewatering and aquatic species rescue and relocation plan for the Ogier Ponds CM would reduce impacts of fish stranding during dewatering by implementing a fish rescue and relocation effort during localized dewatering. The Invasive Species Monitoring and Control Plan and AMM-91 could reduce predation pressure and/or competition from nonnative fish, crayfish, American bullfrogs, and red-eared sliders at least in the short-term (long term benefits are less likely unless eradication is achieved). BMP BI-11 and AMM-90 will minimize attracting predators to the work site by requiring that trash be removed daily from the construction area.

Construction activities including vegetation removal on the banks, potential excavation of fill material in proximity to the ponds, filling in Ponds 1 and 5, partially filling Ponds 2 and 4 ~~5~~, constructing an earthen berm, installing overflow weirs, and restoring the Coyote Creek Channel have the potential to degrade water quality downstream of the work area due to increased suspended sediment, the potential for release of other pollutants or materials in the water which could impact rearing steelhead located downstream of the Ogier Ponds, although most rearing habitat is upstream of Ogier Ponds. Diesel generators that would be used to pump groundwater from the work area have the potential to impact water quality and aquatic species. BMPs GEN-35 and WQ-3 will minimize pollution from diesel generators to impact water quality by maintaining and operating pumps according to manufacturer specifications and monitored to prevent low- or high-water conditions. BMPs GEN-20 and WQ-16, as well as AMM-66, AMM-84, and AMM-97, will reduce sediment entering the channel from the work area during precipitation events by installing erosion control measures (e.g., silt fences, straw bales, etc.) and visually inspecting erosion control measures during and following extended storm events. BMPs GEN-26, GEN-31, GEN-32, WQ-11, and HM-8, as well as AMM-7, AMM-8, and AMM-11, will minimize the pollution from vehicle fluids or other oily, greasy, or sediment-laden materials that could enter the creek from the work area by maintaining clean conditions at work sites, keeping spill kits available onsite to clean up any accidental spills, training personnel to properly use spill kits, fueling and cleaning vehicles and equipment off site, keeping vehicles maintained and clean, and inspecting vehicles and equipment daily for leaks prior to initiation of work. BMP WQ-15 will protect steelhead downstream of the work area from impacts of degraded water quality by keeping any oily, greasy, or sediment-laden substances away from places they may enter the waterway and monitoring water turbidity changes downstream of the work area and any discharge points.

Staging and stockpiling areas associated with Ogier Ponds CM construction could introduce sediment to the channel during precipitation events. Pollution could also be introduced from vehicles and equipment in staging and stockpiling areas. If exposure to increased sediment and pollution was high enough and for a long enough duration, steelhead could exhibit behavior changes (moving downstream where pollution is more diluted), injury, illness, or mortality. BMPs GEN-21 and WQ-4, as well as AMM-66, AMM-67, AMM-68, AMM-84, and AMM-97, will reduce sediment entering the channel from staging and stockpiling areas by covering sediment piles or surrounding the piles with erosion control measures, filtering runoff, limiting the length of time materials can be stockpiled, and not placing sediment where it could spill into water bodies or storm drains. BMPs GEN-26, GEN-31, GEN-32, WQ-11, and HM-8, as well as AMM-7, AMM-8, and AMM-11, will minimize the pollution entering the channel by maintaining clean conditions at staging and stockpiling areas, keeping spill kits available onsite to clean up any accidental spills and training personnel to properly use spill kits, cleaning vehicles and equipment off site, keeping vehicles maintained and clean, inspecting vehicles and equipment daily for leaks prior to initiation of work, and utilizing secondary containments when fueling vehicles and equipment in staging and stockpiling areas.

Cofferdam installation and diverting water around the work area would restrict juvenile rearing habitat and limit access to the FCWMZ upstream of Ogier Ponds. BMPs GEN-35 and WQ-3, as well as AMM-17, AMM-20, AMM-23, and AMM-24, will protect steelhead from being injured or killed through the diversion of water around the site by using pumps and intake hoses screened according to NMFS and CDFW criteria to prevent uptake of fish and other vertebrates, limiting the extent of the dewatering area, discharging water in a non-erosive manner, removing dewatering materials, restoring normal flows as soon as feasible after work is complete, and utilizing properly sized bypass pipes to prevent increases in temperature and decreases in DO.

Clearing and grubbing would remove vegetation and roots from the floodplain in preparation for excavation of the channel leading to some loss of habitat complexity for steelhead; however, adequately sized trees would be kept in place whenever feasible and, once the channel is reestablished in that area, the riparian corridor would be revegetated with native plants, benefiting fish habitat in the newly established channel.

The goal of the Ogier Ponds Restoration Project is to remove all fish passage impediments created by the ponds, including temperature and predation increases, by restoring approximately 6,500 ~~over 6,400~~ feet of channel to mimic riverine conditions observed in Coyote Creek upstream of the ponds. Based on the area per unit length of channel of suitable rearing area observed in the Habitat Criteria Mapping study directly upstream of Ogier Ponds, this would result in creation of over 67,000 square feet of suitable juvenile rearing habitat, and over 33,000 square feet of shallow water for fry rearing in inundated margin habitat at typical spring and summer flows (approximately 30-50 cfs) (Valley Water and Stillwater Sciences 2024). Based on the predicted increases in spawning habitat modeled to be achieved in the Live Oak Restoration Project scaled to the Ogier Restoration reach length, there is also a goal to create over 20,000 square feet of suitable spawning habitat.

Overall, short-term adverse impacts to steelhead could occur from fish rescue during dewatering and migration delay managed by proposed BMPs; impacts would be less than significant-. Over the long term, the Ogier Ponds CM would benefit steelhead by improving natural creek functions, adding and enhancing spawning and rearing habitat, improving water quality, and enhancing fish passage.

Maintenance of the North Channel Reach ~~North Channel Maintenance and Extension~~

~~Construction activities~~ Activities associated with the Maintenance of the North Channel Reach ~~Extension~~ would occur during the in-channel work window ~~of Year 1~~ as needed. Most maintenance activities would occur in dry areas with no water and only a few activities may ~~and would~~ include minor and localized dewatering of any remaining pools ~~and grading in the channel~~. Implementation of dewatering and aquatic resources rescue and relocation plan and BMP BI-2 will help protect steelhead from stranding during dewatering and from impacts from increased suspended sediment in the channel by restricting in-channel construction activities to the dry season work window-, having a plan for native fish rescue and relocation, and minimizing equipment driving in the stream bed. The work window minimizes impacts to migrating steelhead because adults immigrate December through April and smolts outmigrate February through May. However, rearing juveniles occur in Coyote Creek year-round. Prior to the start of ~~construction~~ activities associated with the North Channel maintenance ~~Extension~~, the North Channel may be dry so, in that case, no steelhead would be present and there would be no adverse impacts. However, if there is water in the North Channel and rearing steelhead are present, localized dewatering during ~~construction~~ maintenance activities could strand steelhead or trap them in pools, subjecting them to increased predation pressure or water quality degradation. Therefore, *O. mykiss* would be excluded with nets and a cofferdam would be built at the lower limit ~~of the backwater~~ to keep water from entering the work area or native fish would be relocated from pools that would then be pumped out before maintenance activities start. An agency-approved aquatic species rescue and relocation plan for the North Channel

Maintenance ~~Extension Project~~ would reduce impacts of fish stranding during dewatering by implementing a fish rescue and relocation effort where any remaining *O. mykiss* in the upstream pool in the North Channel would be captured and relocated prior to and during dewatering the pool. Habitat in the North Channel dewatering area was not designed as a part of FOCP to be suitable or preferred steelhead habitat, but instead the channel is designed to handle high flows in a manner that protects the South Channel and Live Oak Reach Restoration Project. Therefore, steelhead presence is not expected in the North Channel, but if present~~, the excluders and~~ rescue and relocation plan and use of exclusion devices will minimize impacts.

~~Once fish are excluded from the North Channel and the backwater pool is dewatered, the North Channel would be graded to connect the area where the existing backwater was located at the confluence of the North and South channels. Grading to create positive drainage toward the existing backwater and elimination of deep pools in the existing wetted channel is not anticipated to impact steelhead because they would have already been excluded from the work area and the area would be dewatered. The grading would ultimately benefit steelhead by decreasing stranding risk once the cofferdam is removed and the North Channel is activated again during high flow.~~

~~Construction~~ Maintenance activities would not impact water quality downstream of the work area because localized work areas within the ~~entire~~ North Channel would be dry prior to the start of ~~construction~~ maintenance activities or construction. BMPs GEN-26, GEN-31, GEN-32, WQ-11, and HM-8, as well as AMM-7, AMM-8, and AMM-11, will minimize the pollution from vehicle fluids or other oily, greasy, or sediment-laden materials from entering the North Channel and washing downstream during high flows when the channel is activated by maintaining clean conditions at work sites, keeping spill kits available onsite to clean up any accidental spills, training personnel to properly use spill kits, fueling and cleaning vehicles and equipment off site, keeping vehicles maintained and clean, and inspecting vehicles and equipment daily for leaks prior to initiation of work.

~~The North Channel would be graded so that it extends through County Parks and private property to connect with the confluence of the North and South Channels of Coyote Creeks, where the existing North Channel currently forms a backwater. Currently the North Channel does not support topography that supports flows through this area. With positive drainage from the North Channel to the confluence, the restored North Channel would be designed to facilitate drainage. Grading would also channel flows towards the center of the North Channel so that flows would continue to the greatest extent feasible during low-flow times. This change in grading and flows would reduce fish stranding and stabilize both banks to protect Santa Clara County property. The north channel downstream of the north weir would be graded to reduce fish stranding when flows recede. This would include a slight slope towards the center of the channel and a slight, approximately 1 percent slope towards ADTP project limits (towards Coyote Creek). Upstream of the north weir, within a perennial backwater, a wetland bench would be installed to create suitable habitat for wetland vegetation. Riparian planting along some margins of the northern channel would be installed. The North Channel itself would not provide additional habitat for steelhead but reduces potential stranding and allow for restoration of the South Channel .~~

In the short term, impacts on steelhead would be less than significant. Over the long-term, steelhead would benefit from protection of South Channel habitat, reduced stranding and predation in the existing North Channel when they dewater following activation.

Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach

At the end of FOCP (existing conditions baseline), the Live Oak Restoration Reach project will have been completed providing new and enhanced spawning and rearing habitat for steelhead. The maintenance of the spawning gravel and the habitat improvements would continue as part of the Project. To maintain steelhead habitats, the extent of spawning gravels to replenish would be assessed during visual observations and following monitoring surveys. Inferential and calculated volumes for spawning gravel volumes would be used to evaluate the need for replenishment of spawning gravel volumes. Stockpiled spawning gravel would be added in small increments to maintain steelhead adult spawning habitat. Maintaining this habitat by continued placement of gravel has the potential to degrade water quality downstream of the work area if gravel and associated fine sediment enter the stream at the time of placement, which could impact rearing steelhead. However, gravels would be thoroughly washed of fine sediment prior to placement and silt curtains with a belting conveyor would be used to place the gravels, limiting impacts to aquatic and riparian areas. ~~gravel would not be placed directly in the channel, but would be placed adjacent to the channel or on benches above the channel so there would be no impact from introducing gravels to the channel at the time of placement. Also, when flows are high enough to mobilize the gravels in the gravel augmentation piles, there would already be elevated background levels of suspended sediment; therefore, additional sediment from the gravel piles would not add substantially to the total sediment that is already suspended during high flows.~~

Though it is not anticipated that ~~gravel and associated~~ fine sediment would enter the stream at the time of placement, measures would be implemented to protect steelhead in the unlikely event that this occurs. BMP BI-2 and GEN-1 restrict in-channel maintenance activities to the in-channel work window (June 15 to October 15). This work window minimizes impacts by minimizing chances of sedimentation and minimizes impacts to migrating steelhead because adults immigrate December through April and smolts outmigrate February through May. However, rearing juveniles occur in Coyote Creek year-round. BMPs GEN-16 and WQ-1 will minimize pollution entering the channel from construction equipment by constraining work activities to the top of bank if access is available and there are flows in the channel. BMPs GEN-26, GEN-31, GEN-32, WQ-11, HM-8, as well as AMM-7, AMM-8, and AMM-11, will minimize the pollution from vehicle fluids or other oily, greasy, or sediment-laden materials that could enter the creek from the work area by maintaining clean conditions at work sites, keeping spill kits available onsite to clean up any accidental spills, training personnel to properly use spill kits, fueling and cleaning vehicles and equipment off site, keeping vehicles maintained and clean, and inspecting vehicles and equipment daily for leaks prior to initiation of work.

Staging and stockpiling areas located immediately downstream of the dam could introduce sediment to the channel during precipitation events. Pollution could also be introduced from vehicles and equipment in staging and stockpiling areas. BMPs GEN-21 and WQ-4, as well as AMM-66, AMM-67, AMM-68, AMM-84, and AMM-97, will reduce sediment entering the channel from staging and stockpiling areas by covering sediment piles or surrounding with erosion control measures, filtering runoff, limiting the length of time materials can be stockpiled, and not placing sediment where it could spill into water bodies or storm drains. BMPs GEN-26, GEN-31, GEN-32, WQ-11, HM-8, as well as AMM-7, AMM-8, and AMM-11, will minimize the pollution entering the channel by maintaining clean conditions at staging and stockpiling areas, keeping spill kits available onsite to clean up any accidental spills and training personnel to properly use spill kits, cleaning vehicles and equipment offsite, keeping vehicles maintained and clean, inspecting vehicles and equipment daily for leaks prior to initiation of work, and utilizing secondary containments when fueling vehicles and equipment in staging and stockpiling areas.

Suspended sediment and turbidity impacts would be controlled by BMPs and mitigation measures and would be periodic ~~(during and after storm events)~~ and temporary lasting only during the construction phase. In the short term, impacts on steelhead would be less than significant. Over the long-term, steelhead would benefit from maintaining spawning habitat in the Live Oak Restoration reach that was enhanced during FOCP.

Sediment Augmentation Program

The Sediment Augmentation Program would improve geomorphic processes that create and maintain aquatic habitat for native species, including steelhead habitat. It would also reduce and reverse channel incision benefiting steelhead habitat in Coyote Creek. Sediment would be placed in the Live Oak Restoration Reach and/or Ogier Ponds Restoration Reach, beginning with the Live Oak Restoration Reach. Sediment would be placed on the benches ~~next to the~~ with the toe interacting with the channel in the CWMZ ~~and the Ogier Ponds CM restored channel~~ so that it would be mobilized during high-flow events. Placement of sediment has the potential to degrade water quality downstream of the work area if sediment enters the stream at the time of placement which could impact rearing steelhead. However, sediment would not be placed directly in the channel except for the toe of the sediment pile, the rest ~~but~~ would be placed adjacent to the channel or on benches above the channel so there would be minimal ~~no~~ impact from introducing sediment to the channel at the time of placement. Also, when flows are high enough to mobilize the sediment in the sediment augmentation piles there would already be elevated background levels of suspended sediment; therefore, additional sediment from the piles would not add substantially to the total sediment that is already suspended during high flows.

Though ~~it is not anticipated that~~ minimal sediment would enter the stream at the time of placement, measures would be implemented to protect steelhead ~~in the unlikely event that this occurs~~. BMPs BI-2 and GEN-1 restrict in-channel maintenance activities to the in-channel work window (June 15 to October 15). This work window minimizes impacts to all life stages by minimizing sedimentation and minimizes impacts to migrating steelhead because adults immigrate December through April and smolts outmigrate February through May. However, rearing juveniles occur in Coyote Creek year-round. BMPs GEN-16 and WQ-1 will minimize pollution entering the channel from construction equipment by constraining work activities to the top of bank if access is available and there are flows in the channel. BMPs GEN-26, GEN-31, GEN-32, WQ-11, and HM-8, as well as AMM-7, AMM-8, and AMM-11, will minimize the pollution from vehicle fluids or other oily, greasy, or sediment-laden materials that could enter the creek from the work area by maintaining clean conditions at work sites, keeping spill kits available onsite to clean up any accidental spills, training personnel to properly use spill kits, fueling and cleaning vehicles and equipment off-site, keeping vehicles maintained and clean, and inspecting vehicles and equipment daily for leaks prior to initiation of work.

Suspended sediment and turbidity impacts have a low likelihood of occurring and would be temporary if they do occur. In the short term, impacts on steelhead would be less than significant. Over the long-term, steelhead would benefit from improved geomorphic processes that create and maintain spawning habitat and reduce and reverse channel incision.

Phase 2 Coyote Percolation Dam Fish Passage Enhancements

While the Phase 2 Coyote Percolation Dam CM would benefit steelhead once complete, construction activities to complete the Conservation Measure could have short-term impacts. Construction of this Conservation Measure requires localized dewatering. Localized dewatering during construction activities has the potential to strand steelhead or trap them in pools, subjecting them to increased predation pressure or water quality degradation. Construction activities also have the potential to degrade water quality downstream of the work area due to increased suspended sediment or other materials in the water.

Due to high water temperatures during the dry season work window and suboptimal habitat conditions, no steelhead are anticipated to be present in the Phase 2 Coyote Percolation Dam CM construction area during the period of disturbance. This portion of Coyote Creek is a migratory corridor and steelhead are likely only here seasonally. However, measures would be implemented to protect any steelhead that may be present. BMP BI-2 would protect steelhead from stranding during dewatering and impacts from increased suspended sediment in the channel by restricting in-channel construction activities to the dry season work window. This work window minimizes impacts to migrating steelhead because adults immigrate December through April and smolts outmigrate February through May. Though unlikely, if any rearing steelhead juveniles are present in the work area, they would be subject to stranding during dewatering. An agency-approved aquatic species rescue and relocation plan for the Phase 2 Coyote Percolation Dam CM would reduce impacts of fish stranding during localized dewatering by implementing a fish rescue and relocation effort during localized dewatering, whereby *O. mykiss* would be excluded from the work area with block nets and/or captured and relocated prior to and during dewatering. Capture methods would include backpack electrofishing, seining, dip netting and/or capturing by hand. Impacts would include stunning, netting, capturing, and handling causing acute physiological stress. Injury or mortality can happen occasionally but are rare. Most steelhead tolerate capture and handling.

Implementation of BMPs GEN-35, WQ-3, and AMM-17 will protect steelhead from being injured or killed during dewatering activities or pumping streamflow around the work site by using pumps and intake hoses screened according to NMFS and CDFW criteria to prevent uptake of fish and other vertebrates. AMM-91 and CDFW authorization for sacrifice of non-native species could reduce predation pressure and/or competition from nonnative fish, crayfish, American bullfrogs, and red-eared sliders at least in the short-term (long term benefits are less likely unless eradication is achieved). BMP BI-11 and AMM-90 will minimize attracting predators to the work site by requiring that trash be removed daily from the construction area.

BMPs GEN-20 and WQ-16, as well as AMM-66, AMM-84, and AMM-97, will reduce sediment entering the channel from the work area during precipitation events by installing erosion control measures (e.g., silt fences, straw bales, etc.) and visually inspecting erosion control measures during and following extended storm events. BMPs GEN-26, GEN-31, GEN-32, WQ-11, and HM-8, as well as AMM-7, AMM-8, and AMM-11, will minimize the pollution from vehicle fluids or other oily, greasy, or sediment-laden materials that could enter the creek from the work area by maintaining clean conditions at work sites, keeping spill kits available onsite to clean up any accidental spills and training personnel to properly use spill kits, fueling and cleaning vehicles and equipment off-site, keeping vehicles maintained and clean, and inspecting vehicles and equipment daily for leaks prior to initiation of work. BMP WQ-15 would protect steelhead downstream of the work area from impacts of degraded water quality by keeping any oily, greasy, or sediment-laden substances away from places they may enter the waterway and monitoring water turbidity changes downstream of the work area and any discharge points.

The Phase 2 Coyote Percolation Dam CM would build upon the Phase 1 design from FOCP to improve upstream and downstream passage at the Coyote Percolation Dam area. Phase 1 improvements are part of the existing conditions baseline and they include 1) replacing the existing steel flashboard dam with an inflatable bladder dam, 2) constructing a portion of a roughened channel to provide upstream and downstream fish passage routes over the dam when the bladder dam is deflated (i.e., Dam-Down conditions), 3) upgrading the approach channel to the fish ladder to a roughened channel that better meets fish passage hydraulic criteria, and 4) upgrading portions of the fish ladder to meet fish passage hydraulic criteria over an increased range of flows. Phase 2 would build on these improvements to meet the most recent applicable ~~CDFW (Love and Bates 2009) and~~ NMFS (NMFS 2023 ~~2022~~) and CDFW (Love and Bates 2009) design criteria for anadromous fish passage across the entire range of design flows. Phase 2 improvements will include 1) constructing a roughened channel ~~over~~ downstream of the dam to provide improved upstream and downstream fish passage over the deflated bladder dam at higher flows, 2) replacing ~~the~~ one of the two radial gates next to the fish ladder with an overshot ~~bypass~~ weir~~s~~ to provide more suitable conditions for both up and downstream passage at lower flows, and 3) other facility modifications to meet the most recent applicable ~~CDFW (Love and Bates 2009) and~~ NMFS (2023 ~~2022~~) and CDFW (Love and Bates 2009) fish passage design criteria~~, including~~. In addition, studies will be conducted on juvenile fish passage and predation risks through the pond complex post-enhancements to assess if additional changes are necessary to improve juvenile out-migration. Therefore, the updated Coyote Percolation Dam after the completion of Phase 2 will allow fish passage at a wider range of flows, including across all CDFW (Love and Bates 2009) and NMFS (2023 ~~2022~~) design flows, with less delay and safer downstream passage.

Overall, short-term construction related impacts would be less than significant, and in the long term the Phase 2 Coyote Percolation Dam CM would benefit steelhead migration facilitating anadromous production of the population in the watershed.

Construction Monitoring

Construction Phase Fisheries Monitoring

Fisheries monitoring will provide valuable information to inform management of steelhead in the study area both during and after completion of construction and guide Valley Water and regulatory agencies in decision-making regarding the Fish Rescue and Relocation Plan, the Sediment Augmentation Program and other habitat restoration efforts. Water ~~temperature~~ quality monitoring, suspended sediment monitoring, sediment deposition monitoring, VAKI Riverwatcher adult escapement monitoring, spawning surveys, eDNA, migration flow monitoring, ~~and~~ non-native control methods, reptile monitoring, and terrestrial animal monitoring would have no impacts on steelhead. Sensitive Habitat Monitoring and Groundwater Monitoring would not adversely impact steelhead as these studies do not require in-channel sampling. Groundwater monitoring would not adversely impact steelhead, because monitoring wells are located outside the active channel of Coyote Creek. ~~Therefore, there is no impact.~~

There will be some impacts from juvenile rearing studies, PIT tag migration study, and growth comparative study. Stunning/netting, capturing, handling, and tagging would cause acute physiological stress. Injury and mortality are rare but happen occasionally. Valley Water would be subject to the terms and conditions of their ESA 10(a)1(A) recovery permit and CDFW Scientific Collecting Permits which include impact avoidance and minimization measures during these studies.

Construction Phase Fish Rescue and Relocation; Juvenile Rearing, Migration, and Growth

If monitoring of water temperature and DO indicates that conditions for rearing steelhead would become unsuitable within the Coyote Creek FCWMZ as a result of Seismic Retrofit construction activities, steelhead would be rescued and relocated per the Fish Rescue and Relocation Plan. In addition. Localized dewatering plans when developed may require preparation of localized dewatering plans under BMP BI-2. For both types of plans, capture methods would include backpack electrofishing and/or seining. Steelhead would be stunned/netted, captured, and handled causing acute physiological stress. Injury or mortality can happen occasionally but are rare. Most steelhead tolerate capture and handling. Acute physiological stress would be temporary and less of an impact than mortality under deteriorating water quality conditions.

Valley Water has also documented steelhead successfully rearing through the summer despite times of temperatures increasing above optimal range. This information gathered prior to the Project will be used in technical working group discussions to balance the risks of capture and relocation with the risks of allowing steelhead to remain in the FCWMZ under suboptimal conditions, therefore the Fish Rescue and Relocation Plan and fish relocation efforts under BMP BM-1 plans would have less than significant impacts on steelhead.

Invasive Species Monitoring and Control Plan

The Invasive Species Monitoring and Control Plan is outlined in Section 2.7.6.2 and was prepared for the FOCP and would continue to be implemented through construction of the Project. The species targeted by the plan include non-native fish, crayfish, American bullfrog, and red-eared slider, as well as opportunistic removal of other non-native species. The decontamination protocols and signage discouraging release of unwanted pets would have no adverse impacts on steelhead and the prevention of spreading diseases and pathogens would help minimize impacts to steelhead from the Project. The Invasive Species Monitoring and Control Plan also implements the opportunistic capture and dispatch of non-native species when they are encountered during monitoring activities or during implementation of individual aquatic species rescue and relocation plans during local dewatering for construction activities or the Fish Rescue and Relocation Plan in the FCWMZ. Because capture and dispatch would be opportunistic and conducted during other construction activities and monitoring, including during fish rescue and relocation, already assessed for steelhead impacts, there would be no additional impacts on steelhead not already considered, and steelhead may benefit in the longer term in locations where invasive species are removed, particularly piscivorous (fish-eating) fish, crayfish, and bullfrogs. However, benefits would likely be temporary because systematic eradication of non-native species entirely is not feasible, so such species are likely to reinvade areas where some were removed.

Construction Monitoring Summary

Overall, construction monitoring would result in less-than-significant impacts to steelhead in the short-term and would benefit steelhead in the long-term.

Post-Construction Seismic Retrofit and Instream Flows Operations (FAHCE Rule Curves)

This section analyzes the impacts and benefits of implementing the FAHCE rule curves (i.e., the Project) compared with Pre-FERC Order Baseline Conditions, and Future Baseline conditions based on results of WEAP modeling and project design objectives for non-flow restoration actions. In addition, the WEAP Model results for steelhead fry and juvenile habitat are compared with the HCM results to provide a more detailed assessment of habitat for these steelhead life stages in the FCWMZ under Pre-FERC Order Baseline Conditions. Benefits of the Conservation Measures, including maintenance of the Live Oak Restoration Project; construction, operations, and maintenance of the North Channel Reach ~~Extension~~, Coyote Percolation Pond Phase 2 design improvements, Sediment Augmentation Program, and Ogier Ponds CM are also qualitatively considered in the analysis but are not included in the WEAP Model results. This section provides the relevant summaries of modeled changes in habitat from the WEAP Model outputs which are provided with more detailed technical methods in Appendix F, Biological Resources – Fisheries ~~Resources~~ Technical Appendix.

Spawning and Incubation Habitat

The Project is predicted to result in an increase in steelhead spawning and incubation habitat compared with the Future Baseline, with a predicted decrease in spawning and incubation habitat relative to the Pre-FERC Order Baseline. The analysis of these changes is nuanced and complex, with relevant summaries presented here and full analysis in Appendix F.

The WEAP Model predicts 21,876 square feet of incubation adjusted steelhead spawning habitat in Coyote Creek under the Project. Approximately 8,000 square feet of the spawning habitat would occur in the FCWMZ and just over 13,800 square feet would occur in reaches downstream of the FCWMZ. Compared with the Pre-FERC Order Baseline, the WEAP Model predicts a decrease in spawning habitat in the FCWMZ and an increase in reaches downstream of the FCWMZ, with an overall decrease of 1,500 square feet (6.4 percent) under the Project, due not just to implementation of FAHCE rule curve releases and operations as a result of the Project, but also do to differing assumptions in the WEAP model about factors like Pre-FERC Order water supply releases and water demand that vary from existing conditions for reasons unrelated to the Project. Compared with the Future Baseline, the Project would increase incubation adjusted steelhead spawning habitat in Coyote Creek. Increases relative to the Future Baseline would occur in the FCWMZ and in downstream reaches, with an overall increase of 3,900 square feet (21.7 percent). Comparison with the Future Baseline provides a more accurate depiction of Project benefits than comparison with the Pre-FERC Order Baseline because both the Project and Future Baseline scenarios represent conditions occurring at the same point in time (i.e., 2035) and both are based on the same assumptions regarding water conservation, water supply and demand, climate change, and other factors affecting flows and habitat in Coyote Creek (see Chapter 5.0, *Alternatives*, for discussion of No Project Alternative). Accordingly, the Project would benefit spawning and incubation habitat in the long term, and therefore spawning steelhead.

Comparison of the WEAP Model predictions under the Pre-FERC Order Baseline and the Future Baseline indicates that, without the Project, spawning habitat is predicted to decrease in Coyote Creek downstream of Anderson Dam as a result of factors other than the Project. Under Pre-FERC Order Baseline Conditions, the WEAP model predicts an average total of 23,407 square feet of incubation adjusted steelhead spawning habitat in Coyote Creek downstream of the dam. Under Future Baseline conditions, the WEAP model predicts a total of 17,952 square feet of incubation adjusted steelhead spawning habitat downstream of the dam. This represents a predicted decrease in spawning habitat of 5,455 square feet under the Future Baseline, regardless of Project implementation, as compared with Pre-FERC Order Baseline. This decrease is based on factors that are not related to implementation of the Project or its FAHCE rule curves (~~-~~e.g., changes in conservation, water supply demand resulting in less imported water released into Coyote Creek), and this decrease is predicted to occur without implementation of the Project. In other words, the Project would reduce the loss of steelhead spawning habitat that is otherwise predicted to occur between Pre-FERC Order Baseline and Future Baseline conditions. As described above, the Project would also result in a net benefit to spawning habitat compared with the conditions that would occur without the Project (i.e., Future Baseline conditions).

In addition to the WEAP Model habitat predictions and reductions in releases to Coyote Creek expected to occur in the absence of the Project, evaluation of Project effects on spawning and incubation habitat must take into account the implementation of several spawning habitat restoration Conservation Measures. The Ogier Ponds CM Project is estimated to add over 20,000 square feet of spawning habitat at typical winter baseflow (approximately 30 cfs). The additional spawning habitat created by the Ogier Ponds CM would be maintained and supplemented by Project maintenance of spawning habitat improvements added to the Live Oak Reach, and the Sediment Augmentation Program, which will rely on placement of bed materials to improve spawning substrate on benches within the CWMZ and then increased flow conveyance from the North Channel Extension, constructed as part of FOCP, ~~Project~~ to distribute those materials. These Conservation Measures would contribute to substantial additional increases in spawning habitat and steelhead production potential in Coyote Creek downstream of Anderson Dam, which will be maintained in perpetuity as a part of ongoing operations.

Furthermore, implementation of the Ogier Ponds CM would improve spawning suitability downstream of Ogier Ponds by disconnecting the creek from the ponds and eliminating the introduction of warmed water from the ponds to Coyote Creek, thereby reducing water temperatures and improving habitat suitability in the restored creek channel downstream of Ogier Ponds during warmer months (Valley Water 2023b ~~2023c~~). The WEAP Model results indicate that water temperatures under the Pre-FERC Order Baseline are sufficiently elevated to limit successful steelhead incubation downstream of Ogier Ponds. Therefore, implementation of the FAHCE rule curves in combination with the construction, operation, and maintenance of Ogier Ponds CM, the maintenance of spawning habitat created by FOCP in the Live Oak Restoration Reach, and implementation of the Sediment Augmentation Program combined with increased flow conveyance through the North Channel Extension (constructed as part of FOCP) would contribute to additional increases in steelhead production potential in Coyote Creek downstream of Anderson Dam.

Overall, the amount of spawning and incubation habitat under the Project would increase substantially relative to the Future Baseline with implementation of the FAHCE rule curves and the habitat restoration Conservation Measures with overall benefits to steelhead. Also, the continued Maintenance of the Spawning Habitat Improvements in the Live Oak Restoration Reach would maintain spawning habitat through the Project that was improved during FOCP <u>and enhanced protection from higher flows from the North Channel Extension</u> (see Section 3.4.5. *Cumulative Impacts*) ~~and the North Channel Extension will aid this maintenance by sending high flows down the north channel, protecting the south channel improvements in the Live Oak Restoration Reach.~~

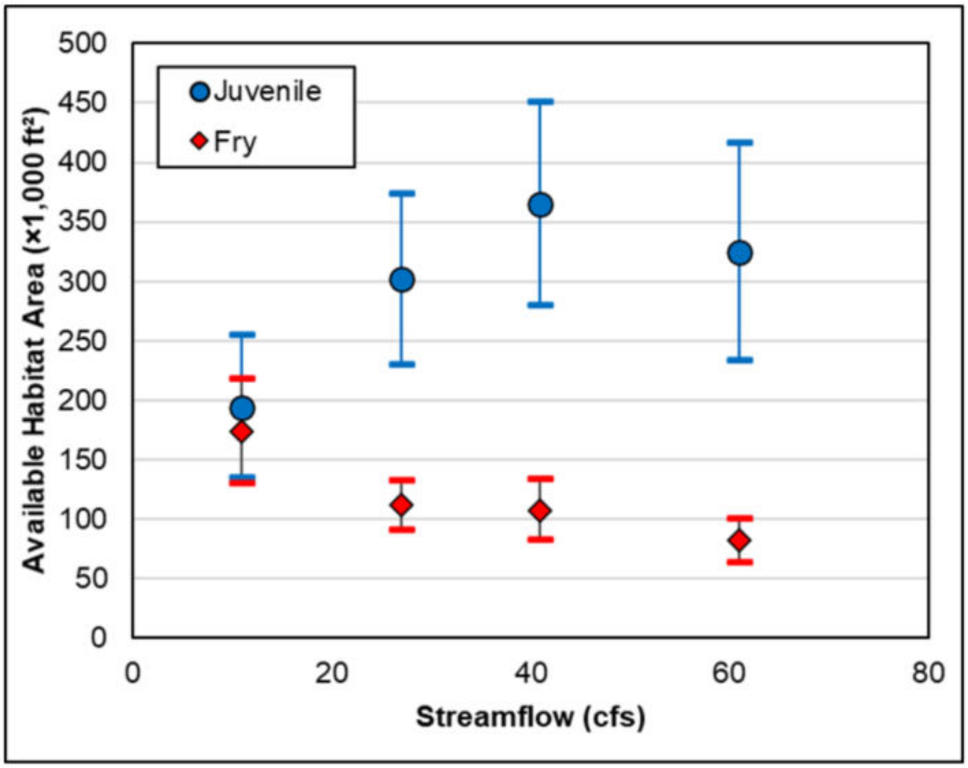
Fry Rearing Habitat

Implementation of the FAHCE rule curves under the Project is predicted to decrease fry rearing habitat compared with both the Pre-FERC Order Baseline and the Future Baseline. The analysis of these changes is nuanced and complex, with relevant summaries presented here.

The WEAP Model predicts 2,206,220 square feet of steelhead fry rearing habitat in Coyote Creek under the Project. Approximately 216,000 square feet of the fry rearing habitat would occur in the FCWMZ and approximately 1,990,000 square feet would occur in reaches downstream of the FCWMZ. Compared with the Pre-FERC Order baseline, the WEAP Model predicts a 4.1 percent increase in fry rearing habitat in the FCWMZ and a 1.7 percent decrease in reaches downstream of the FCWMZ, with an overall decrease of 25,700 square feet (1.2 percent) under the Project. Compared with the Future Baseline the Project is predicted to result in similar, but smaller, changes in predicted fry rearing habitat. Under the Project, the WEAP Model predicts a 3.8 percent increase in steelhead fry rearing habitat in the FCWMZ, a very small (0.6 percent) decrease in reaches downstream of the FCWMZ, and an overall decrease of 3,400 square feet (0.2 percent) compared with the Future Baseline. Comparison with the Future Baseline provides a more accurate depiction of Project benefits than comparison with the Pre-FERC Order baseline because both the Project and Future Baseline scenarios represent conditions occurring at the same point in time (i.e., 2035) and both are based on the same assumptions regarding water supply and demand, climate change, and other factors affecting flows and habitat in Coyote Creek (see Chapter 5, *Alternatives*). Accordingly, effects of the Project on fry rearing habitat are evaluated primarily by comparison with the Future Baseline.

While the decreases in habitat downstream of the FCWMZ are due to both changes in flow and water temperature under the Project, the modeled decreases downstream of the FCWMZ are typically the result of flow variations, and notably do not consider the substantial benefits of the construction, operation, and maintenance of the Ogier Pond CM and the continued maintenance of the Rearing Habitat Improvements in Live Oak Restoration Reach. Decreases are most often due to lower flows (mostly in the month of May when flows are reduced for cold water management) that reduce the wetted area in the channel available for fry rearing habitat. Occasionally decreases in fry habitat occur due to higher flows under the Project that reduce the water velocity suitability for fry rearing or slight increases in water temperature. As illustrated by the HCM estimates, which are based on field mapping of fry rearing habitat under Pre-FERC Order Baseline Conditions at different flows (**Figure 3.4-3**), fry rearing habitat was found to decrease with increasing flow due to increasing water velocities that become unsuitable for fry rearing within portions of the channel (Stillwater Sciences 2021). Pulse flows prescribed by the Project may result in velocities that reduce the water velocity suitability for steelhead fry.

Figure 3.4-3. Habitat Criteria Mapping estimates of available habitat area for steelhead fry and juvenile rearing life stages under the Pre-FERC Order Baseline in the Functional Cold Water Management Zone at various streamflows measured at the Madrone Gage 5082 (Stillwater Sciences 2021). Vertical bars represent 95 percent confidence intervals.



These WEAP model habitat predictions do not take into account fry rearing habitat created by the Conservation Measures, the Ogier Ponds CM (which is part of the Project) is estimated to add over 33,000 square feet of shallow water habitat for fry rearing in inundated margin habitat at a range of ~~typical~~ spring and summer flows (approximately 30-50 cfs). Implementation of the Ogier Ponds CM would improve fry rearing suitability downstream of Ogier Ponds by disconnecting the creek from the ponds and eliminating the introduction of warmed water from the ponds to Coyote Creek, thereby reducing water temperatures in the restored creek channel as well as the channel downstream of Ogier Ponds during warmer months (Valley Water 2023b ~~2023c~~). The WEAP Model results indicate that water temperatures under the Pre-FERC Order Baseline are occasionally elevated sufficiently to limit steelhead fry rearing downstream of Ogier Ponds. Therefore, implementation of the FAHCE rule curves in combination with the Ogier Ponds CM would contribute to additional increases in steelhead production potential in Coyote Creek downstream of Anderson Dam.

Although the modeled amount of total fry rearing habitat would be lower under the Project than under Future Baseline conditions and Pre-FERC Order Baseline Conditions, reductions in fry habitat would occur only in reaches downstream of the FCWMZ and would be negligible (less than 1 percent compared with the Future Baseline). Considering the abundance of fry rearing habitat downstream of the FCWMZ (more than 2 million square feet), the small reductions predicted under the Project are not expected to adversely affect steelhead production potential.

Furthermore, implementation of the FAHCE rule curves under the Project would increase fry rearing habitat in the FCWMZ compared to Pre-FERC Order and Future Baseline where temperatures are managed to benefit steelhead. With construction, operation, and maintenance of the Ogier Ponds CM, the modeled decrease in fry rearing habitat downstream of the FCWMZ would be offset by the increased fry rearing habitat created in the Ogier Ponds restoration area and the temperature-related improvements in fry rearing habitat suitability downstream of Ogier Ponds. The combined results of implementing the FAHCE rule curves and the Ogier Ponds CM and the Sediment Augmentation Program would provide overall benefits to steelhead fry rearing and ~~potentially~~ increase steelhead production potential in Coyote Creek downstream of Anderson Dam. Also, the continued Maintenance of the Rearing Habitat Improvements in the Live Oak Restoration Reach would maintain fry rearing habitat through the Project that was improved during FOCP (see Section 3.4.5, *Cumulative Impacts*). ~~Changes to~~ Maintenance of the conveyance and flow splits between the north and the south channel from the Maintenance of the North Channel Reach ~~Extension~~ would aid the maintenance of rearing habitat in the south channel from the Live Oak Restoration Project.

Juvenile Rearing Habitat

The Project is predicted to result in an increase in steelhead juvenile rearing habitat compared with the Future Baseline, with a predicted decrease in juvenile rearing habitat relative to the Pre-FERC Order Baseline.

The WEAP Model predicts 2,574,967 square feet of steelhead juvenile rearing habitat in Coyote Creek under the Project. Approximately 276,900 square feet of the fry rearing habitat would occur in the FCWMZ and approximately 2,298,000 square feet would occur in reaches downstream of the FCWMZ. Compared with the Pre-FERC Order Baseline, the WEAP Model predicts a 4.5 percent decrease in juvenile rearing habitat in the FCWMZ and an 8 percent decrease in reaches downstream of the FCWMZ, with an overall decrease of 212,000 square feet (7.6 percent) under the Project. The amount of juvenile rearing habitat under Pre-FERC Order Baseline Conditions in the FCWMZ predicted by the WEAP model (289,739 square feet) falls within the range of juvenile rearing habitat estimated by the HCM study at a flow of 27 cfs (**Figure 3.4-3**). Because HCM-derived estimates of juvenile rearing habitat in the FCWMZ at flows of 27, 41, and 60 cfs do not differ significantly, the consistency between the WEAP model predictions and the range of HCM estimates at 27 cfs suggests that the WEAP model results are a reasonably accurate prediction of juvenile habitat availability. Compared with the Future Baseline, the Project would increase steelhead juvenile rearing habitat in Coyote Creek. Increases relative to the Future Baseline would occur in the FCWMZ and in downstream reaches, with an overall increase of 32,300 square feet (1.3 percent). As described previously, comparison with the Future Baseline provides a more accurate depiction of Project benefits than comparison with the Pre-FERC Order Baseline. Accordingly, the Project would benefit rearing juvenile steelhead.

Comparison of the WEAP Model predictions under the Pre-FERC Order Baseline and the Future Baseline indicates that, without the Project, juvenile rearing habitat is predicted to decrease in Coyote Creek downstream of Anderson Dam. Under Pre-FERC Order Baseline Conditions, the WEAP model predicts an average total of 2,786,971 square feet of steelhead juvenile rearing habitat in Coyote Creek downstream of the dam. Under Future Baseline conditions, the WEAP model predicts a total of 2,542,715 square feet of steelhead juvenile rearing habitat downstream of the dam. This represents a predicted decrease in juvenile rearing habitat of

244,256 square feet under the Future Baseline compared with Pre-FERC Order Baseline, with modeled decreases in baseline juvenile rearing habitat of 40,945 square feet in the FCWMZ and 203,311 square feet downstream of the FCWMZ (including Ogier Ponds). This decrease is based on factors that are not related to implementation of the Project or its FAHCE rule curves (e.g., changes in conservation, water supply demand resulting in less imported water released into Coyote Creek), Since this decrease is predicted to occur without implementation of the Project, the Project would reduce the loss of steelhead juvenile rearing habitat that is otherwise predicted to occur between Pre-FERC Order Baseline and Future Baseline conditions. As described above, the Project would also result in a net benefit to juvenile rearing habitat compared with the conditions that would occur without the Project (i.e., Future Baseline conditions).

The WEAP Model habitat predictions do not reflect habitat restoration Conservation Measures such as the Live Oak Restoration and Ogier Ponds Project. The Ogier Ponds CM alone is estimated to restore over 67,000 square feet of additional juvenile rearing habitat at a range of ~~typical~~ spring and summer flows (approximately 30-50 cfs) (Valley Water and Stillwater Sciences 2024). Implementation of the Ogier Ponds CM would improve juvenile rearing suitability downstream of Ogier Ponds by disconnecting the creek from the ponds and eliminating the introduction of warmed water from the ponds to Coyote Creek, thereby reducing water temperatures in the restored creek channel and the channel downstream of Ogier Ponds during warmer months (Valley Water 2023b ~~2023c~~). The WEAP Model results indicate that water temperatures under the Pre-FERC Order Baseline are occasionally elevated sufficiently to limit steelhead juvenile rearing downstream of Ogier Ponds. Therefore, implementation of the FAHCE rule curves in combination with the Ogier Ponds CM would contribute to additional increases in steelhead production potential in Coyote Creek downstream of Anderson Dam.

Although the modeled amount of total juvenile rearing habitat would be lower under the Project than under Pre-FERC Order Baseline Conditions, the Project would provide more juvenile rearing habitat compared with the Future Baseline, with most of the increase in the CWMZ where temperatures are more easily managed. As described previously, comparisons between the Project and the Future Baseline provide a more accurate depiction of project benefits. With construction, operation, and maintenance of the Ogier Ponds CM, the increased juvenile rearing habitat created in the Ogier Ponds restoration area and the temperature-related improvements in juvenile rearing habitat suitability downstream of Ogier Ponds would provide overall benefits to steelhead juvenile rearing in Coyote Creek downstream of Anderson Dam. Also, the continued Maintenance of the Rearing Habitat Improvements in the Live Oak Restoration Reach and the Sediment Augmentation Program ~~sediment augmentation program~~ would maintain juvenile rearing habitat through the Project that was improved during FOCP (see Section 3.4.5, *Cumulative Impacts*).

Adult Upstream Passage

The WEAP Model results indicate that flows in Coyote Creek under the Project would provide increased opportunities for upstream migration of adult steelhead compared with both baseline scenarios. The increased upstream migration opportunities would result mostly from increased frequency and duration of flow releases from Anderson Dam during the steelhead migration season. Compared with the Pre-FERC Order Baseline, flows under the Project would increase the average and maximum number of days in which conditions during the annual December–April adult migration period would be suitable for upstream passage into the FCWMZ (i.e., upstream of POI COYO 9), which is the location where suitable steelhead spawning and incubation habitat is most consistently available. Suitable conditions for adult upstream migration would also be suitable for kelts (post-spawning adults returning to the ocean) migrating downstream after spawning. The increase in the average and maximum numbers of annual upstream passage days results from simulated increases in depth at critical riffles associated with increased pulse flow releases, reduced water temperature, or both. The *minimum* annual number of suitable passage days under the Project would decrease slightly (by 1 day) at POIs COYO 6–9 compared with the Pre-FERC Order Baseline. However, this negligible reduction is predicted to occur in only one of 20 years evaluated by the WEAP model, during which predicted migration opportunities at locations downstream of POIs COYO 6–9 are also few (i.e., 1 suitable passage day). It should be noted that the WEAP model assumes passage is only available if all POIs have suitable conditions for downstream passage, thus representing a conservative estimate (i.e., likely underestimate) of the opportunities that are available.

Compared with the Future Baseline, the WEAP Model results indicate that flows under the Project would increase the average and maximum number of days in which conditions during the annual December–April adult migration period would be suitable for upstream passage at all POIs. There would be no change in the minimum annual number of suitable upstream passage days at any location under the Project. As described previously, comparison with the Future Baseline provides a more accurate depiction of Project benefits than comparison with the Pre-FERC Order Baseline. Accordingly, the Project would benefit migrating adult steelhead.

Conservation Measures would provide additional improvements in passage suitability for both adult and juvenile steelhead that are not accounted for by the WEAP Model results. Completion of the Ogier Ponds CM would provide additional passage improvements for adult steelhead by disconnecting Coyote Creek from the ponds, reducing pond entrainment and predation risk, reducing instream water temperature, and improving channel conditions in the restoration area. The Phase 2 Coyote Percolation Dam also improves migration conditions but passage at that location is already assumed in the WEAP Model.

For the reasons outlined above, the Project would benefit migrating adult steelhead, likely facilitating increased reproduction and an increased contribution of the anadromous life history type to the *O. mykiss* population in the watershed.

Juvenile Downstream Passage

The WEAP Model results indicate that flows in Coyote Creek under the Project would reduce opportunities for downstream migration of juvenile steelhead compared with the Pre-FERC Order Baseline but increase juvenile migration opportunities compared with the Future Baseline. Compared with the Pre-FERC Order Baseline, flows under the Project would reduce the median [9] number of days by 3 (30 percent) and also reduce the maximum number of days by 3 (8 percent) in which conditions during the annual February–May juvenile migration period would be suitable for downstream passage. The minimum annual number of suitable days for downstream passage would be zero under both the Project and the Pre-FERC Order Baseline. It should be noted that the WEAP model assumes passage is only available if all POIs have suitable

[9] For the downstream passage analysis, the median is presented instead of the average because the median better represents the central tendency when the data include multiple zero values (years with zero passage days), as is the case with the WEAP Model results for these two model scenarios.

conditions for downstream passage, thus representing a conservative estimate (i.e., likely underestimate) of the opportunities that are available.

Compared with the Future Baseline; however, flows under the Project would increase the median number of days by 5 (250 percent) and there would be no change in the maximum (34) or minimum (0) number of days in which conditions during the juvenile migration period would be suitable for downstream passage. As described previously, comparison with the Future Baseline provides a more accurate depiction of Project benefits than comparison with the Pre-FERC Order Baseline. Accordingly, the Project would provide substantial benefits to outmigrating juvenile steelhead.

Ogier Ponds CM would provide additional improvements in passage suitability for outmigrating juvenile steelhead that are not accounted for by the WEAP Model results. Completion of the Ogier Ponds CM would improve migration conditions by disconnecting Coyote Creek from the ponds, reducing pond entrainment and predation risk, reducing instream water temperature, and improving channel conditions in the restoration area. The Phase 2 Coyote Percolation Dam also improves migration conditions but passage at that location is already assumed in the WEAP Model. Overall, post-construction instream flows and Conservation Measures that improve migration conditions would benefit downstream migrating juveniles.

Post-Construction Seismic Retrofit and Instream Flow Operations (FAHCE Rule Curves) Summary

Compared with the Future Baseline, the post-construction instream flows under the Project would have little or no adverse impacts on the steelhead population in Coyote Creek, with likely benefits to production and a potential increase in the contribution of anadromous individuals to the population. Compared with the Pre-FERC Order Baseline, the Project would slightly reduce habitat for some steelhead life stages, but, as previously described, comparisons with the Pre-FERC Order Baseline do not represent project impacts as accurately as comparisons with the Future Baseline. Overall, implementation of the FAHCE rule curves in combination with the habitat improvements from the Ogier Ponds CM, the Sediment Augmentation Program and continued maintenance of the Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach and ~~, combined with the~~ maintained conveyance improvements of the North Channel Reach ~~Extension and~~ as well as the migration benefits provided by Ogier Ponds CM creek separation and Phase 2 Coyote Percolation Dam CM, would benefit steelhead in Coyote Creek.

Post-Construction Seismic Retrofit Maintenance and Conservation Measures Operations, Maintenance, and Adaptive Management

Following Seismic Retrofit construction, the reservoir would be operated consistent with the FAHCE rule curves as discussed in the prior section *Post-Construction Seismic Retrofit and Instream Flows Operations* (FAHCE rule curves) and is not repeated here. This section addresses post-construction maintenance of Seismic Retrofit facilities, post-construction maintenance of Conservation Measures, and post-construction operations that involve actual conveyance of water through the Conservation Measure infrastructure components and restored habitat areas, as well as post-construction monitoring.

Anderson Dam Post-Construction Operations, Maintenance, and Monitoring

Once the Seismic Retrofit is complete, the reservoir would refill over a period of 1 to 2 years to the new maximum elevation. The new low-level and high-level outlets would allow more operational flexibility. This operational flexibility would benefit steelhead by allowing Valley Water to draw water from different levels in the reservoir to meet FAHCE temperature requirements for instream flows downstream of the dam.

All monitoring and maintenance of the dam and associated appurtenances would be covered under the DMP, SMP and the PMP, which have their own CEQA documents, and considering the extensive BMPs and mitigation measures like gravel augmentation and large wood placement for these programs, the monitoring and maintenance would have short-term less than significant impacts on and long-term benefits for the steelhead population.

Ogier Ponds CM Project Operations, Maintenance, and Monitoring

Monitoring of Ogier Ponds CM would be conducted annually for 10 years at design flows to determine the success of the project at achieving the restoration objectives, and to inform maintenance. Monitoring for suitable fry, juvenile, and spawning habitat would be mapped on the base map of the reach, based on accepted habitat suitability criteria (Stillwater Sciences 2021). Results would be used to inform maintenance of the project.

The restored channel created via the Ogier Ponds Conservation Measure will operate and function as a natural creek channel. There will be no management of flows or manipulation of features as a result of operations. Weirs will be activated infrequently when flow levels reach 2000 cfs, and will be spillover, not requiring any actions. Due to the infrequent nature of activation of the spillover weirs, impacts associated with potential entrainment would not cause a reduction in overall production in the species .Overall, the creek-lake separation at Ogier Ponds and channel restoration would provide many long-term benefits to steelhead and their critical habitat through increased and improved rearing habitat, enhanced migration conditions, decreased predation pressure, decreased water temperatures, and decreased competition. Combined, these improvements would support a larger and more resilient steelhead population in the watershed.

Following the disconnection of Coyote Creek from Ogier Ponds, maintenance may be required to maintain creek channel flow capacity, pond/creek separation, and low flow through the system of ponds as described in Section 2.9.2 ~~2.8.2~~ *Ogier Ponds Operations and Maintenance*. As discussed In Section 2.9.2, *Ogier Ponds Operations and Maintenance*, maintenance would include vegetation management and replanting or other efforts to establish native vegetation throughout the project footprint~~-~~. Berms, spillways, fish screens, in-channel bio-engineered habitat enhancements, rock slope protection, and stormwater outfalls would be inspected and repaired, as necessary. Additional maintenance activities would include trash removal, inspection and graffiti abatement at floodwalls, access road inspections, and road maintenance. Monitoring and maintenance of the newly restored channel would be covered under the SMP and its EIR. C~~but c~~onsidering the extensive BMPs and mitigation measures ~~(~~for this program, the monitoring and maintenance would have short-term less than significant impacts on long term benefits to the steelhead population.

North Channel Reach ~~Extension~~ Operations, Maintenance, and Monitoring

~~The North Channel would be activated (operated) during high flows, when outlet releases exceed 228 cfs. Conveyance of higher flows downstream through the North Channel would support more direct release of geomorphic restoration flows to Coyote Creek, which would enhance steelhead critical habitat, while protecting habitat in the South Channel and Live Oak Restoration Reach. Extension of the channel to improve drainage in the North Channel would decrease stranding risk when the channel flows dissipate. Since the North Channel did not have an upstream connection Pre-FERC Order conditions no comparison can be made to this baseline condition. For f these reasons, the construction of the North Channel Extension and post-construction North Channel Extension operations would benefit Steelhead.~~

As described in Section 2.9.3, *North Channel Reach ~~Extension Maintenance~~,* the North Channel would be monitored to ensure that the area is maintaining sufficient slope and grade to provide positive drainage. Maintenance would include debris and/or vegetation removal from the channel and bed stabilization. These activities may require localized ~~the~~ dewatering, minor grading and potential use of stabilization material within the channel bottom and banks. Long-term maintenance of the North Channel would protect the steelhead habitat features in the South Channel constructed during FOCP by passing high flows through the North Channel. Monitoring and maintenance of the North Channel ~~Extension~~ would be covered under the SMP and its EIR but considering the extensive BMPs and mitigation measures for this program, the monitoring and maintenance would have short-term less than significant impacts on and long-term benefits ~~impacts~~ to the steelhead population.

Monitoring and Maintenance of Spawning Gravel and Rearing Habitat Enhancements in the Live Oak Restoration Reach ~~and Sediment Augmentation Program~~

Live Oak Restoration Reach spawning gravel and rearing habitat enhancements ~~and the Sediment Augmentation Program e~~ would work in conjunction with the Sediment Augmentation Program (see below) to improve spawning substrate and geomorphic processes within the CWMZ and reduce and reverse channel incision, benefiting steelhead and their critical habitat. Maintenance of these habitat enhancements ~~Combined, these improvements~~ would support a larger and more resilient steelhead population in the watershed.

Valley Water would inspect ~~sediment and~~ habitat features and gravel augmentation sites within the Live Oak Restoration Reach ~~CWMZ, with particular but not exclusive focus on the Live Oak Restoration Reach and the Ogier Ponds creek channel area,~~ to determine if habitat features and spawning substrate maintenance is required to address erosion, destabilization, and/or mobilization of habitat features and channel incision or fine sedimentation following large flow events. Maintenance would include placing 5 to 500 cubic yards of spawning gravels ~~or coarse sediments~~ within ~~Coyote Creek~~ the Live Oak Restoration Reach. Spawning gravels would be placed in the channel using sediment curtains and a belting conveyor. Alternatively, the Sediment Augmentation may assist with maintenance of spawning gravels and this would be assessed through the Project and FAHCE AMP. Monitoring and maintenance of the Spawning Gravel and Rearing Habitat Enhancements in the Live Oak Restoration Reach ~~and the Sediment Augmentation Program~~ would be covered under the SMP and its EIR but considering the extensive BMPs for this program-, the monitoring and maintenance would have short-term less than significant impacts on and long-term benefits to the steelhead population.

Monitoring and Maintenance of Sediment Augmentation Program

The Sediment Augmentation Program would improve geomorphic processes within the CWMZ and reduce and reverse channel incision, benefiting steelhead and their critical habitat. Combined with Spawning Gravel and Rearing Habitat Enhancements in the Live Oak Restoration Reach, these improvements would support a larger and more resilient steelhead population in the watershed.

Valley Water would inspect sediment augmentation sites within the CWMZ, with particular but not exclusive focus on the Live Oak Restoration Reach and the Ogier Ponds creek channel area, to determine if sediment maintenance is required to address incision or fine sedimentation following large flow events. Maintenance would include placing 5 to 500 cubic yards of coarse sediments within Coyote Creek. Sediment augmentation piles would be placed adjacent to the channel with the toe of the pile interacting with the channel within the CWMZ. Monitoring and maintenance of the Sediment Augmentation Program would be covered under the SMP and its EIR but considering the extensive BMPs for this program, the monitoring and maintenance would have short-term less than significant impacts on and long-term benefits to the steelhead population.

Phase 2 Coyote Percolation Dam CM Operations, Maintenance, and Monitoring

Upon completion of both phases of the Coyote Percolation Dam and Fish Ladder renovations, the facility will meet NOAA Fisheries WCR Anadromous Salmonid Design Manual (NMFS 2023 ~~2022~~) and provide safe, effective, and timely upstream and downstream passage of anadromous salmonids regardless of whether the bladder is either inflated or deflated. Fish migration will occur through the existing fish ladder when the dam is inflated. Fish migration will occur via the roughened channel constructed during Phase 2 when the dam is deflated. After restoration of creek flows to the roughened channel, ongoing maintenance would be necessary. Maintenance activities would include periodic removal of sediment deposited in the restored channel which may compromise the channel's conveyance capacity, result in geomorphic instability, or be detrimental to the quality of aquatic habitat. Vegetation management would include removal of invasive plants which compete with native plants and detract from the ecology of the creek habitat and trimming and/or removal of growth clogging the channel. Maintenance staff would also inspect the roughened channel at periodic intervals, particularly after large flows, and replace roughness elements and/or repair in-channel bio-engineered habitat enhancements (e.g., root wads, stream barbs, overhanging banks), and rock slope protection as needed to maintain channel function and maintain fish passage conditions.

Monitoring and maintenance of the Coyote Percolation Dam, associated appurtenances, and adjacent stream channels that interact with the facility would be covered under the DMP and the SMP and their CEQA documents but considering the extensive BMPs and mitigation measures for these programs, the monitoring and maintenance would have short-term less than significant impacts on and ~~long term~~ long-term benefits to the steelhead population.

Within ~~By March 2024~~ 13 months of completion of the Phase 2 Coyote Percolation Dam design, Valley Water would have a completed operations plan for the facility. The objectives of the Operations Plan will be to meet CDFW and NFMS fish passage criteria and to protect out-migrating smolts. Studies would be conducted on juvenile fish passage and predation risk through the pond complex post-enhancements to assess if additional changes are necessary to improve juvenile out-migration.

Key elements of the operations plan to meet anadromous fish passage criteria will include the following:

- Operational flexibility to temporarily drain the Coyote Percolation Pond to improve smolt migration when logistically practicable given water supply demands and ecologically appropriate in terms of habitat management to protect steelhead and other listed and sensitive aquatic and riparian species.
- Upstream passage through the Coyote Creek Percolation Dam Facility will be provided at flows between 2.5 cfs and 1,320 cfs.
- The bladder dam will be inflated when Coyote Creek flows arriving at the dam are less than 275 cfs and upstream passage will be provided through the Fish Ladder.
- When the dam is inflated, Fish Ladder flows will be maintained between 2.5 and 25 cfs during the steelhead migration season and flows above 25 cfs (and less than 275 cfs) will be released through the new ~~bypass gates~~ overshot weir replacing one of the existing radial gates.
- During summer periods outside of the steelhead migration season, the weir gates in the Fish Ladder may be raised to cut off flows to the fish ladder and allow inspection and maintenance activities to be conducted. Valley Water will maintain the minimum required flows per the LSAA to Coyote Creek.
- The bladder dam will be deflated when Coyote Creek flows arriving at the dam are greater than 275 cfs and upstream passage will be provided by the roughened channel.
- When the dam is deflated, Coyote Creek flow greater than 275 cfs arriving at the dam will go over the deflated dam, a portion of this flow will go into the roughened channel to provide upstream passage, and under normal operating conditions, the Fish Ladder and bypass gates will be closed.

The Operations Plan will also address the potential entrainment and predation of salmonid smolts to assure that CDFW (Love and Bates 2009) and NMFS (2023 ~~2022~~) fish passage criteria are attained. The plan will include an evaluation of conditions that impact salmonid smolt migration through the Coyote Percolation P~~p~~ond and will include measures to ensure improved migration conditions including depth, velocity, and predation risk as compared to baseline operation ~~a~~ following implementation of Phase 2 designs. (See Appendix D ~~C~~). The Phase 2 Coyote Percolation Design and Operations Plan will improve post-construction migration opportunities for adults and smolts~~-~~, thereby benefitting steelhead.

Project and FAHCE Adaptive Management

The Project and FAHCE AMP is summarized in *Section 2.10 Project and FAHCE Adaptive Management Program*. The Project and FAHCE AMP was developed in accordance with the FAHCE Settlement Agreement which is aimed at supporting healthy steelhead and Chinook salmon populations as appropriate in three watersheds, including Coyote Creek. Therefore, the AMT will be evaluating monitoring results and performance criteria and identifying adaptive management flow and non-flow measures that benefit steelhead when performance criteria are not met (see Appendix D).

Data will be collected on reservoir elevations, flow releases, depth at critical riffles, and temperature to evaluate compliance and effectiveness of reservoir operations (Appendix D). This information will guide discussion and aid the decision-making process regarding operations.

By definition, the Project and FAHCE AMP would benefit steelhead over the long-term; however, there may be some less-than-significant impacts associated with the implementation of adaptive management measures for both flow measures.

With regard to flow measures, they would be implemented to provide an overall benefit to the steelhead population but there may be impacts to certain life stages or habitats in certain contexts, particularly when water supply is limiting, and one life stage may need to be prioritized over a life stage that is not habitat limited. For example, water may need to be held back in the reservoir in the summer to maintain a cold-water pool throughout the dry season. In this example, there may be an impact to steelhead habitat through decreases in juvenile rearing wetted area to provide cooler water. The AMT would not identify and recommend a change in flow measures if the overall result for the steelhead population would not be beneficial because that would undermine the purpose of the Project and FAHCE AMP. Overall, the impacts associated with flow measures would be less than significant.

Non-flow measures, including the Live Oak Restoration Project, Ogier Ponds, ~~north channel extension project,~~ and the Phase 2 Coyote Percolation Dam CM will be monitored to assess if they have met their specified habitat, jurisdictional area, and ecological functions and services success criteria defined in accordance with respective habitat restoration plans and permitting. After meeting habitat success criteria, long-term adaptive management of the non-flow habitat restoration measures, will be conducted pursuant to the Project and FAHCE AMP, and, if they are not meeting measurable objectives or not functioning as intended, management measures identified in the AMP (Appendix D) and selected in consultation with the AMT would be implemented to meet the objectives or intended function. These refinements of non-flow measures would likely have impacts similar to those discussed in this EIR under Conservation Measures Construction and Conservation Measures Monitoring and Maintenance but at a much smaller scale for Ogier Ponds and the Coyote Percolation Dam. Therefore, some short-term impacts would be predicted if there are any in-channel construction components in any given adaptive management measure and long-term benefits would be predicted, since the AMP is aimed at enhancing steelhead and salmon habitat over the long-term. Logically, the AMT would not recommend an adaptive management measure, if it would not benefit steelhead long-term.

Also, under the AMP, there would be compliance monitoring, validation monitoring, <u>effectiveness monitoring,</u> and a long-term trend monitoring program. Compliance and validation monitoring would collect data through passive monitoring technology and habitat surveys and would have no impacts on steelhead.

Long-term trend monitoring would have noninvasive monitoring and some minimally invasive monitoring methods. Non-invasive monitoring would include passive monitoring such as VAKI Riverwatchers or PIT tag antennas using noninvasive technology which would have no impacts on steelhead. Long-term monitoring would also include stunning through electrofishing, capturing/netting, crowding, handling, DNA sampling, and PIT tagging. These activities can cause acute physiological stress and occasional (but rare) incidental injury and/or mortality. Electrofishing would follow standard NMFS guidelines (NMFS 2000b) and protocols, which would minimize injury and mortality during stunning, handling, sampling, and tagging.

Despite some impacts, the monitoring program would provide valuable long-term individual and population information for steelhead and their habitat the results would be used to adjust components of the Project through the AMP to be more beneficial to steelhead over the long term. Therefore, the impacts of monitoring activities implemented under the AMP would not be substantial.

As described in **Table 2-1** *Project Components*, implementation of a Geomorphic Flows Plan would occur as part of future adaptive management phases of the FHRP and will require additional CEQA assessment and other regulatory approvals. <u>The Geomorphic Flows Plan would interact with the other conservation measures to achieve the following physical channel maintenance objectives downstream of Anderson Dam: mobilize substrate, scour and transport fine sediments, maintain unembedded gravel, support gravel bar formation, reduce riparian vegetation encroachment, support formation of inset benches and floodplains, increase channel migration and bank erosion, and create and maintain a wider active channel and topographic diversity.</u>

Overall, the Project and FAHCE AMP would benefit steelhead. Any adaptive measures with a flow “trade-off” between steelhead life history stages or non-flow measure with an in-stream construction component would have less than significant impacts on steelhead and both types of measures would have long-term benefits. Adaptive management of non-flow habitat restoration Conservation Measures would have impacts similar to those described for maintenance and operations and with BMPs and mitigation, measures would be less than significant, while the construction and operation of the Conservation Measures would benefit steelhead.

Significance Conclusion Summary for Central California Coast Steelhead

The Project would result in certain construction phase impacts on steelhead from Seismic Retrofit Construction, Conservation Measures Construction, and Construction Monitoring. In the post-construction phase, there would also be some impacts from Anderson Dam and Conservation Measures monitoring and maintenance, Post-Construction Instream Flows Operations (FAHCE rule curves), and the Project and FAHCE AMP. These impacts would be **less than significant.**

The Project would benefit steelhead over the long-term through Seismic Retrofit Construction and Post-Construction Operations, Monitoring, and Maintenance; Conservation Measures Construction and Post-Construction Operations, Monitoring, and Maintenance; Construction Monitoring; Post-Construction Instream Flows Operations (FAHCE rule curves); and Adaptive Management.

Overall, any adverse impacts on steelhead would be periodic and temporary, and less than significant during the construction phase. The Project would benefit steelhead in the long-term through increased and enhanced habitat supporting a larger and more resilient steelhead population. The overall impact to CCC steelhead is **less than significant.**

Mitigation Measures

No mitigation is required.

Impact FR-1b: Chinook Salmon (Less than Significant)

This section analyzes the Project's impacts on Chinook salmon and their habitat which includes chinook salmon EFH. Impacts on Chinook salmon EFH are expected when impacts on Chinook salmon habitat is discussed below.

Seismic Retrofit Construction

Seismic Retrofit Construction Activities

Seismic Retrofit construction activities could impact Chinook salmon individuals or their habitat from immediately downstream of the dam to Alviso Slough. Seismic Retrofit construction activities upstream of the dam in the reservoir would not impact Chinook salmon individuals directly, as they are not present in this area. However, there would be increased sediment transport compared with the existing conditions baseline downstream of the dam for the same reasons outlined for *Impact FR-1a: Steelhead* and impacts from increased sediment transport are analyzed in the next section *Instream Flows during Seismic Retrofit Construction* while this section analyzes the impacts of construction activities.

Impacts on Chinook salmon from Seismic Retrofit construction activities (pile driving, earth moving, construction of roads, etc.) would be minimized through the dry season work window as defined in *Section 2.5.1.1 – Schedule*. BMP BI-2 would also protect Chinook salmon by avoiding routine use of vehicles and equipment in Coyote Creek downstream of Anderson Dam between January 1 and June 15.

Seasonal timing is important for Chinook salmon life-history stages and few Chinook salmon would be present in Coyote Creek during the dry season work window because adults migrate upstream after there is hydrologic connection with the ocean influenced by precipitation events (i.e., usually after mid-October and outside the dry season work window) and most juveniles are expected to outmigrate primarily before the start of the dry season work window. Juveniles do not over-summer in freshwater, so no impacts are expected for Chinook salmon from in-channel construction activities because all Chinook salmon should have outmigrated from the system before conditions are dry enough to perform localized dewatering for instream work. In the rare chance that Chinook salmon are present during localized dewatering, there is the potential to strand Chinook salmon or trap them in pools, subjecting them to increased predation pressure and water quality degradation. Chinook salmon could also be taken up into water pumps used to dewater surface water or bypass water around the work area. To minimize these impacts, Chinook salmon would be rescued and relocated during localized dewatering according the relevant approved aquatic species rescue and relocation plan for dewatering activities. <u>Downstream of the dam,</u> BMPs GEN-35 and WQ-3, as well as AMM-17, require any pumps that are used for either dewatering or diverting waters around the work area to be screened, in accordance with NMFS and CDFW criteria, to prevent the uptake of fish, and minimize the potential for fish to be injured and/or killed during the dewatering process. Therefore, impacts from localized dewatering would not be significant.

Rescue and relocation plan capture methods could include backpack electrofishing, seining, dip netting and/or capturing by hand. Impacts to fish may include stunning, netting, capturing, and handling, all of which may cause acute physiological stress that is temporary. Most fish would be expected to recover. Injury or mortality to fish can happen occasionally, but incidents are rare. Most Chinook salmon tolerate short duration capture and handling.

The Invasive Species Monitoring and Control Plan and AMM-91 may also reduce predation pressure and/or competition from nonnative fish, crayfish, American bullfrogs, and red-eared sliders in these areas, at least in the short-term (long term benefits are less likely unless eradication is achieved). BMP BI-11 and AMM-90 will further minimize impacts from predators by requiring that trash be removed daily from the construction area, limiting attraction to the site by terrestrial predators.

Full dewatering of Anderson Reservoir from deadpool to the construction season elevation (465 feet in Year 1, 460 feet in Year 2) would occur during the spring (likely in the last half of April) through the Stage 1 diversion system. The resulting increase in flows downstream of Anderson Dam would benefit Chinook salmon by increasing the magnitude and duration of spring flows suitable to support downstream smolt migration.

Construction activities also have the potential to degrade water quality downstream of the work area due to increased suspended sediment or other materials in the water which could impact Chinook salmon located downstream of the dam. BMPs GEN-20 and WQ-16, as well as AMM-66, AMM-84, and AMM-97 will reduce sediment entering the channel from the work area during precipitation events by installing erosion control measures (e.g., silt fences, straw bales, etc.) and visually inspecting erosion control measures during and following extended storm events. BMPs GEN-26, GEN-31, GEN-30, GEN-32, WQ-11, and HM-8, as well as AMM-7, AMM-8, AMM-11, and AMM-100 will minimize the pollution from vehicle fluids or other oily, greasy, or sediment-laden materials that could enter the creek from the work area by maintaining clean conditions at work sites, keeping spill kits available onsite to clean up any accidental spills, training personnel to properly use spill kits, fueling and cleaning vehicles and equipment off site, utilizing secondary containment for any fluid changes on site and storing contaminating materials, keeping vehicles maintained and clean, and inspecting vehicles and equipment daily for leaks prior to initiation of work. BMP WQ-15 will protect Chinook salmon downstream of the work area from impacts of degraded water quality by keeping any oily, greasy, or sediment-laden substances away from places they may enter the waterway and monitoring water turbidity changes downstream of the work area and any discharge points.

In Year 5, blasting at the BHBA site would have the same impacts on Chinook salmon as described for steelhead throughout Year 5 (11 months) but only during the months outside of the work window that the blasting would overlap Chinook salmon occurrence in freshwater habitat. For the same reasons described for steelhead, overall impacts on Chinook salmon from noise and vibration from blasting at the Basalt Hill Borrow Site would be less than significant.

Construction of the 1,300-foot-long access road on the downstream slope of the dam and establishing staging and stockpiling areas would have the same impacts on Chinook salmon as for steelhead and the same BMPs would be implemented and impacts for both would be less than significant for the same reasons as those provided for steelhead for these activities. Following demolition, disturbed areas will be restored to pre-construction conditions and seeding will occur to replace removed vegetation through BMP REVEG-1. Reestablishing native vegetation and riparian habitat would benefit Chinook salmon in the long-term by shading the creek and providing habitat complexity. Additionally, the retrofitted dam would be allowed to refill once ~~seismic~~ restrictions are lifted allowing more storage for cold water pool management post-construction compared to the existing conditions baseline, which would benefit Chinook salmon by allowing more consistent suitable rearing habitat at the end of their rearing period. Finally, the seismically retrofitted dam would have a new, multi-level intake structure that would allow more precise temperature control on downstream releases benefiting Chinook salmon relative to the existing conditions baseline in the long term.

Overall, Seismic Retrofit construction activities may adversely impact Chinook salmon but the impacts would not be substantial with the application of BMPs, AMMs, the dry season work window, and the aquatic species rescue and relocation plans for any in-channel work that requires localized dewatering; therefore, Seismic Retrofit construction impacts from the above-described construction activities would be less than significant on Chinook salmon and their habitat in the short-term. The complete retrofitted dam would benefit Chinook salmon in the long term relative to existing conditions.

Seismic Retrofit (Anderson Dam) and Instream Flows Operations during Seismic Retrofit Construction

This section analyzes the impacts of instream flows downstream of Anderson Dam during Seismic Retrofit construction on Chinook salmon and their habitat compared with the Pre-FERC Order Baseline and existing conditions baseline (post-FOCP). During Seismic Retrofit construction, generally, there would be wet seasons, spring reservoir drawdown, and dry construction seasons (i.e., dry season work window). During the wet season, the outlet of the dam would be fully open and all inflows to the reservoir would be diverted and released downstream as quickly as possible given the type of diversion (Stage 1 or Stage 2). In April, or when conditions allow following April, the reservoir would be drawn down to the elevation needed to conduct construction activities during the dry construction season. The rate of drawdown would depend on antecedent conditions in the watershed and the type of diversion in place (Stage 1 or Stage 2) but should take about 2-4 weeks. Once the reservoir has been drawn down to the correct elevation to initiate in-channel work, then the construction activity for that year would commence and any inflows coming into the reservoir would be diverted (or sometimes pumped) around the work area and released downstream. The sections below assess hydrologic and water quality impacts to all Chinook life stages using simulated storm events in a sediment transport model. Significance conclusions are based on a comparison to Pre-FERC Order Baseline as this represents conditions before any project influence has occurred. This allows for an analysis to assess the true impacts associated with all project activities**.**

Hydrology

Chinook salmon start their migration into Coyote Creek at the beginning of the wet season, potentially at a time that reservoir would start to receive inflow under existing conditions. During the wet season, flows would be bypassed through the reservoir as discussed in the steelhead section. The increased flashiness compared to Pre-FERC Order Conditions in Coyote Creek hydrology that was discussed for steelhead and in *Section 3.11 Hydrology* would benefit migrating, spawning, and rearing Chinook salmon unless suspended sediment is too high (see *Water Quality – Sediment Transport During Wet Seasons and Spring Drawdown* below).

Also, water released for recharge from both the CDL and the Cross Valley Pipeline Extension would incidentally benefit Chinook salmon migrating into the system, spawning, incubating, and rearing because it would keep the groundwater levels higher and help form a quicker connection to the ocean when the precipitation season starts and raises surface water levels to the point that Chinook salmon can safely migrate into the system. The same flows would also help keep the creek wetted which could support outmigrating juveniles. Also, the winter bypass flows, and spring drawdown would occur during the time when Chinook salmon are outmigrating so the brief pulse of water during the drawdown would encourage Chinook salmon smolts to migrate out of the system and to the ocean.

Chinook salmon are not in the system during the more hydrologically limited dry season so they would not be impacted by drier conditions during the dry season from lower flows relative to Pre-FERC Order Baseline. Consequently, there would be no adverse impacts on Chinook salmon or their habitat from changes in hydrology during construction.

Water Quality – Dissolved Oxygen and Temperature

Dry Construction Seasons

In-stream elevated temperatures typically occur only in the dry season. Due to the semelparous nature of Chinook salmon, adults are not present in the system in the dry season as they die after spawning. Juvenile Chinook salmon only rear for 1 to 7 months in freshwater (Moyle 2002) and are expected to migrate downstream prior to the in-channel work window and commencement of the dry season. Adult Chinook salmon do not return to the Creek until flows are high enough to support migration, which would usually happen following precipitation events occurring well into the wet season, when temperatures are lower and DO is adequate. Chinook salmon would not be present in the system during the dry season work window; therefore, they would not be exposed to limiting temperatures so there would be no impacts on Chinook salmon from dissolved oxygen and temperature associated with dewatering and construction phase hydrology.

Water Quality – Construction Phase Hydrology Sediment Transport

Sediment in Wet Season Conditions

Impacts on Chinook salmon and their habitat from sediment transport during wet seasons and spring drawdown would be nearly the same as steelhead but with a few differences discussed below.

Only a small percentage of Chinook salmon adults would be exposed to suspended sediment levels that would impair fitness during construction phase hydrology for the Project. Chinook salmon adults start migrating into Coyote Creek in the fall once there is, and if there is, enough hydrologic connection to migrate through the lower river (usually starting sometime between October-January). Most 2-year, 5-year, or multiple days of inflow at 180 cfs that modeling indicates produce substantial sediment concentrations in bypassed flows would occur later in the season around February and thereafter when most Chinook adults would have already migrated into Coyote Creek spawned and died.

Also, in most years, the number of Chinook salmon documented in the adjacent Guadalupe River Watershed is much higher than Coyote Creek likely due to the higher flow levels derived from the Guadalupe River Watershed at the time of adult migration. A portion of the population of adult Chinook salmon in Coyote Creek and Guadalupe River Watersheds are a result of hatchery strays that were released to San Francisco Bay or the Pacific Ocean as juveniles reared in a hatchery. Due to this release method they did not imprint on a natal river; therefore, homing is often driven by attraction flows. These Chinook can select either watershed. In that context, Chinook salmon adults are most likely to select the watershed with the most attraction flow and suitable/optimal water quality. Usually Guadalupe River Watershed would have more flow during the adult migration season than the Coyote Creek Watershed. Newcombe and Jensen (1996) compiled multiple studies that show that behavioral avoidance and “impaired homing” (which could also be interpreted as behavioral avoidance) are the initial impacts to salmonids as sediment concentrations rise approaching stress-inducing levels. Behavioral avoidance is the logical first level of impact from an evolutionary standpoint because organisms seek to maximize their reproductive fitness, so avoiding stressful conditions during reproduction for themselves or their offspring would be adaptive behavior in salmonids. Therefore, if high levels of sediment are transported out of the Coyote Creek Watershed at a given time, Chinook salmon adults, particularly hatchery strays, could easily select the immediately adjacent Guadalupe River Watershed for migration and subsequent spawning. It is even possible that they can start to ascend Coyote Creek and turn around and swim back out of the Coyote Creek Watershed should sediment levels rise, and they have not been in freshwater long. That said, there is likely a point of trade off where a Chinook salmon is behaviorally “committed” to the migration in that watershed and the risks of changing watersheds outweigh the benefits of avoiding stressors in the watershed they are already in. In that case the Chinook salmon adults would be subject to the elevated sediment levels and would have to rely on other behavioral (coughing) and physiological (increased mucous production on the gills) options for coping with the stressor until conditions improve or until they reproduce and die. While this kind of coping would likely decrease reproductive fitness to some extent, the modeling suggests that sediment levels would not reach a point where the adult Chinook is predicted to die before reproducing (Appendix F).

The modeling predicts that during back to back 2-year events with Stage 1 Diversion and 2-year to 5-year flow events with the Stage 2 diversion, if adult Chinook salmon choose to migrate up Coyote Creek and are committed to the migration in that watershed, the elevated suspended sediment exposure would result in minor to moderate physiological stress, increased rates of coughing, and increased respiration rates. However, Chinook salmon are more likely to spawn further downstream of Ogier Ponds where impacts from suspended sediment would be lower than the model calculations for the FCWMZ, which were the numbers used in this analysis. The suspended sediment impacts would be lower downstream of Ogier Pond because construction scheduling keeps Ogier ponds in place through the Stage 1 and Stage 2 diversions, and Metcalf ponds remain in place. A substantial portion of the increase in suspended sediment would be expected to be trapped in the ponds. Therefore, the impacts predicted from the modeling and severity of ill effects analysis in Appendix F are likely overestimates of the impacts to fish downstream of Ogier Ponds. The model predicts that sediment levels at Milpitas would usually be about half of the levels in the FCWMZ; therefore, in the parts of the lower river where Chinook salmon could inmigrate into the lower reach of the Creek and spawn, an intermediate level of suspended sediment would be predicted and likely closer to the levels at Milpitas because of sediment settling in Ogier and Metcalf Ponds. In this case, both the exposure concentration and duration would be lower than assumed in the analysis and impacts that are already sublethal would be reduced.

Also, back-to-back 2-year, 2-year, and 2-year and 5-year storm events and storm events that would result in 180 cfs of constant inflow over several days (14 days was assumed in the analysis in Appendix F) are not likely at the beginning of the adult migration season October-January. When those storms occur, many adults will have migrated out of the watershed. Also, early season storms tend to be more “flashy” with a quick rise in flow, and associated suspended sediment, followed by a rapid decrease in flow and sediment; therefore, even if adults were present, elevated suspended sediment exposure would have limited duration. As for the rest of the adult migration season, a 2-year event would be predicted to occur 3-4 times and a 5-year event is predicted to occur once during the 6 years of wet seasons with the Stage 2 diversion and both are more likely to occur toward the end of the adult migration season as is the case for any weather conditions that would result in 180 cfs of constant inflow over several days.

Although stress physiology is complex in vertebrates, there is evidence that elevated physiological stress during migration can lower reproductive fitness (Couch et al. 2022), so sediment could impact spawning by chinook that are committed to migration up Coyote Creek during the construction phase notwithstanding the presence of increases suspended sediment. However, there is also evidence that semelparous species (species that die following reproduction) are less sensitive to acute stressors when they start the process of redirecting energy away from nonessential processes like growth and immune system function and toward reproductive effort, such as developing gametes, building redds, and displaying territorial behavior during mating (e.g., Raby et al. 2013). That said, some decrease in fitness of inmigrating and spawning adults would be expected due to physiological stress from elevated sediment transport during construction years, but it would not be substantial.

Finally, a portion of the Chinook salmon observed in Coyote Creek are hatchery strays reducing the dependence on natural reproduction within the watershed to maintain an adult population. The external source of returning adults will continue to result in a return of Chinook salmon even if a reduction of natural reproduction occurs.

For all the reasons described, impacts from increased sediment transport are likely negligible at the population level compared with the Pre-FERC Order Baseline for the annual expected number of Chinook salmon adults with or without the Project.

Juvenile Chinook salmon hatch, rear, and outmigrate in the same year (whereas steelhead juveniles rear year-round for one or more years before outmigrating).

During 2-year and 5-year precipitation events, juveniles would experience minor physiological stress and the effects would be temporary and sublethal but, prolonged physiological stress even if “minor” could result in sublethal effects such as slower growth, decreased foraging efficiency, and increased susceptibility to disease and parasites potentially decreasing their overall fitness during their lifetime. As such, overall reproductive fitness would likely decrease as compared to the Pre-FERC Order Baseline. This level of impact is anticipated to result in sublethal effects to fry and juveniles and would not substantially affect rearing because of low suspended sediment concentration and short exposure duration.

Constant inflow into the reservoir and out to the creek for a prolonged period (91 days was the assumption in the analysis; Appendix F) during the wet season is predicted to increase suspended sediment levels and result in minor physiological stress for juveniles. Minor physiological stress over short durations would have little impact on juveniles but prolonged physiological stress even if “minor” could result in sublethal effects such as slower growth, decreased foraging efficiency, and increased susceptibility to disease and parasites potentially decreasing their overall fitness during their lifetime. However, juveniles may benefit from higher turbidity (caused by elevated suspended sediment) through decreased predation pressure from visual predators as long as the associated suspended sediment is not too high to cause prolonged physiological stress (Newcombe and Jensen 1996, Gregory and Levings 1998, Wilber and Clarke 2001).

For all the reasons described, impacts from increased sediment transport are likely negligible at the population level compared with the Pre-FERC Order Baseline for Juvenile Chinook salmon.

Incubating eggs could experience 0-20 percent mortality during 2-5-year flow events, back-to-back 2-year flow events, and during constant flow of 180 cfs for a prolonged time likely due to smothering and anoxic conditions (see Appendix F). Like steelhead, these impacts are likely overestimates given the low likelihood of sustained 180 cfs constant inflows during the migration and spawning season as well as the incubation period. Also, even with mortality of eggs, Chinook salmon females spawn up to 3,500-5,000 (Healey and Heard 1983 ~~1984~~, Healey 1991) eggs at a time. Therefore, some egg mortality is likely but would not be substantial over the full Project timeline.

Like steelhead, modeled flow events during the construction phase could lead to deposition in limited areas that would increase pool depths, reduce spawning gravel quantity and quality, reduce access to low-terrace floodplain habitat from increased channel incision, and reduced BMI production, but only in a few areas within Coyote Creek (Appendix F) and there would still be habitat for Chinook salmon in other areas. Lower quality spawning habitat and reduced BMI production (food supply for rearing juveniles) may reduce the survival of incubating eggs as well as the growth of fry and juveniles rearing within these limited areas. Chinook salmon can spawn in the lower portions of Coyote Creek where sediment deposition will be less. This ability to use other areas of the system and still be successful reduces potential impacts associated with sediment deposition.

Although it would not be possible to always avoid temporal impacts to incubating Chinook salmon and their habitat in the short-term from increased sediment transport and deposition, Valley Water would conduct continuous suspended sediment monitoring [10] and annual sediment deposition monitoring to inform and implement ~~the Sediment Augmentation Program, and maintain~~ maintenance of spawning habitat substrate through the Live Oak Restoration Project reach, created during FOCP and which will be in place before this Project starts. The spawning gravel ~~Sediment Augmentation Program and~~ maintenance of Live Oak Restoration Reach would be ongoing during seismic retrofit construction of this Project, and then would continue during post-construction monitoring and maintenance in addition to the Sediment Augmentation Program. Therefore, construction phase sediment transport impacts on chinook incubating eggs would be minimized through the ongoing spawning habitat augmentation programs over the long term because gravels ~~and sediment~~ would be replaced as needed based on the monitoring throughout the seismic retrofit construction years, and those monitoring and spawning habitat enhancement ~~e~~ programs along with the Sediment Augmentation Program would continue into the future through adaptive management. This would continue to maintain high quality spawning and rearing habitat during and following seismic retrofit construction.

Sediment in Spring Drawdown and Conditions.

In spring of Years 3, 4, 5, and 6, drawing the reservoir down from deadpool to elevation 450 feet would occur with the Stage 2 diversion allowing up to 6,000 ~~1,000~~ cfs to pass directly through to downstream. Storm events are less likely in April and become less likely thereafter, but smaller storm events can occur during the spring drawdown period; therefore the modeling simulated a

[10] Turbidity would be continuously monitored with a conversion to suspended sediment concentration that will be confirmed through grab samples analyzed for total suspended solids.

2-year storm event in addition to constant inflow into the reservoir and out to Coyote Creek in the absence of a storm event.

Adult Chinook salmon would have already migrated, spawned, and died and eggs would have completed incubation before April so impacts would only be possible for fry and juveniles that would be rearing, smolting, and emigrating to San Francisco Bay around the time that the reservoir would be drawing down. Fry and juveniles could experience moderate physiological stress under both constant inflow and 2-year storm event conditions from increased sediment transport (Appendix F). Moderate physiological stress in fry and juveniles for a prolonged period could result in sublethal effects such as slower growth, decreased foraging efficiency, and increased susceptibility to disease and parasites potentially decreasing their overall fitness during their lifetime. However, fry and juveniles may benefit from decreased predation pressure associated with higher drawdown period turbidity, particularly as the drawdown helps move migrating smolts downstream and out to the San Francisco Bay under the cover of turbid water. Collectively, increased suspended sediment under constant flow and storm events during spring drawdowns would decrease productivity of the natal Chinook salmon population in Coyote Creek during Years 3, 4, 5, and 6 of Project but the presence of immigrating hatchery stray Chinook salmon adults reduces the dependence on natal production, so decreased fitness of natal juveniles may have little impact compared to the Pre-FERC Order Baseline on the Chinook salmon population in Coyote Creek.

Following Year 6, the reservoir drawdown would cease and the reservoir would be allowed to refill via inflows and, if possible, imported water up to the new maximum level. Once filled to an operable level, the FAHCE rule curves would be initiated. With the reservoir refilled, suspended sediment would decrease during constant inflow or precipitation events because the full reservoir would not have exposed erodible sediment at the same level as at the existing conditions baseline and suspended sediment would return to near Pre-FERC Order Baseline and would not be expected to impact Chinook salmon further.

Construction Phase Sediment During Dry Weather Conditions

Existing conditions data indicates that during the Stage 1 drawdown conditions, dry season flows bypassed from Coyote Reservoir to Coyote Creek may contain somewhat higher sediment concentrations than Pre-FERC Order Conditions. Data on sediment concentration Pre-FERC Order Conditions is not available, but due to reservoir conditions under existing conditions and construction increase sediment concentration compared to Pre-FERC Order Baseline is expected. During Stage 2 drawdown, when a greater volume of sediment is exposed due to the lower than deadpool elevation of the reservoir, sediment concentrations in dry season bypassed flows may contain greater sediment than in both existing conditions, and Pre-FERC Order Conditions. No chinook salmon are anticipated to be in Coyote Creek during dry season construction phase conditions because adult salmon will have completed spawning and died, eggs will have completed incubation, and juvenile Chinook salmon are expected to migrate downstream prior to the in-channel work window and commencement of the dry season. Chinook salmon do not return to the upper portions of Creek until flows are high enough to support migration, which would usually happen following precipitation and the adult life history is complete before the main portion of the wet season. Consequently, while sediment concentrations in bypassed flows entering Coyote Creek may be somewhat elevated from those in Pre-FERC Order and/or existing conditions, impacts to Chinook salmon are anticipated to be less than significant.

Overall, sediment concentrations in releases from the reservoir to Coyote Creek, and therefore in instream flows during Seismic Retrofit construction would exceed those in Pre-FERC Order Conditions and could result in periodic., temporary less than significant impacts to Chinook salmon, particularly the egg, fry and juvenile life stages, within the wet seasons and the spring drawdowns during Seismic Retrofit construction. ~~Suspended sediment monitoring, sediment deposition monitoring, the implementation of the Live Oak Restoration Reach Maintenance Conservation Measures and the Sediment Augmentation Programs during construction, combined with higher flow conveyance from the North Channel Extension to reduce erosion and downcutting the South Channel, and t~~ The scheduling of construction to allow continued capture of transported sediments in Ogier Ponds and Metcalf ponds before it travels to the downstream Chinook spawning area would ~~combine to~~ minimize these construction phase impacts. The long term implementation of annual sediment deposition monitoring, the Live Oak Restoration Reach and North Channel Reach Maintenance Conservation Measures, the Sediment Augmentation Program, ~~Conservation Measures, the North Channel Extension Conservation Measures~~ and the Ogier Ponds CM would improve spawning habitat for Chinook salmon as well as steelhead as compared to Pre-FERC Order Conditions ~~s~~, resulting in ~~less~~ a long term net benefit to the Chinook salmon population and its habitat in the long-term.

Non-native Species

For the same reasons outlined for steelhead, impacts from the release of non-native species from Anderson Reservoir downstream to Coyote Creek on Chinook salmon and their habitat would be less than significant compared with the Existing Conditions Baseline as no additional habitat is being created for non-native species and actions are being taken to remove non-natives from the system during construction and monitoring activities.

Instream Flows During Construction Summary

Instream flows during construction would adversely impact all life stages of Chinook salmon and their habitat through increased sediment transport, but the impacts would be less than significant because a large part of the adult Chinook salmon migration season would occur before high flow events, Chinook salmon adults could choose to migrate up other river systems instead, Chinook salmon spawn large numbers of eggs, Chinook salmon can spawn in habitat downstream of Ogier Ponds where sediment impacts are reduced, juveniles can outmigrate during flow events, and hatchery strays would continue to migrate into Coyote Creek irrespective of impacts to incubating eggs. There would be no impact from construction phase hydrology or DO and temperature changes from Pre-FERC Order Baseline on Chinook salmon as no change is expected to occur regarding migration opportunities and temperature compared to Pre-FERC Order Conditions when Chinook salmon are present. Non-native species impacts would have less than significant impacts for the same reasons outlined for steelhead. Over the long term, suspended sediment and sediment deposition monitoring, maintenance of gravel and sediment augmentation programs, and the Ogier Ponds CM, would reverse sediment transport impacts on Chinook salmon habitat and benefit the Chinook salmon population and their habitat.

Conservation Measures Construction

The following Conservation Measures, Normal Operation of Coyote Reservoir and Construction Period Imported Water Releases and Operation of Chillers for Imported Water Releases, do not have a construction component and were previously considered as part of the *Instream Flows during Seismic Retrofit Construction* under the *Seismic Retrofit Construction Activities Impacts Analysis,* so they are not discussed further in this section.

Effects of construction activities for the Conservation Measures that require construction are considered in this section. Conservation measure construction could impact Chinook salmon in the short-term during construction work, but all Conservation Measures were designed to benefit Chinook salmon in the long term. Conservation measure construction components that could impact Chinook salmon are assessed in further detail in this section.

Ogier Ponds CM

Construction activities associated with the Ogier Pond CM that would impact fish and their habitat would occur during in-channel work window and would include localized dewatering and grading in the channel. Implementation of dewatering and aquatic resources rescue and relocation plan and BMP BI-2 will help protect Chinook salmon from stranding during dewatering and from impacts from increased suspended sediment in the channel by restricting in-channel construction activities to the dry season work window, having a plan for native fish rescue and relocation, and minimizing equipment driving in the stream bed. As discussed previously, Chinook salmon are expected to outmigrate before or during the spring drawdown each year. Due to the limited precipitation events, characteristic of Santa Clara County during the end of the migration season, it is expected outmigration will occur before commencement of the in-channel work period. Also, dewatering Anderson Reservoir in April would promote outmigration of juveniles because a flow increase will provide the environmental cue. Chinook salmon would not be present during any of the in-channel construction activities, and it is not expected that these fish would even be encountered during localized dewatering.

Consequently, no impacts are predicted on Chinook salmon or their habitat downstream of Ogier Ponds from changes in instream flows related to localized dewatering (i.e., berming and diverting in-channel flows to accommodate Ogier Ponds CMs in-channel construction work) during in channel work window. Construction activities would not impact water quality downstream of the work area because the work area would be dry prior to the start of construction activities. BMPs GEN-26, GEN-31, GEN-32, WQ-11, and HM-8, as well as AMM-7, AMM-8, and AMM-11, will minimize the pollution from vehicle fluids or other oily, greasy, or sediment-laden materials from entering the channel and washing downstream during high flows when the channel is activated by maintaining clean conditions at work sites, keeping spill kits available onsite to clean up any accidental spills, training personnel to properly use spill kits, fueling and cleaning vehicles and equipment off site, keeping vehicles maintained and clean, and inspecting vehicles and equipment daily for leaks prior to initiation of work.

Also, fish passage would be provided during the wet seasons of the construction phase. Similar to what was described above for steelhead, the Ogier Ponds CM would benefit Chinook salmon in the long term through increased rearing habitat, improved water quality (i.e., lower water temperature), enhanced fish passage, riparian habitat restoration, and reduced habitat for warm water, non-native fish, particularly that of predatory species, in the system.

The restored channel created via the Ogier Ponds CM will operate and function as a natural creek channel. There will be no management of flows or manipulation of features as a result of operations. Weirs will be activated infrequently when flow levels reach 2000 cfs, and there will be spillover, not requiring any actions.

Therefore, with regard to adverse impacts, there would be less than significant construction phase impacts, and the Conservation Measures would benefit Chinook salmon and their habitat long term.

Maintenance of the North Channel Reach ~~*North Channel Extension*~~

~~Construction~~ Maintenance of the North Channel Reach ~~Extension~~ would have the same construction and localized dewatering related impacts on Chinook salmon and their habitat as described for steelhead, but only during the portion of the in-channel work window that overlaps with when migrating juvenile Chinook salmon would potentially be present in Coyote Creek (June 15-June 30). BMPs and ~~PD~~ Project components implemented to reduce impacts from the Conservation Measures on steelhead would also reduce impacts on Chinook salmon. In addition, the majority of juveniles are expected to migrate downstream before the in channel work window. Therefore, impacts to Chinook salmon would be less than significant. ~~Similar to steelhead, Chinook salmon could benefit over the long term from reduced stranding and predation in the existing North Channel pools when they dewater following activation so, with regard to adverse impacts, there would be less than significant impacts on Chinook salmon and their habitat from the North Channel construction, and the Conservation Measures would benefit Chinook salmon and their habitat long term.~~

Maintenance Activities at the Live Oak Restoration Reach

At the end of FOCP (existing conditions baseline), the Live Oak Restoration Reach project will have been completed providing new and enhanced spawning and rearing habitat for Chinook salmon. The maintenance of the spawning gravel and the habitat improvements would continue during and after construction of the Project as a part of the Project. Maintaining this habitat by continued placement of gravel has the potential to degrade water quality downstream of the work area if gravel and associated fine sediment enter the stream at the time of placement, which could impact any Chinook salmon that are in Coyote Creek. The restoration maintenance would have a long-term benefit for Chinook salmon by maintaining spawning habitat enhanced during FOCP. Gravel placement has the potential to impact juvenile Chinook salmon that may be in Coyote Creek during the dry season work window (BMP GEN-1), which is when the in-channel gravel placement will occur. BMPs and AMMs implemented to reduce impacts from the Conservation Measures on steelhead would also reduce impacts on Chinook salmon. In addition, most juvenile Chinook salmon are expected to migrate downstream before the in-channel work window for maintenance under BMP GEN-1. Therefore, adverse impacts associated with gravel placement and maintenance would be less than significant impacts and of short duration. The restoration of gravels within the Live Oak Restoration Reach would have a long-term benefit for Chinook salmon and their habitat by maintaining spawning habitat enhanced during FOCP.

Sediment Augmentation Program

Periodic placement of coarse sediment and gravels to enhance spawning substrate on the benches next to the channel in the CWMZ would have the same impacts on Chinook salmon as described for steelhead. BMPs and AMMs implemented to reduce impacts from the Conservation Measure on steelhead would also reduce impacts on Chinook salmon and their habitat and impacts would be less than significant. The enhanced geomorphic processes that create and maintain spawning habitat within the CWMZ and reduce and reverse channel incision in and downstream of the CWMZ would benefit Chinook salmon and their habitat the same as steelhead. Therefore, adverse impacts associated with gravel placement and maintenance would be period, temporary less-than-significant impacts, and Chinook salmon, like steelhead, will benefit from maintenance of gravels and spawning and rearing habitat over the long-term.

Phase 2 Coyote Percolation Dam CM

Construction activities associated with the Phase 2 Coyote Percolation Dam CM would occur during the in channel work window. It is unlikely that juvenile Chinook salmon will occur in Coyote Creek during the in-channel work window as most juveniles migrating prior to the start of the work window. Sediment and other potential pollutants that may be associated with construction of the Phase 2 Coyote Percolation Dam may enter the channel during construction activities, and would have the same impacts as described for steelhead, but only during the time period when the construction activities would overlap with the Chinook salmon remain present in the creek due to the overlap of the work window and the smolt migration window. BMPs and AMMs implemented to reduce impacts on steelhead would also reduce impacts from sediment on Chinook salmon so that they are less than significant.

Phase 2 improvement including constructing a roughened channel approaching ~~over~~ the dam, replacing one of the radial gates next to the fish ladder with ~~bypass~~ an overshot weir~~s~~, and other modifications to meet the most recent applicable ~~CDFW (Love and Bates 2009) and~~ NMFS (2023 ~~2022~~) and CDFW (Love and Bates 2009) fish passage design criteria, would allow Chinook salmon upstream passage at a wider range of flows and safer downstream passage. Additionally, the ability to operate the dam more quickly during flow would benefit adult Chinook salmon upstream passage by decreasing potential delay in migration timing compared to Pre-FERC Order Baseline Conditions.

Based on the same improved fish passage as steelhead, Phase 2 Coyote Percolation Dam CM would benefit Chinook salmon and conditions for migration downstream of Anderson Dam.

Construction Monitoring

Chinook salmon are not expected to be present during monitoring activities that would cause any disturbance to or affect the channel. Juvenile rearing electrofishing attempts to occur prior to the migration of adult and after outmigration of juvenile Chinook salmon. Surveys are conducted of the channel prior to electrofishing looking for adult Chinook that may be present before this activity and does not commence if they are present. Other monitoring is noninvasive and does not cause any direct impacts to Chinook salmon or their habitat. Therefore, there would be no impact on Chinook salmon from Construction Monitoring.

Post-Construction Seismic Retrofit (Anderson Dam) and Instream Flows Operations (FAHCE Rule Curves)

This section analyzes the impacts and benefits on Chinook salmon and their habitat from implementing the FAHCE rule curves (i.e., the Project) compared with Pre-FERC Order Baseline conditions and Future Baseline conditions based on results of WEAP modeling and Project design objectives for non-flow restoration actions. Benefits of the Conservation Measures, including ~~construction, operations, and maintenance of the North Channel Extension,~~ Phase 2 Coyote Percolation Pond design improvements, Sediment Augmentation Program, Maintenance of Live Oak Restoration and North Channel Reach Conservation Measures and Ogier Ponds CM, are all qualitatively considered in the analysis but are not included in the WEAP Model results. This section provides the relevant summaries of modeled changes in habitat from the WEAP Model output, which are provided with the detailed technical methods in Appendix F.

Spawning and Incubation Habitat

Post-construction operation of the Seismic Retrofit (Anderson Dam) in accordance with FAHCE rule curves is predicted to result in an increase in Chinook salmon spawning and incubation habitat compared with both baseline scenarios.

The WEAP Model predicts 44,515 square feet of incubation adjusted Chinook salmon spawning habitat in Coyote Creek under the Project. Approximately 11,500 square feet of the spawning habitat would occur in the FCWMZ and just over 33,000 square feet would occur in reaches downstream of the FCWMZ. Compared with the Pre-FERC Order Baseline, the Project would result in a 9.6 percent (3,900 square feet) increase in incubation adjusted Chinook spawning habitat across all POIs in Coyote Creek during the entire mid-October through January spawning and incubation period. While the overall change in incubation adjusted spawning habitat under the Project would be positive, the model results vary by location. The WEAP Model predicts that the Project would result in a 15 percent (2,000 square feet) average reduction in incubation adjusted Chinook spawning habitat in the FCWMZ and a 22 percent (5,900 square feet) average increase in downstream reaches compared with the Pre-FERC Order Baseline. The predicted reduction in the FCWMZ is due to reduced flow during portions of the spawning period. Despite the spatial variability in spawning habitat changes under the Project, the overall increase in incubation adjusted spawning habitat in Coyote Creek downstream of the dam would support additional spawners, increase the diversity of available spawning habitat, decrease competition among spawners, and increase resiliency of spawning to temporal and spatial changes in habitat conditions.

Compared with the Future Baseline, the WEAP Model predicts an overall increase in incubation adjusted Chinook spawning habitat under the Project. During the entire mid-October through January spawning and incubation period, the Project would result in a 23.3 percent (8,400 square feet) increase in incubation adjusted Chinook spawning habitat across all POIs in Coyote Creek compared with the Future Baseline. Most of the increase (nearly 8,000 square feet) would occur in reaches downstream of the FCWMZ, with a modest increase (nearly 500 square feet) in the FCWMZ. The predicted increases are due to increased flow during portions of the spawning period, resulting in increased wetted area being available for spawning and incubation. Comparison with the Future Baseline provides a more accurate depiction of Project benefits than comparison with the Pre-FERC Order Baseline because both the Project and Future Baseline scenarios represent conditions occurring at the same point in time (i.e., 2035) and both are based on the same, more updated assumptions regarding water supply and demand, climate change, and other factors affecting flows and habitat in Coyote Creek (see Chapter 5, *Alternatives*). Accordingly, the post-construction FAHCE rule curve operations proposed by the Project would provide to provide substantial benefits to spawning and incubating Chinook salmon.

Comparison of the WEAP Model predictions under the Pre-FERC Order Baseline and the Future Baseline indicates that, without the post-construction operations proposed by the Project, spawning habitat is predicted to decrease in Coyote Creek downstream of Anderson Dam. Under Pre-FERC Order Baseline Conditions, the WEAP model predicts an average total of 40,661 square feet of incubation adjusted Chinook salmon spawning habitat in Coyote Creek downstream of the dam. Under Future Baseline conditions, the WEAP model predicts a total of 36,075 square feet of incubation adjusted Chinook salmon spawning habitat downstream of the dam. This represents a predicted decrease in spawning habitat of 4,586 square feet under the Future Baseline compared with Pre-FERC Order Baseline. This decrease is based on factors that are not related to implementation of the Project or proposed FAHCE rule curves (e.g., changes in conservation, water supply demand resulting in less imported water released into Coyote Creek), and the decrease is predicted to occur without implementation of the Project. In other words, without the Project, spawning habitat in Coyote Creek is predicted to decrease between Pre-FERC Order Baseline and Future Baseline conditions (See Chapter 5, *Alternatives,* for more details). As described above, the Project would also increase spawning habitat in the FCWMZ and downstream reaches compared with the conditions that would occur without the Project (i.e., Future Baseline conditions).

In addition to the modeled changes in spawning habitat under the Project, ~~the maintenance of the Live Oak Restoration Reach,~~ the Ogier Ponds CM,~~ and~~ the Sediment Augmentation Program in conjunction with a maintained North Channel, and the maintenance of the Live Oak Restoration Reach CM ~~that will rely on increased flows through the North Channel Extension~~ would create, enhance, and maintain a substantial amount of Chinook salmon spawning habitat. Spawning habitat created and enhanced by these ~~projects~~ CMs as well as reduced water temperatures downstream of Ogier Ponds during the early fall months (Valley Water 2023b ~~2023c~~) would contribute to additional increases in Chinook salmon production potential in Coyote Creek downstream of Anderson Dam. The increase in spawning habitat would support additional spawners, increase the diversity of available spawning habitat, decrease competition among spawners, and increase resiliency of spawning to temporal and spatial changes in conditions.

Fry Rearing

The Project is predicted to result in an increase in Chinook salmon fry rearing habitat compared with both baseline scenarios.

The WEAP Model predicts over 3.1 million square feet of Chinook salmon fry rearing habitat in Coyote Creek under the Project. Approximately 227,500 square feet of the fry rearing habitat would occur in the FCWMZ and nearly 2.9 million square feet would occur in reaches downstream of the FCWMZ. Compared with the Pre-FERC Order baseline, the WEAP Model predicts a 0.8 percent decrease in fry rearing habitat in the FCWMZ and a 0.6 percent increase in reaches downstream of the FCWMZ, with an overall increase of 15,500 square feet (0.5 percent) under the Project. Compared with the Future Baseline the Project is predicted to increase fry rearing habitat in the FCWMZ and in downstream reaches. Under the Project, the WEAP Model predicts a 2.7 percent increase in Chinook salmon fry rearing habitat in the FCWMZ, a 0.5 percent increase in reaches downstream of the FCWMZ, and an overall increase of 19,700 square feet (0.6 percent) compared with the Future Baseline. While comparison with the Future Baseline provides a more accurate depiction of Project benefits than comparison with the Pre-FERC Order Baseline, the similar Project benefits relative to both baseline scenarios indicate that the project would benefit rearing Chinook salmon fry.

Chinook salmon fry rearing habitat in Coyote Creek, as predicted by the WEAP Model, is present upstream of the Upper Penitencia Creek confluence (POI COYO 2). Changes in Chinook fry rearing habitat between the Pre-FERC Order Baseline and the Project are likely driven by modeled flow-related differences in water velocity and water temperature, both of which affect suitability for fry rearing. Daily average flows in the FCWMZ under the Project would be lower than flows under the Pre-FERC Order Baseline during portions of the fry rearing period, which likely accounts for the decrease in fry rearing habitat in the FCWMZ under the Project. In reaches downstream of the FCWMZ, modeled wetted area increases during portions of the fry rearing period likely drive the predicted increases in fry rearing habitat compared with the Pre-FERC Order Baseline. Changes in Chinook fry rearing habitat between the Future Baseline and the Project are likely driven by modeled flow-related differences in water velocity which affect suitability of fry rearing habitat, and by the total area suitable for fry rearing. Daily average flows in Coyote Creek under the Project would generally be equal to or slightly higher than flows under the Future Baseline during the entire fry rearing period, which would increase the wetted area suitable for fry rearing.

Evaluation of the WEAP Model predictions indicates that Chinook salmon fry rearing habitat is predicted to decrease slightly in Coyote Creek downstream of Anderson Dam between the Pre-FERC Order Baseline and the Future Baseline. Under Pre-FERC Order Baseline Conditions, the WEAP model predicts an average total of 3,102,950 square feet of fry rearing habitat in Coyote Creek downstream of the dam. Under Future Baseline conditions, the WEAP model predicts a total of 3,098,751 square feet of fry rearing habitat downstream of the dam. This represents a predicted decrease in Chinook salmon fry rearing habitat of 4,199 square feet (0.1 percent) under the Future Baseline compared with the Pre-FERC Order Baseline. This decrease is based on factors that are not related to implementation of the FAHCE rule curves (e.g., changes in conservation, water supply demand resulting in less imported water released into Coyote Creek), since the decrease is predicted to occur without implementation of the Project. In other words, without the Project, fry rearing habitat in Coyote Creek is predicted to decrease slightly between Pre-FERC Order Baseline and Future Baseline conditions. The decrease, however, is very small and considering the large amount of fry rearing habitat available in Coyote Creek would be unlikely to influence fry rearing success or Chinook salmon production potential under baseline conditions.

In addition to the modeled changes in fry rearing habitat under the Project, the Ogier Ponds CM would create and enhance a substantial amount of fry rearing habitat in Coyote Creek. Fry rearing habitat created and enhanced by the Ogier Ponds CM would contribute to additional increases in Chinook salmon production potential in Coyote Creek downstream of Anderson Dam. The overall increase in Chinook salmon fry rearing habitat would support additional individuals, increase the diversity of available rearing habitat, decrease competition among rearing individuals, and increase resiliency of rearing to temporal and spatial changes in habitat conditions. Also, the continued Maintenance of the Rearing Habitat Improvements in the Live Oak Restoration Reach <u>and Maintenance of the North Channel Reach</u> would maintain fry rearing habitat through the Project that was improved during FOCP (see Section 3.4.5, *Cumulative Impacts*).

<u>Juvenile Rearing</u>

The Project is predicted to result in an increase in Chinook salmon juvenile rearing habitat compared with the Future Baseline, with a predicted decrease in juvenile rearing habitat relative to the Pre-FERC Order Baseline.

The WEAP Model predicts over 2.5 million square feet of Chinook salmon juvenile rearing habitat in Coyote Creek under the Project during the January–June juvenile rearing period. Approximately 248,000 square feet of the juvenile rearing habitat would occur in the FCWMZ and nearly 2.3 million square feet would occur in reaches downstream of the FCWMZ. Compared with the Pre-FERC Order Baseline, the WEAP Model predicts a 2.2 percent increase in juvenile rearing habitat in the FCWMZ and a 3.9 percent decrease in reaches downstream of the FCWMZ, with an overall decrease of 86,400 square feet (3.3 percent) under the Project. Compared with the Future Baseline the Project is predicted to increase juvenile rearing habitat in the FCWMZ and in downstream reaches. Under the Project, the WEAP Model predicts a 7 percent increase in Chinook salmon juvenile rearing habitat in the FCWMZ, a 1 percent increase in reaches downstream of the FCWMZ, and an overall increase of 38,400 square feet (1.5 percent) compared with the Future Baseline. As described previously, comparison with the Future Baseline provides a more accurate depiction of Project benefits than comparison with the Pre-FERC Order baseline. Accordingly, the Project would benefit rearing juvenile Chinook salmon.

Changes in Chinook juvenile rearing habitat between the Pre-FERC Order Baseline and the Project are likely driven largely by flow-related differences in water velocity, which affect suitability for juvenile rearing. In the FCWMZ and many other reaches of Coyote Creek characterized by a moderate to high degree of channel entrenchment and relatively little floodplain connection, a moderate increase in flow that remains within the channel banks results in higher water velocity but does not typically inundate more juvenile rearing habitat. As a result, juvenile rearing habitat suitability is reduced as water velocity increases beyond the suitable range for juvenile rearing. Changes in Chinook juvenile rearing habitat between the Future Baseline and the Project are likely driven by flow-related differences in water velocity and temperature, both of which affect suitability of juvenile rearing habitat. Daily average flows in Coyote Creek under the Project would generally be equal to or slightly higher than flows under the Future Baseline during the entire January 1 through June 30 juvenile rearing period, which increases wetted area and likely accounts for the increase in juvenile rearing habitat under the Project. In addition, May–June water temperatures under the Project would be lower than the Future Baseline in all reaches. As a result, availability of suitable juvenile rearing habitat under the Project would increase relative to the Future Baseline during this period.

Evaluation of the WEAP Model predictions indicates that Chinook salmon juvenile rearing habitat is predicted to decrease in Coyote Creek downstream of Anderson Dam between the Pre-FERC Order Baseline and the Future Baseline. Under Pre-FERC Order Baseline Conditions, the WEAP model predicts an average total of 2,619,960 square feet of juvenile rearing habitat in Coyote Creek downstream of the dam. Under Future Baseline conditions, the WEAP model predicts a total of 2,495,125 square feet of juvenile rearing habitat downstream of the dam. This represents a predicted decrease in Chinook salmon juvenile rearing habitat of 124,835 square feet (4.8 percent) under the Future Baseline compared with the Pre-FERC Order Baseline. This decrease is based on factors that are not related to implementation of the FAHCE rule curves (e.g., changes in conservation, water supply demand resulting in less imported water released into Coyote Creek), since the decrease is predicted to occur without implementation of the Project. In other words, without the Project, juvenile rearing habitat in Coyote Creek is predicted to decrease between Pre-FERC Order Baseline and Future Baseline conditions. The decrease, however, is small and considering the large amount of juvenile rearing habitat available in Coyote Creek would be unlikely to influence juvenile rearing success or Chinook salmon production potential under baseline conditions.

In addition to the modeled changes in Chinook salmon juvenile rearing habitat under the Project, the Ogier Ponds CM would create and enhance a substantial amount of juvenile rearing habitat in Coyote Creek. Juvenile rearing habitat created and enhanced by the Ogier Ponds CM would contribute to additional increases in Chinook salmon production potential in Coyote Creek downstream of Anderson Dam. The overall increase in Chinook salmon juvenile rearing habitat would support additional individuals, increase the diversity of available rearing habitat, decrease competition among rearing individuals, and increase resiliency of rearing to temporal and spatial changes in habitat conditions. Also, the continued Maintenance of the Rearing Habitat Improvements in the Live Oak Restoration Reach would maintain juvenile rearing habitat through the Project that was improved during FOCP (see Section 3.4.5, *Cumulative Impacts*).

Adult Upstream Passage

The WEAP Model results indicate virtually no change in opportunities for upstream migration of adult Chinook salmon under the Project compared with the Pre-FERC Order Baseline. Similarly, the WEAP Model results indicate very little change in adult migration opportunities under the Project compared with the Future Baseline. Under both comparative scenarios, flows in Coyote Creek under the Project during the October–January adult migration period would typically provide slightly increased opportunities for upstream migration of adult Chinook (e.g., 1 additional day, on average) at some locations, slight reductions in upstream migration opportunities (e.g., 1–2 fewer days, on average) at other locations, and no change at most locations.

While implementation of the FAHCE rule curves under the Project would not substantially change upstream migration opportunities for Chinook salmon, completion of the Ogier Ponds CM would provide additional passage improvements for adult Chinook salmon by disconnecting Coyote Creek from the ponds, reducing pond entrainment and predation risk, reducing instream water temperature, and improving channel conditions in the restoration area. The Phase 2 Coyote Percolation Dam also improves migration conditions but passage at that location is already assumed in the WEAP Model.

Overall, implementation of the Project and the Ogier Ponds CM would improve adult Chinook salmon passage opportunities and contribute to increases in Chinook salmon production potential in Coyote Creek downstream of Anderson Dam.

Juvenile Downstream Passage

Implementation of the FAHCE rule curves under the Project is predicted to increase opportunities for downstream passage of juvenile Chinook salmon compared with both baseline scenarios. Fish passage opportunities in Coyote Creek would also increase as a result of the Ogier Ponds CM (Section 2.6.1).

The WEAP Model results indicate that flows in Coyote Creek under the Project would increase opportunities for downstream migration of juvenile Chinook salmon. Compared with the Pre-FERC Order Baseline, flows under the Project would increase the median [11] number of suitable

[11] For the downstream passage analysis, the median is presented instead of the average because the median better represents the central tendency when the data include multiple zero values (years with zero passage days), as is the case with the WEAP Model results for these two model scenarios.

passage days by 13 (22 percent) and increase the maximum number of days by 8 (8 percent). The minimum annual number of suitable days for downstream passage would increase from 0 under the Pre-FERC Order Baseline to 10 days under the Project, increasing the likelihood of successful outmigration by juvenile Chinook salmon from Coyote Creek.

Compared with the Future Baseline, flows under the Project would increase the median number of suitable days for juvenile Chinook downstream passage by 46 (198 percent). The WEAP Model results indicate the minimum annual number of suitable days for downstream passage would increase from 0 under the Future Baseline to 10 days under the Project. There would be no change to the maximum number of annual suitable downstream passage days (111) under the Project compared to the Future Baseline.

With implementation of the Project and the Conservation Measures including habitat restoration and passage improvements, opportunities for juvenile Chinook salmon downstream passage in Coyote Creek would increase substantially. As described previously, these enhancements would provide additional improvements in passage suitability for both adult and juvenile Chinook salmon that are not accounted for by the WEAP Model results. The Ogier Ponds CM would reduce pond entrainment and predation risk by disconnecting Coyote Creek from the ponds and would improve temperatures for late season migration and decrease migration delay that would improve downstream migration conditions for juvenile Chinook salmon. The Phase 2 Coyote Percolation Dam also improves migration conditions but passage at that location is already assumed in the WEAP Model.

Overall, implementation of the post-construction FAHCE rule curve operations as proposed by the Project and the implementation of the Phase 2 Coyote Percolation design and operations, and the Ogier Ponds CM would improve downstream migration opportunities and contribute to increases in Chinook salmon production potential in Coyote Creek downstream of Anderson Dam.

Post-Construction Instream Flows (FAHCE Rule Curves) Summary

Compared with the Future Baseline, the post-construction instream flows under the Project would have little or no adverse impacts on the Chinook salmon population in Coyote Creek, with likely benefits to production. Compared with the Pre-FERC Order Baseline, the Project would slightly reduce juvenile rearing habitat for Chinook salmon but, as previously described, comparisons with the Pre-FERC Order Baseline do not represent project benefits as accurately as comparisons with the Future Baseline.

Overall, implementation of the FAHCE rule curves in combination with the habitat improvements from the Ogier Ponds CM, the Phase 2 Coyote Percolation Dam design and operations, the Sediment Augmentation Program and continued maintenance of the Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach combined with the maintained conveyance ~~improvements~~ of the North Channel Reach ~~Extension~~ would benefit Chinook Salmon in Coyote Creek.

Post Construction Seismic Retrofit and Conservation Measures Operations, Maintenance, and Adaptive Management Impacts Analysis

Seismic Retrofit (Anderson Dam) Post-Construction Operations, Maintenance, and Monitoring

Chinook salmon and their habitat would have the same benefits from more flexible operations of Anderson Dam as were described for steelhead. These improvements would support a larger and more resilient Chinook salmon population in the watershed. Post-Construction dam releases in accordance with the FAHCE rule curves proposed as part of the Project are discussed in the section above.

Monitoring and maintenance of the Seismic Retrofit facilities would be covered by the DMP and PMP as described for steelhead. Therefore, there would be less than significant short-term impacts on, and long-term benefits to Chinook salmon and their habitat from operations, maintenance, and monitoring of the retrofitted dam.

Ogier Ponds Conservation Measure Operations, Maintenance, and Monitoring

The restored channel created via the Ogier Ponds Conservation Measure will operate and function as a natural creek channel. There will be no management of flows or manipulation of features as a result of operations. Weirs will be activated infrequently when flow levels reach 2000 cfs, and will be spillover, not requiring any actions. These created conditions will benefit Chinook salmon as described in above in Impact FR-1a.~~.~~ Due to the infrequent nature of activation of the spillover weirs, impacts associated with potential entrainment would not cause a reduction in overall production in the species. Chinook salmon and their habitat would have the same benefits from maintenance of the restored channel as were described for steelhead. Maintenance of these improvements would continue to support a larger and more resilient Chinook salmon population in the watershed. Monitoring and maintenance would be covered by the SMP as described for steelhead. Therefore, there would be less-than-significant, short-term impacts and long-term benefits from maintenance, and monitoring of the Ogier Ponds CM.

North Channel Reach ~~Extension Operations,~~ Maintenance~~,~~ and Monitoring

~~Chinook salmon and their habitat would have the same benefits from operation of the North Channel Extension in terms of enhanced passage of geomorphic flows and decreased fish stranding risk as described for steelhead. These habitat improvements resulting from operation of the North Channel Extension would support a larger and more resilient Chinook salmon population in the watershed.~~

Monitoring and maintenance of the North Channel Reach ~~channel extension~~ would be temporary and covered by the SMP as described for steelhead. Therefore, there would be less than significant short-term maintenance impacts on and long-term benefits to Chinook salmon and their habitat from ~~operations, maintenance, and monitoring of~~ maintenance of the North Channel Reach ~~Extension~~ for the same reasons described for steelhead.

Spawning Gravel and Rearing Habitat Enhancements in the Live Oak Restoration Reach and ~~Sediment Augmentation Program~~ Monitoring and Maintenance

Even though the goals and objectives of the spawning gravel ~~and Sediment Augmentation Program~~ are focused on improving spawning and rearing habitat for steelhead, there would be overlap with the gravel sizes Chinook salmon need for spawning. Maintenance would maintain the enhanced spawning and rearing habitat, benefiting Chinook salmon and their spawning habitat. Combined, these improvements would support a larger and more resilient Chinook salmon population in the watershed.

Monitoring and maintenance would be periodic and covered by the SMP as described for steelhead. Therefore, there would be less-than-significant, periodic, short-term impacts on and long-term benefits to Chinook salmon and their habitat from operating, maintaining and monitoring the Live Oak Reach gravel augmentation and rearing habitat enhancements.

Sediment Augmentation Program Monitoring and Maintenance

Even though the goals and objectives of the Sediment Augmentation Program are focused on improving spawning and rearing habitat for steelhead, the general improvement in geomorphic processes in Coyote Creek would benefit Chinook salmon as well. Maintenance would maintain the enhanced spawning and rearing habitat, benefiting Chinook salmon and their spawning habitat. Combined, these improvements would support a larger and more resilient Chinook salmon population in the watershed.

Monitoring and maintenance would be periodic and covered by the SMP as described for steelhead. Therefore, there would be less-than-significant, periodic, short-term impacts on and long-term benefits to Chinook salmon and their habitat from maintaining and monitoring the Sediment Augmentation Program.

Phase 2 Coyote Percolation Dam Fish Passage Enhancements Operations, Maintenance, and Monitoring

Coyote Percolation Dam operations would provide the same benefits to Chinook salmon and their habitat as described for steelhead. These improvements would support a larger and more resilient Chinook salmon population in the watershed.

Monitoring and maintenance would be covered by the DMP ~~and SMP~~ as described for steelhead. Therefore, there would be less than significant short-term impacts and long-term benefits to Chinook salmon, and their habitat, from Phase 2 Coyote Percolation Dam CM operations, maintenance, and monitoring.

Project and FAHCE Adaptive Management

The FAHCE AMP is summarized in *Section 2.10 Project and FAHCE Adaptive Management Program*. The Project and FAHCE AMP was developed in accordance with the FAHCE *Settlement Agreement* which is aimed at supporting healthy steelhead and Chinook salmon populations in three watersheds, including Coyote Creek. Therefore, the AMT will be evaluating monitoring results and performance criteria and identifying adaptive management flow and non-flow measures that benefit Chinook salmon when performance criteria are not met (see Appendix D). By definition, the Project and FAHCE AMP would benefit Chinook salmon over the long-term;

however, there may be some less-than-significant impacts associated with the implementation of adaptive management measures for both flow and non-flow measures.

With regard to flow measures, they would be implemented to provide an overall benefit to the steelhead population and the Chinook salmon population (when benefits to Chinook salmon would not cause adverse impacts to federally listed steelhead). However, there may be less-than-significant impacts to certain life stages or habitats in certain contexts, particularly when water supply is limiting and one life stage may need to be prioritized over a life stage that is not habitat limited or when steelhead habitat needs to be prioritized over Chinook salmon habitat. For example, water may need to be held back in the reservoir in the summer to maintain a cold-water pool throughout the dry season for rearing steelhead, which may result in some flows being held back at the beginning of Chinook salmon migration season. In this example, there may be a less than significant impact to Chinook salmon habitat through decreases in early-season adult migration flows to provide a more important benefit of suitable temperature flows to support rearing steelhead (the federally listed species that relies on year-round rearing habitat). Logically, the AMT would not identify and recommend a change in flow measures if the overall result for the Chinook salmon would be a significant adverse impact, because that would undermine the purpose of the Project and FAHCE AMP.

Non-flow measures, including the Live Oak Restoration Project, Ogier Ponds~~, habitat related elements of the north channel extension project~~, and the Phase 2 Coyote Percolation Dam CM will be monitored to assess if they have met their specified habitat targets, jurisdictional area, and ecological functions and services success criteria defined in accordance with respective habitat restoration plans and permitting. After meeting habitat success criteria, long-term adaptive management of the non-flow habitat restoration measures, will be conducted pursuant to the Project and FAHCE AMP, and, if they are not meeting measurable objectives or not functioning as intended, management measures identified in the AMP and selected in consultation with the AMT would be implemented to meet the objectives or intended function. These refinements of non-flow measures would likely have impacts similar to those discussed in this EIR under Conservation Measures Construction and Conservation Measures Monitoring and Maintenance. Therefore, some short-term impacts would be predicted if there are any in-channel construction components in any given adaptive management measure but only if they overlapped the seasonal times that Chinook salmon could be in the system, which would be rare. Long-term benefits would be predicted under the AMP since the AMP is aimed at enhancing steelhead and salmon habitat over the long term. Logically, the AMT would not recommend an adaptive management measure, if it would result in a significant impact to Chinook salmon.

Also, under the AMP, there would be compliance monitoring, validation monitoring, effectiveness monitoring, and a long-term trend monitoring program (see Appendix D). Compliance and validation monitoring would collect data through passive monitoring technology and habitat surveys and would have no impacts on Chinook salmon.

Long-term trend monitoring would have noninvasive monitoring and some minimally invasive monitoring methods. Non-invasive monitoring would include passive monitoring such as VAKI Riverwatchers or PIT tag antennas using noninvasive technology which would have no impacts on Chinook salmon. The long-term trend monitoring includes stunning through electrofishing, capturing/netting, crowding, handling, DNA sampling, and PIT tagging occurs during times that Chinook salmon are not present in the system.

Despite some impacts, the monitoring program would provide valuable long-term individual and population information for Chinook salmon and their habitat the results would be used to adjust components of the Project through the AMP to be more beneficial to salmon (as long as it is not at expense of listed steelhead) over the long term. Therefore, the impacts of monitoring activities implemented under the AMP would not be substantial.

As described in **Table 2-1** *Project Components*, implementation of a Geomorphic Flows Plan would occur as part of future adaptive management phases of the FHRP and will require additional CEQA assessment and other regulatory approvals. In general, the geomorphic flows would include infrequent high flows sufficient to scour sediment, erode banks, scour vegetation, and result in channel migration in localized areas which would maintain and increase habitat complexity, reduce non-native invasive species (Kiernan and Moyle 2012), and increase benthic macroinvertebrate production benefitting Chinook spawning and rearing and increasing productivity of the population (Cross et al. 2011).

Overall, the Project and FAHCE AMP would benefit Chinook salmon. Any adaptive measures with a flow “trade-off” between steelhead and Chinook salmon or Chinook salmon life history stages or non-flow measure with an in-stream construction component would likely have less-than-significant impacts on Chinook salmon and both types of measures would have long-term benefits.

Significance Conclusion Summary for Chinook Salmon

The Project would result in certain adverse, less-than-significant impacts on Chinook salmon from Seismic Retrofit Project Construction; Conservation Measures Construction; Construction Monitoring; and Anderson Dam and Conservation Measures Maintenance. In the post-construction phase, there would also be some impacts from Anderson Dam and Conservation Measures monitoring and maintenance, Post-Construction Instream Flows Operations (FAHCE rule curves), and the Project and FAHCE AMP. These impacts would be less than significant.

The Project would benefit Chinook salmon and their habitat long term through Seismic Retrofit Operations, Monitoring, and Maintenance; Conservation Measures Operations, Monitoring, and Maintenance; Construction Monitoring; Post-Construction Instream Flows Operations (FAHCE rule curves); and Adaptive Management. Overall, impacts on Chinook salmon would be **less than significant** in the short term with long-term benefits to the Chinook salmon population and habitat.

Mitigation Measures

No mitigation is required.

Impact FR-1c: Pacific Lamprey (Less than Significant)

Seismic Retrofit Construction Impacts Analysis

Seismic Retrofit Construction Activities

Construction activities in the Seismic Retrofit Project Area could impact Pacific lamprey individuals and their habitat from immediately downstream of Anderson Dam to Alviso Slough. Construction activities upstream of the dam in the reservoir would not impact Pacific lamprey individuals directly because lamprey do not occupy the reservoir; however, increased sediment transport associated with dewatering the reservoir and exposing erodible sediment that can be transported during precipitation events could indirectly impact Pacific lamprey individuals and their habitat as is addressed in the next section: *Seismic Retrofit (Anderson Dam) Operations and Instream Flows During Seismic Retrofit Construction*.

Impacts to Pacific lamprey and measures to reduce impacts from out of channel construction that can cause noise and vibration or result in increased runoff of toxic substances and erosion (excavation and fill, staging and stockpiling materials, blasting at the BHBA, and road construction and demolition) would be the same as described for steelhead and the same BMPs and AMMs would apply reducing impacts so that they are less than significant.

Impacts from in-channel work (driving or casting piles in place for temporary bridges and dikes, creation of berms for the Ogier Ponds creek pond separation work, and in-channel work for the Phase 2 Coyote Percolation dam, and localized dewatering to accommodate this work) would have similar impacts on Pacific lamprey as for steelhead but the impacts would be potentially greater because Pacific lamprey migrating adults can be in the study area at any time of year and larvae buried in sediment can be difficult to salvage if present, and may not move out of construction areas on their own volition. However, lamprey larvae have been shown to withstand prolonged periods of dewatering if they can burrow deep enough in the hyporheic zone to remain wetted (Rodriguez-Lozano et al. 2019), making them more resilient to dewatering than salmonid larvae. Aquatic species rescue and relocation plans for localized dewatering activities would reduce impacts, and areas where localized dewatering would occur are very limited. Capture methods would include backpack electrofishing, seining, dip netting, and/or capturing by hand.

The Invasive Species Monitoring and Control Plan and AMM-91 may also reduce predation pressure from nonnative fish, crayfish, American bullfrogs, and red-eared sliders in Coyote Creek, at least in the short-term (long-term benefits are less likely unless eradication is achieved). BMP BI-11 and AMM-90 will further minimize impacts from predators by requiring that trash be removed daily from the construction area, limiting attraction to the site by predators.

Following demolition and upon completion of construction, disturbed areas would be restored to pre-construction conditions and seeding would occur to replace removed vegetation through BMP REVEG-1. Reestablishing native vegetation and riparian habitat would benefit Pacific lamprey in the long term by shading the creek and providing habitat complexity. Additionally, the retrofitted dam would be allowed to refill once ~~seismic~~ restrictions are lifted allowing more storage for cold water pool management post-construction compared to the Pre-FERC Order Baselines, which would benefit Pacific lamprey by allowing more consistent suitable rearing and pre-spawning holding habitat throughout the dry season. Finally, the seismically retrofitted dam would have a new, multi-level intake structure that would allow more precise temperature control on downstream releases benefiting Pacific lamprey relative to Pre-FERC Order and future conditions baselines.

Overall, Seismic Retrofit construction activities may adversely impact Pacific lamprey during the construction phase, but the impacts would not be substantial with the application of BMPs, AMMs, including the dry season work window, construction pollutant controls, and the aquatic species rescue and relocation plans for any in-channel work that requires localized dewatering. Therefore, Seismic Retrofit construction impacts from the above-described construction activities would be less than significant on Pacific lamprey and their habitat in the short-term. The complete retrofitted dam would benefit Pacific lamprey in the long term relative to existing conditions.

Seismic Retrofit (Anderson Dam) and Instream Flows Operations during Seismic Retrofit Construction

This section analyzes the impacts of Anderson Dam operations and instream flows downstream of Anderson Dam during Seismic Retrofit Construction on Pacific lamprey compared with the Pre-FERC Order Baseline and existing conditions baseline (post-FOCP). During Seismic Retrofit construction, generally, there would be wet seasons, spring reservoir drawdown, and dry construction seasons (i.e., dry season work window). During the wet season, the outlet of the dam would be fully open and all inflows to the reservoir would be diverted and released downstream as quickly as possible given the type of diversion (Stage 1 or Stage 2). In April, or when conditions allow following April, the reservoir would be drawn down to the elevation needed to conduct construction activities during the dry construction season work window. The rate of drawdown would depend on antecedent conditions in the watershed and the type of diversion in place (Stage 1 or Stage 2) but should take about 2–4 weeks. Once the reservoir has been drawn down to the correct elevation to initiate in-channel work, then the construction activity for that year would commence and any inflows coming into the reservoir would be diverted (or sometimes pumped) around the work area and released downstream.

Hydrology

Impacts on Pacific lamprey from changes in construction phase hydrology would be less than significant for the same reasons outlined for steelhead. Pacific lamprey have similar migratory triggers but, require less depth for passage and rearing. Any analysis conducted for steelhead will provide a conservative assessment of conditions for Pacific lamprey.

Water Quality – Dissolved Oxygen and Temperature

Impacts on Pacific lamprey from changes in temperature and DO would be less than significant for the same reasons outlined for steelhead, as this species has similar DO and Temperature requirements, but are less sensitive to changes in these parameters. Any analysis conducted for steelhead will provide a conservative assessment of conditions for Pacific lamprey.

Water Quality – Sediment Transport During Wet Seasons and Spring Drawdown

Pacific lamprey have evolved to use various watersheds including flashy watersheds that frequently have high suspended sediment and associated turbidity during and following storm events, particularly the first storm events of the water year (Reid and Goodman 2016a).

Definitions of turbidity and suspended sediment and impacts and benefits of both for fish as well as adaptations that fish can evolve to handle high levels of suspended sediment concentration are described in the Instream Flows During Construction section for steelhead (Impact FR-1a) and are not repeated here.

This analysis used sediment transport modeling to estimate the likely exposure levels (derived from duration and magnitude of elevated suspended sediment) for fish in Coyote Creek during wet weather evens and Stage 1 and Stage 2 diversions. These exposure levels were then translated into the likely impacts predicted for exposed Pacific lamprey in Coyote Creek downstream of the dam under varying conditions (back to back 2-year storm events with Stage 1 diversion or constant inflow, 2-year storm events, and/or 5-year storm events with Stage 2 diversion). The impact analysis described here is a summary of the results with the more detailed methods and analyses described in Appendix F ~~G~~.

Pacific lamprey occur in the mainstem of Coyote Creek as far upstream as the base of Anderson Dam. There is not extensive literature on the effects of suspended sediment on lamprey. This analysis was based on the effects of suspended sediment on salmonids, with the assumption that impacts on lamprey, a very different kind of fish, are likely less than or equal to those on salmonids. It is generally observed that most life stages of Pacific lamprey are more resilient to poor water quality than salmonids (Zaroban et al. 1999), so these assumptions are likely conservative.

During the wet season in Years 1 and 2 and back-to-back 2-year storm events (or equivalent events), migrating adult Pacific lamprey could experience moderate physiological stress compared to Pre-FOCP conditions (Appendix F ~~G~~). If temporary, moderate physiological stress usually has negligible long-term impacts on an animal and are often seen as adaptive responses that allow an animal to cope with a stressful event (Sapolsky 2021 ~~2004~~). However, moderate physiological stress across long durations can result in sublethal impacts like impaired reproduction and increased susceptibility to disease and parasites. Pacific lamprey could behaviorally regulate their exposure and choose not to enter and migrate up Coyote Creek, potentially migrating up a different watershed to reproduce or they may continue to migrate up Coyote Creek and attempt to reproduce there. Pacific lamprey do not home to natal rivers (Spice et al. 2012) so there would likely be little consequence if migrating adults select another watershed for migration during Project construction. Also, Pacific lamprey die after spawning and are already experiencing high physiological stress as their bodies prepare to mate, spawn, and die so slight increases in physiological stress during their final migration would have a negligible impact on migrating adult lamprey.

Based on impacts to salmonids, an SEV of 10 is predicted for larval rearing under Scenario 2 with back-to-back a 2-year flow (or equivalent) events. An SEV of 10 for juvenile salmonids is predicted to result in 0-20 percent mortality, but because Pacific lamprey larvae can rear in burrows in fine sediment (Stillwater 2014), they may tolerate spikes in suspended sediment resulting from the Project, although excessive sedimentation from the settling out of suspended fines could possibly smother larvae in some areas. Pacific lamprey larvae are filter-feeders (Stillwater 2014), so reduced growth rates might be expected from elevated suspended sediment. However, the broad spatial distribution of Pacific lamprey in the Coyote Creek Watershed, including Upper Penitencia Creek, should mean that a large portion of the rearing larva population would not be impacted by the Project. In addition, larvae that rear downstream of Ogier Ponds would be exposed to lower levels of suspended sediment (down to about half) as a result of dilution from additional sources of flow and deposition within Ogier, Coyote Percolation Pond and Metcalf ponds (URS 2020b ~~2020c~~), and thus would experience less of an impact (i.e., less than moderate physiological stress). Juvenile spring downstream migrants are anticipated to experience only minor physiological stress for a short duration during migration.

During the wet season in Years 3, 4, 5, 6, and 7, the reservoir would be allowed to fill back up to Deadpool elevation and the Stage 2 diversion would be used to maintain the reservoir at that elevation. During constant inflow conditions, migrating adult Pacific lamprey could experience minor to moderate physiological stress (Appendix F ~~G~~) during constant inflows and precipitation events. If temporary, minor to moderate physiological stress usually has negligible long-term impacts on an animal and are often seen as adaptive responses that allow an animal to cope with a stressful event (Sapolsky 2021 ~~2004~~). However, minor to moderate physiological stress across long durations can result in sublethal impacts like impaired reproduction and increased susceptibility to disease and parasites. Pacific lamprey could behaviorally regulate their exposure and choose not to enter and migrate up Coyote Creek, potentially migrating up a different watershed to reproduce or they may continue to migrate up Coyote Creek and attempt to reproduce there. Pacific lamprey do not home to natal rivers (Spice et al. 2012) so there would likely be little consequence if migrating adults select another watershed for migration during Project construction. Also, Pacific lamprey die after spawning and are already experiencing high physiological stress as their bodies prepare to mate, spawn, and die so slight increases in physiological stress during their final migration would have a negligible impact on migrating adult lamprey.

Pacific lamprey larvae rear for a variable number of years before outmigrating to the ocean (Stillwater 2014); therefore, suspended sediment resulting from the Project could impact multiple year-classes of the population ~~(**Figure 3.4-2**).~~ Lamprey are reported to have an intermediate level of tolerance to increased sedimentation and turbidity (Zaroban et al. 1999), but it is not known how changes in suspended sediment affect larva survival. Pacific lamprey larvae can rear in burrows in fine sediment (Stillwater 2014), so they presumably tolerate spikes in suspended sediment to some extent, although excessive sedimentation from the settling out of suspended sediment could possibly smother larvae in some areas. Larvae are filter-feeders (Stillwater 2014), so reduced growth rates might be expected from elevated suspended sediment. However, the broad spatial distribution of Pacific lamprey in the Coyote Creek Watershed, including Upper Penitencia Creek, should mean that a large portion of the rearing larva population in the watershed would not be impacted by sediments during construction phase hydrology for the Project.

Little is known about Pacific lamprey eggs, but assuming eggs are not more sensitive than steelhead eggs then, conservatively, they could experience 0 to 20 percent mortality.

During 2-year to 5-year precipitation events, higher than usual flow events could lead to increased pool depths, reduced spawning gravel quantities, and reduced access to low-terrace floodplain habitat from increased channel incision in Coyote Creek (mainly upstream of Coyote Percolation Pond). Lower quality spawning habitat may reduce the survival of incubating eggs within these limited areas but over the long term, the increased and enhanced habitat from maintenance of the Live Oak Restoration Project; and the construction, operation, and maintenance of the Ogier Ponds CM would reverse impacts on Pacific lamprey habitat that occur in the wet seasons of construction and overall impacts on the population over time would not be substantial, particularly because Pacific lamprey are one population on the west coast of North America and do not have distinct populations in specific watersheds.

Although sediment transport would impact spawning habitat, the habitat impacted will primarily occur in the reaches upstream of Coyote Percolation Pond as a majority of sediment ~~a~~ deposits in the Ogier and Coyote Percolation ponds as described further in Appendix D ~~G~~. In addition, during seismic retrofit construction, Valley Water would conduct sediment deposition monitoring (Stillwater Sciences 2020b) annually and maintain spawning gravels ~~and augment sediment~~ per the Live Oak Restoration Project maintenance. In addition, post-construction monitoring and maintenance of Live Oak Restoration Project and Ogier Ponds CM, and implementation of the Sediment Augmentation Program, will continue long-term resulting in a net benefit for Pacific lamprey spawning habitat. ~~North Channel Extension Conservation Measures will also help protect spawning habitat in the southern channel, enhanced during FOCP, from high flow events.~~

In spring of Years 3, 4, 5, and 6, drawing the reservoir down to elevation 450 feet would occur with the Stage 2 diversion allowing up to 6,000 ~~1,000~~ cfs to pass directly through to downstream. Storm events are less likely in April and become less likely thereafter, but smaller storm events can occur, and the modeling simulated a 2-year storm event in addition to constant inflow in the absence of a storm event. Under constant inflow as well as the storm events, migrating or pre-spawning holding adults could experience minor to moderate physiological stress from elevated sediment transport (Appendix F ~~G~~) would be sublethal and temporary and may have no effect on the fitness of a species that dies after spawning as described above.

Outmigrating juveniles could experience minor to moderate physiological stress from elevated sediment transport under both constant inflow and storm event conditions. Spring downstream migrants are anticipated to only experience moderate physiological stress for a short duration during migration and impacts would not be substantial as the species is more tolerant of suspended sediment. Also, outmigrating juveniles are often found in turbid waters and may benefit from decreased predation pressure associated with higher turbidity. Juveniles often migrate with high-flow events (Ebert 2008, Richards and Beamish 1981, Close et al. 1995, van de Wetering 1998) so the spring drawdown may encourage them to migrate under cover of turbidity which may increase survival.

Little is known about Pacific lamprey eggs, but assuming eggs are not more sensitive than steelhead eggs then, conservatively, they could experience up to 20 percent mortality. Collectively, increased suspended sediment under constant flow and storm events during spring drawdowns would decrease productivity of the Pacific lamprey population during Years 3, 4, 5, and 6 of Project as compared to Pre-FERC Order Baseline, but changes from existing conditions baseline are likely negligible.

Following Year 6, the reservoir would be allowed to refill via inflows and, if possible, imported water up to the new maximum level and the FAHCE rule curves would be initiated. With the reservoir refilled, suspended sediment would decrease during constant inflow or precipitation events because the full reservoir would not have exposed erodible sediment at the same level as at the existing conditions baseline and suspended sediment would return to near Pre-FERC Order Baseline and would not be expected to impact Pacific lamprey further.

Overall, sediment transport in instream flows during Seismic Retrofit construction could result in periodic, temporary less than significant impacts to Pacific lamprey in the short-term (during the construction phase) during and immediately following wet season precipitation events and during the spring reservoir drawdowns during Seismic Retrofit construction. Suspended sediment monitoring, sediment deposition monitoring, the gravel and sediment augmentation programs, and the Ogier Ponds CM would prevent the long-term degradation of spawning habitat and would reverse the spawning and productivity impacts, resulting in less than significant impacts, and a net benefit to the Pacific lamprey population and its habitat in the long-term.

Non-native Species

Some aquatic non-native species likely prey on Pacific lamprey but for the same reasons outlined for steelhead, impacts from the release of non-native species from Anderson Reservoir downstream would not be significant compared to baseline conditions. The assemblage or distribution of non-native fish species in Coyote Creek is not expected to change. Changes associated with the project will not provide habitat that is more suitable. Actions taken by Valley Water during sampling activities and construction related dewatering will help reduce the abundance of non-native species.

Instream Flows During Construction Summary

Overall, construction phase dam operations and instream flows would maintain Pacific lamprey throughout the entire construction phase of the Project by providing flows, temperatures, and DO within a range that can maintain Pacific lamprey in the FCWMZ. Also, flows bypassed through the reservoir would be within a range that can support Pacific lamprey migration, spawning, incubation, and rearing in the FCWMZ during Seismic Retrofit construction. Dewatering in spring would encourage any remaining outmigrating juveniles. Sediment transport would be the main impact from instream flows during construction causing sublethal physiological stress in adults and juveniles and some (0-20 percent) mortality of incubating eggs which would in turn decrease productivity of the Pacific lamprey population during construction compared with the Existing Conditions Baseline but sediment deposition would be monitored throughout the Project and impacts would be reversed through Ogier Pond Restoration, sediment augmentation and Live Oak Restoration Reach maintenance programs, which would enhance spawning habitat and support higher productivity for the Pacific lamprey population into the future during and following construction. Therefore, overall, the impacts from instream flows during construction would be less than significant for the Pacific lamprey population and its habitat. Pacific lamprey would benefit from the seismic retrofit construction over the long term because the seismically retrofitted dam would have more flexibility in managing cold water releases.

Conservation Measures Construction Impacts Analysis

The following Conservation Measures, Normal Operation of Coyote Reservoir and Construction Period Imported Water Releases and Operation of the Chillers for Imported Water Releases, do not have a construction component and were previously considered as part of the *Instream Flows during Seismic Retrofit Construction* under the *Seismic Retrofit Construction Activities Impacts Analysis,* so they are not discussed further in this section.

Construction activities for the Conservation Measures that require construction are considered in this section. Conservation Measure construction could impact Pacific lamprey in the short-term but would likely benefit Pacific lamprey in the long-term. Conservation Measure construction components that could impact Pacific lamprey are assessed in further detail in this section.

Ogier Ponds Conservation Measure Project

Even though the goals and objectives of the Ogier Ponds CM are aimed at steelhead, there would be overlap with improvements to rearing habitat for both species. This Conservation Measure would benefit Pacific lamprey through increased rearing habitat, improved water quality (i.e., lower water temperature), enhanced fish passage, riparian habitat restoration, and reduced habitat for warm water, non-native fish, particularly that of predatory species, in the system.

While the Ogier Ponds CM would provide substantial benefits to Pacific lamprey once complete, construction activities to complete the conservation measure would have short-term impacts. The in channel work window precludes in-channel construction activities during a majority of the juvenile downstream migration. Pre-spawning holding, spawning, larval rearing, and, although unlikely, adult upstream migrating Pacific lamprey may be present during the work window; therefore, Ogier Ponds CM construction activity impacts during the work window are analyzed for adult upstream migration, holding, spawning, and rearing Pacific lamprey while no impacts are expected for juvenile emigrants. During the wet season, fish passage would be provided which would minimize migration impacts to Pacific lamprey. Adult Pacific lamprey have been documented migrating, as late as June 30 so there may be some impact on migration at the very end of the migration season. However, typical flows that provide for migration occur much earlier in the season in the county so impacts to migration would be unlikely in the 2-week window from June 15-June 30 at the beginning of the construction window.

Construction activities and localized dewatering during construction would have similar impacts on Pacific lamprey as described for steelhead. Pacific lamprey adults, juveniles, redds, and larvae have the potential to become desiccated or suffocate during dewatering or may be crushed during construction activities. While buried in sediment, larvae can be difficult to salvage if present, and may not move out of construction areas on their own volition. However, lamprey larvae have been shown to withstand prolonged periods of dewatering if they can burrow deep enough in the hyporheic zone to remain wetted (Rodriguez-Lozano et al. 2019), making them more resilient to dewatering than salmonids. There is minimal spawning habitat present downstream of the CWMZ, which would limit redds within or downstream of the construction footprint.

The Aquatic Species Rescue and Relocation Plan for the Ogier Ponds CM would reduce impacts of fish stranding during dewatering by implementing a fish rescue and relocation effort during localized dewatering. Capture methods would include backpack electrofishing, seining, dip netting, and/or capturing by hand adopting measures from the Best Management Guidelines for Native Lampreys During In-water Work (Lamprey Technical Workgroup 2020).

In the short-term, impacts on Pacific lamprey would be less than significant. Actions are taken through ~~I~~AMMs and BMPs to reduce potential impacts. Over the long-term, Pacific lamprey would benefit from increased rearing habitat, improved water quality, enhanced fish passage, and decreased habitat for warm water, non-native predatory fish in the system.

Maintenance of the North Channel Reach ~~*North Channel Extension*~~

~~Construction~~ Maintenance activities associated with the North Channel Reach ~~Extension~~ would occur during Project construction ~~the dry season work window of Construction Year 1 as defined in *Section 2.5.1.1 Schedule* and BMP BI-2. The Conservation Measure activities~~ and include localized dewatering and minor grading in the channel.

If there is water in the North Channel and Pacific lamprey ~~or redds~~ are present, localized dewatering during construction activities could strand Pacific lamprey individuals ~~or redds~~ or trap them in pools, subjecting them to increased predation pressure or water quality degradation.

~~Construction~~ Maintenance activities and localized dewatering during maintenance ~~construction~~ would have similar impacts on Pacific lamprey as described for steelhead. Pacific lamprey individuals have the potential to become desiccated or suffocate during dewatering or may be injured, crushed, or killed during maintenance ~~construction~~ activities. While buried in sediment, larvae can be difficult to salvage if present, and may not move ~~out of construction areas~~ on their own volition.

Impacts to Pacific lamprey from this Conservation Measure would be avoided through defined work windows and measures implemented to protect ~~aquatic~~ fish, as discussed in the steelhead impacts section. The dry season work window precludes in-channel maintenance ~~construction~~ activities during juvenile downstream migration and begins during the final weeks of the adult upstream migration period. Pre-spawning holding, spawning, larval rearing, and adult upstream migrating Pacific lamprey may be present during the dry season work window. However, as the Project footprint for construction is immediately downstream of Anderson Dam, there would be no impacts on adult upstream migrants as there is no habitat available for Pacific lamprey upstream of the Project footprint.

~~In addition, Pacific lamprey would be excluded with nets and a cofferdam would be built at the lower limit of the backwater to keep water from entering the work area. The Aquatic Species Rescue and Relocation Plan for the North Channel Extension would reduce impacts of fish stranding during dewatering by implementing a fish rescue and relocation effort adopting measures from the Best Management Guidelines (Lamprey Technical Workgroup 2020) for Native Lampreys, where any remaining Pacific lamprey in the upstream pool would be captured and relocated prior to and during dewatering the pool.~~

~~In the short term, impacts~~ Impacts on Pacific lamprey would be less than significant with implementation of BMPs and AMMs. Over the long term, Pacific lamprey would benefit from protection of enhanced habitat in the South Channel via maintenance of high flow conveyance in the North Channel. ~~reduced stranding and predation in the existing North Channel pools when they dewater following activation.~~

Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach

At the end of FOCP (existing conditions baseline), the Live Oak Restoration Reach project will be completed, providing new and enhanced spawning and rearing habitat for Pacific lamprey. The restoration maintenance of that reach is proposed as a part of Project and would have a long-term benefit for Pacific lamprey by maintaining spawning habitat that was enhanced during FOCP. To maintain spawning habitats, the extent of spawning gravels to replenish would be assessed during visual observations and following monitoring surveys. Inferential and calculated volumes for spawning gravel volumes would be used to evaluate the need for replenishment of spawning gravel volumes. Stockpiled spawning gravel would be added in small increments to maintain spawning habitat.

Placement of gravels has the potential to degrade water quality downstream of the work area if gravels and associated fine sediment enter the stream at the time of placement, which could impact rearing and pre-spawning holding adult Pacific lamprey. However, gravels would be thoroughly washed of fine sediment prior to placement and silt curtains with a belting conveyor would be used to place the gravels limiting impacts to aquatic and riparian areas. ~~gravels will be placed during the dry seasons work window, and will not be placed directly in the channel, but instead will be placed adjacent to the channel or on benches above the channel so there would be no impact from introducing gravels to the channel at the time of placement. Also, when flows are high enough to mobilize the gravels in the gravel augmentation piles, there would already be elevated background levels of suspended sediment; therefore, additional sediment from the gravel piles would not add substantially to the total sediment that is already suspended during high flows.~~

~~Measures would be implemented to protect aquatic fish in the unlikely event that gravels and associated fine sediment enters the stream at the time of placement, as discussed in the steelhead impacts section. In addition, impacts~~ Impacts on Pacific lamprey from this Conservation Measure would be the same as for steelhead and avoided and minimized through defined work windows. The dry season work window precludes in-channel construction activities during juvenile downstream migration and begins during the final weeks of the adult upstream migration period. Pre-spawning holding, spawning, larval rearing, and adult upstream migrating Pacific lamprey may be present during the dry season work window. In addition, the methods described in the Best Management Guidelines for Native Lampreys During In-water Work (Lamprey Technical Workgroup 2020) would be implemented during the construction phase, if feasible.

In the short-term, impacts on Pacific lamprey would be less than significant from placing gravel. Over the long term, Pacific lamprey would benefit from maintaining spawning habitat within the Live Oak Restoration Reach.

Sediment Augmentation Program

The Sediment Augmentation Program would improve geomorphic processes that create and maintain spawning habitat and reduce and reverse channel incision, benefiting Pacific lamprey in Coyote Creek. Placement of sediment has the potential to degrade water quality downstream of the work area if sediment enters the stream at the time of placement, which could impact Pacific lamprey. A small rise in suspended sediment could occur when sediment is mobilized during high-flow events which may cause acute physiological stress and impeded foraging ability in Pacific lamprey. However, the increased turbidity and any associated stress and impeded foraging would resolve quickly (less than 8 hours) and would not adversely impact Pacific lamprey in the long term. Furthermore, when flows are high enough to mobilize the sediment in the sediment augmentation piles there would already be elevated background levels of suspended sediment; therefore, additional sediment from the piles would not add substantially to the total sediment that is already suspended during high flows.

Measures would be implemented to protect fish in the unlikely event that gravels and associated fine sediment enters the stream at the time of placement, as discussed in the steelhead impacts section. In addition, impacts on Pacific lamprey from this Conservation Measure would be avoided through defined work windows. The BMP GEN-1 work window for maintenance precludes in-channel construction activities during juvenile downstream migration and begins during the final weeks of the adult upstream migration period. Pre-spawning holding, spawning, larval rearing, and adult upstream migrating Pacific lamprey may be present during the in-channel work window for maintenance defined under BMP GEN-1.

Disturbance or injury impacts and measures to protect Pacific lamprey would be the same as described for steelhead. In the short term, impacts on Pacific lamprey from placing sediment and gravels would be less than significant. Over the long term, Pacific lamprey would benefit from improved geomorphic processes that create and maintain spawning habitat in the CWMZ and reduce <u>and reverse</u> channel incision.

Phase 2 Coyote Percolation Dam Fish Passage Enhancements

While the Phase 2 Coyote Percolation Dam CM would benefit Pacific lamprey once complete, construction activities to complete the conservation measure could have short-term impacts. Construction of this conservation measure requires localized dewatering. Pacific lamprey have the potential to become desiccated or suffocate during dewatering or may be injured, crushed, or killed during construction activities.

Construction activities and localized dewatering during construction would have similar impacts on Pacific lamprey as described for steelhead. While buried in sediment, larvae can be difficult to salvage if present, and may not move out of construction areas on their own volition. However, lamprey larvae have been shown to withstand prolonged periods of dewatering if they can burrow deep enough in the hyporheic zone to remain wetted (Rodriguez-Lozano et al. 2019), making them more robust to dewatering than salmonids.

Due to high water temperatures during the dry season work window, Pacific lamprey are not anticipated to be present in the Phase 2 Coyote Percolation Dam CM construction area during the period of disturbance. However, measures would be implemented to protect any Pacific lamprey that are present, as discussed in the steelhead impacts section, and would protect Pacific lamprey from being injured or killed during dewatering activities and sediment impacts.

BMP BI-2 will protect Pacific lamprey from stranding during dewatering and impacts from increased suspended sediment in the channel by restricting in-channel construction activities to the dry season work window. The work window precludes in-channel construction activities during juvenile downstream migration and begins during the final two weeks of the adult upstream migration period. Pre-spawning holding, spawning, larval rearing, and adult upstream migrating Pacific lamprey may be present during the work window. There is minimal spawning habitat present downstream of the CWMZ, which would limit redds within or downstream of the construction footprint. In addition, the methods described in the Best Management Guidelines for Native Lampreys During In-water Work (Lamprey Technical Workgroup 2020) would also be implemented during the construction phase, if feasible. During the wet season, fish passage would be provided which would minimize migration impacts to Pacific lamprey. Adult Pacific lamprey have been documented migrating as late as June 30 so there may be some impact to migration at the very end of the migration season. However, typical flows that provide for migration occur much earlier in the season in the county so impacts to migration would be unlikely in the 2-week window from June 15-June 30 at the beginning of the construction window.

In the short-term, impacts on Pacific lamprey would be less than significant with implementation of applicable BMPs, AMM's and PAMMs. Over the long-term, Pacific lamprey would benefit from the Coyote Percolation Dam CM through improved passage conditions.

Construction Monitoring Impacts Analysis

Construction Phase Fisheries Monitoring

Fisheries and habitat monitoring would provide valuable information to inform management of steelhead and other fish species in the study area and guide Valley Water and regulatory agencies in decision making regarding the Fish Rescue and Relocation Plan. Water quality ~~temperature~~ monitoring, suspended sediment monitoring, VAKI Riverwatcher adult escapement monitoring, spawning surveys, sediment deposition, eDNA, ~~and~~ migration flow monitoring, PIT tag migration study, growth comparative study, non-native control methods, reptile monitoring, and terrestrial animal monitoring ~~are all non-invasive monitoring methods that~~ would have no impacts on Pacific lamprey. Sensitive Habitat Monitoring and Groundwater Monitoring would not adversely impact Pacific lamprey as these studies do not require in-channel sampling. Groundwater monitoring would not adversely impact Pacific lamprey because monitoring wells are located outside the active channel of Coyote Creek.

~~Pacific lamprey may be unintentionally captured during Fyke Trapping activities, though this is very rare due to the position in the watershed (out flow of Anderson Dam). Capturing and handling Pacific lamprey could cause acute physiological stress. Injury and mortality are rare but happen occasionally. Valley Water would be subject to the terms and conditions of California Scientific Collecting Permits which include impact avoidance and minimization measures during these studies.~~

~~A majority of the monitoring activities will not result in any impacts to Pacific Lamprey or their habitat as they are non-invasive. Any monitoring that~~ Juvenile rearing studies for steelhead could result in capture of Pacific lamprey but have ~~has~~ a low potential of actually handling this species. Therefore, there would be ~~no impact~~ less than significant impacts on Pacific lamprey from Construction Monitoring.

Construction Phase Fish Rescue and Relocation; Juvenile Rearing, Migration, and Growth

If monitoring of water temperature and DO indicates that conditions for rearing steelhead would become unsuitable within the Coyote Creek FCWMZ as a result of Seismic Retrofit construction activities, steelhead would be rescued and relocated per the Fish Rescue and Relocation Plan. Capture methods would include backpack electrofishing and/or seining. Pacific lamprey captured during the rescue efforts would also be relocated per the Fish Rescue and Relocation Plan. Also, pacific lamprey may be captured during the juvenile rearing sampling which uses the same backpack electrofishing methods. Pacific lamprey may be stunned/netted, captured, and handled causing acute physiological stress. Injury or mortality can happen occasionally but are rare. Most Pacific lamprey tolerate capture and handling. Acute physiological stress would be temporary and less of a concern than mortality under deteriorating water quality conditions.

Invasive Species Monitoring and Control Plan

Impacts to and benefits to Pacific lamprey from implementing the Invasive Species Monitoring and Control Plan would be the same as outlined for steelhead. This plan would result in a reduction to potential predators to Pacific lamprey and would benefit the species in the short term.

Construction Monitoring Summary

Overall, construction monitoring would result in short-term less-than-significant impacts to Pacific lamprey.

Post-Construction Instream Flows Operations (FAHCE Rule Curves)

Analyses of the effects of the Project on Pacific lamprey, including spawning, rearing, and migration habitat in Coyote Creek, are provided in the following subsections. There were no WEAP Model outputs for Pacific lamprey. Thus, the effects of the Project on Pacific lamprey habitat and passage were evaluated using other modeled data, including water temperature, wetted area and thalweg depth, and WEAP Model results for steelhead when life stage timing and habitat preference overlap between the species (Appendix F).

Spawning and Incubation Habitat

The Project is predicted to result in an increase in Pacific lamprey spawning and incubation habitat compared with the Future Baseline, with a predicted decrease in spawning and incubation habitat relative to the Pre-FERC Order baseline. This determination is based largely on the WEAP model results for steelhead, which rely on suitability criteria for water depth, water velocity, spawning gravel characteristics, and water temperature that correspond closely with those for Pacific lamprey (Appendix F). This decrease is based on factors that are not related to implementation of the Project or proposed FAHCE rule curves (e.g., changes in conservation, water supply demand resulting in less imported water released into Coyote Creek), and the decrease is predicted to occur without implementation of the Project. Comparison with the Future Baseline provides a more accurate depiction of Project benefits than comparison with the Pre-FERC Order Baseline because both the Project and Future Baseline scenarios represent conditions occurring at the same point in time (i.e., 2035) and both are based on the same assumptions regarding water conservation, water supply and demand, climate change, and other factors affecting flows and habitat in Coyote Creek. Accordingly, the Project would to benefit spawning Pacific lamprey.

The steelhead WEAP model results are considered conservative estimates (i.e., underestimates) of spawning and incubation habitat for Pacific lamprey because Pacific lamprey have a greater range of water temperature suitability than steelhead. While the March–August Pacific lamprey spawning and incubation period occurs later in spring and summer compared with the December–April steelhead spawning and incubation period used in the WEAP model, analysis of modeled water temperature in Coyote Creek indicates that daily average water temperature under the Project would be suitable for Pacific lamprey spawning and incubation (50–71 °F) at all locations in Coyote Creek during the entirety of the spawning and incubation period (Appendix F). The WEAP model predictions of steelhead incubation adjusted spawning habitat are therefore considered underestimates of suitable Pacific lamprey spawning and incubation habitat.

In addition to the modeled changes in spawning habitat under the Project, the Ogier Ponds CM and the Sediment Augmentation Program that will rely on increased flows from the North Channel Extension Project (completed during FOCP) would create and enhance a substantial amount of spawning habitat. The Ogier Ponds CM Project would add over 20,000 square feet of spawning habitat at typical winter baseflow (approximately 30 cfs). This spawning habitat estimate is based on steelhead criteria but is also expected to be usable by Pacific lamprey.

Furthermore, implementation of the Ogier Ponds CM would improve spawning suitability downstream of Ogier Ponds by disconnecting the creek from the ponds and eliminating the introduction of warmed water from the ponds to Coyote Creek, thereby reducing water temperatures in the restored creek channel downstream of Ogier Ponds during warmer months (Valley Water 2023b ~~2023c~~). While spawning Pacific lamprey have a higher water temperature tolerance than steelhead, the reduced water temperatures would somewhat improve spawning suitability for Pacific lamprey as well. The Sediment Augmentation Program would create additional spawning habitat that would be usable by Pacific lamprey. Therefore, implementation of the FAHCE rule curves in combination with the Ogier Ponds CM, the Sediment Augmentation Program, and the increased flows conveyed through the maintained North Channel ~~Extension~~ would contribute to additional increases in Pacific lamprey production potential in Coyote Creek downstream of Anderson Dam.

Overall, the amount of spawning and incubation habitat under the Project would increase substantially compared to Pre-FERC Order Baseline with implementation of the FAHCE rule curves in the context of the restored and enhanced habitat under the aforementioned Conservation Measures, with overall benefits to Pacific lamprey.

Larval and Juvenile Rearing

The Project is predicted to slightly increase larval and juvenile rearing habitat for Pacific lamprey in Coyote Creek downstream of the dam compared with the Future Baseline. Rearing habitat for Pacific lamprey would decrease slightly compared with the Pre-FERC Order Baseline. This determination is primarily based on the wetted area predictions of the WEAP Model, with additional consideration of habitat restored and enhanced via Conservation Measures and modeled water temperatures during the year-round Pacific lamprey rearing period.

While water temperature tolerances of Pacific lamprey larvae and juveniles are not well understood, the limited available information suggests that suitable rearing temperatures correspond closely to the water temperatures used in the WEAP model to define the optimal growth range (50–65 °F) and survivable water temperatures (36–75 °F) for steelhead fry and juveniles. However, larval Pacific lamprey have been found where water temperatures are 75 °F or greater (*Section 3.4.2, Environmental Setting, Pacific Lamprey*, and Appendix F). Suitable rearing substrates differ considerably between the species, with Pacific lamprey larvae and juveniles requiring fine substrates (e.g., silt) along channel margins, in backwaters, and in other slow-water areas during their 4-8-year larval phase. Pacific lamprey larvae can withstand prolonged periods of dewatering if they can burrow deep enough in the fine substrate to remain wetted, making them more resilient to decreases in wetted area than steelhead.

With implementation of the FAHCE rule curves, flows under the Project would have spatially and temporally variable effects on wetted area in Coyote Creek compared with Pre-FERC Order Baseline and Future Baseline conditions. Average water temperatures during the warmest summer months would decrease at all locations in Coyote Creek under the Project compared with the Pre-FERC Order Baseline and Future Baseline. Although modeled average and daily maximum water temperatures at most locations under Pre-FERC Order Baseline and Future Baseline conditions are not predicted to exceed the presumed temperature tolerance of rearing Pacific lamprey larvae and juveniles (Appendix F), the reduced summer water temperatures as compared to both baselines would improve rearing conditions for Pacific lamprey during this portion of their year-round rearing period.

Compared with the Pre-FERC Order Baseline, the Project would result in decreased wetted area and lamprey rearing habitat in March and April at all locations because of reduced flows and would have variable effects on wetted area from December through February. Decreases or no change in wetted area and lamprey rearing habitat would occur in Coyote Creek from May through October as a result of slight, variable reductions in summer base flow and wetted area at most locations, with an increase in wetted area occurring only at POI COYO 10 during this period.

Compared with the Future Baseline, the WEAP Model results suggest the Project would have no effect or would slightly increase the amount of Pacific lamprey rearing habitat from December through April because of increased wetted area. The Project would have variable effects on rearing habitat availability and suitability during the summer and fall resulting from reduced wetted area for rearing but beneficial reductions in water temperature compared with the Future Baseline. Based on the results of the WEAP Model, the Project would have negligible effects on wetted area at POIs COYO 1–3 year-round and thus no appreciable changes to Pacific lamprey rearing habitat compared with the Future Baseline. At POIs COYO 4–9, increases or no change to wetted area would occur from December through April, and decreases to wetted area would occur at most of these locations from May through November. At POI COYO 10, small increases to wetted area and lamprey rearing habitat would occur from January through April, with substantial increases occurring from May through October compared with the Future Baseline. In November and December at POI COYO 10, the Project would result in decreases to wetted area and Pacific lamprey rearing habitat compared with the Future Baseline. As described previously, comparison with the Future Baseline provides a more accurate depiction of Project benefits than comparison with the Pre-FERC Order Baseline. Accordingly, effects of the Project on Pacific lamprey larval and juvenile rearing habitat are evaluated primarily by comparison with the Future Baseline. While the effects of the Project are predicted to be spatially and temporally variable, the Project would provide marginal benefits to rearing Pacific lamprey larvae and juveniles.

The Ogier Ponds CM would increase the amount of main channel habitat and improve river-riparian function in the restoration area, thereby enhancing natural sediment deposition processes that would ~~likely~~ provide localized areas of suitable rearing habitat for Pacific lamprey in combination with the FAHCE rule curves. By separating the ponds from the creek and restoring riverine function, the Ogier Ponds CM would also reduce spring, summer, and fall water temperatures in Coyote Creek downstream of the Ogier restoration area, thus improving rearing habitat suitability for Pacific lamprey downstream of Ogier Ponds. However, there is potential larval rearing habitat in Ogier Ponds under the Pre-FERC Order Baseline, which may be lost after construction of the Ogier Ponds CM in exchange for in channel habitat.

Overall, wetted area in Coyote Creek would be increased during winter and spring but reduced during summer and fall under the Project in comparison with the Future Baseline, resulting in little or no change to the amount of Pacific lamprey rearing habitat on an annual basis.

Adult Upstream Passage and Pre-Spawning Holding

During the adult Pacific lamprey upstream migration period (January 1–June 30), the WEAP Model results for thalweg depth indicate an average decrease of 5 days per year in modeled adult upstream passage opportunities in Coyote Creek under the Project compared with the Pre-FERC Order Baseline and the Future Baseline. Reductions in modeled daily average water temperature at all locations under the Project during the adult upstream migration period, and most substantially during May and June (Appendix F), would increase suitability for upstream passage by adult Pacific lamprey compared with the Pre-FERC Order Baseline and the Future Baseline. Considering both the slight reduction in passage days due to changes in thalweg depth and the increase in passage suitability due to reduced water temperature, the Project would have no effect on adult Pacific lamprey passage opportunities compared with both the Pre-FERC Order Baseline and the Future Baseline.

The pre-spawning holding stage begins when individuals cease upstream movement, generally in early summer, and continues until fish begin their secondary migration to spawn the following spring.

Based on the results of the WEAP Model, the Project would result in variable changes to pre-spawning holding habitat compared with the Pre-FERC Order Baseline, depending on the month and location within Coyote Creek. Reductions in modeled daily average water temperature at all locations under the Project, and most substantially during May and June (Appendix F), would increase suitability for pre-spawning holding by adult Pacific lamprey compared with the Pre-FERC Order Baseline and the Future Baseline. Although the WEAP Model predicts reductions in wetted area in summer at POIs COYO 4–9 under the Project compared with both the Pre-FERC Order Baseline and the Future Baseline, the reduction in daily average water temperature during this time provides cooler summer water temperatures that reduce the likelihood that the 68 °F (20 °C) optimal pre-spawning holding temperature threshold would be exceeded during this period. Although not considered in the WEAP water temperature modeling, the expected reduction in summer and fall water temperatures downstream of the Ogier Ponds restoration area following completion of the Ogier Ponds CM would also contribute to increased suitability for pre-spawning holding Pacific lamprey downstream of POI COYO 8. Despite the effects of reduced wetted area under the Project, the improvements in water temperature suitability for pre-spawning holding during summer would benefit adult Pacific lamprey pre-spawning holding compared with both the Pre-FERC Order Baseline and the Future Baseline.

Juvenile Downstream Passage

During the juvenile Pacific lamprey downstream migration period (December 1–May 31), the WEAP Model results for thalweg water depth indicate no change on average to downstream migration opportunities under the Project compared with the Pre-FERC Order Baseline and the Future Baseline. Based on these model results, and because outmigration by juvenile Pacific lamprey typically occurs during winter and spring high-flow events when water depth and water temperature are suitable, the Project would have no effect on juvenile Pacific lamprey downstream passage.

Post-Construction Instream Flows (FAHCE Rule Curves) Summary

Compared with the Future Baseline, the post-construction Anderson Dam and instream flows operations under the Project would have little or no adverse impacts on the Pacific lamprey population in Coyote Creek, with likely benefits to production. Compared with the Pre-FERC Order Baseline, the Project would slightly reduce juvenile rearing habitat for Pacific lamprey but, as previously described, comparisons with the Pre-FERC Order Baseline do not represent Project benefits as accurately as comparisons with the Future Baseline. Overall, The post-construction instream flows would benefit Pacific lamprey and have no impact on their population with regard to adverse impacts.

Post-Construction Seismic Retrofit and Conservation Measures Operations, Maintenance, and Adaptive Management

All post-construction monitoring and maintenance activities that were previously described in the steelhead and Chinook salmon equivalent sections that were covered by the DMP, SMP, and PMP also apply to the Pacific lamprey analysis and are not repeated here. Operational impacts or benefits specific to Pacific lamprey are discussed further in this section.

Anderson Dam Post-Construction Operations

Pacific lamprey would have the same short-term less than significant impacts from maintenance and monitoring and the same long-term benefits from more flexible operations of Anderson Dam as were described for steelhead. This includes operational flexibility that would benefit Pacific lamprey by allowing Valley Water to meet FAHCE temperature requirements for instream flows downstream of the dam. All maintenance is covered under the DMP, SMP, and PMP which are covered under additional permits. These improvements and programs would support a larger and more resilient Pacific lamprey population.

Ogier Ponds Conservation Measure Operations

The restored channel created via the Ogier Ponds Conservation Measure will operate and function as a natural creek channel. Weirs will be activated infrequently when flow levels reach 2000 cfs, and will be spillover, not requiring any actions. Pacific lamprey would have the same short-term less than significant impacts from maintenance and monitoring and the same benefits from a restored channel habitat as were described for steelhead. These improvements would support a larger and more resilient Pacific lamprey population.

North Channel Reach Maintenance and Monitoring ~~Extension Operations~~

Pacific lamprey would have the same short-term less-than-significant impacts from maintenance and monitoring and the same benefits ~~from enhanced passage of geomorphic flows and decreased stranding risk~~ as were described for steelhead. The operations of the North Channel will be monitored by the SMP and will be maintained to provide the benefits associated with reduced stranding and passage of geomorphic flows. These maintained improvements would support a larger and more resilient Pacific lamprey population.

Spawning Gravel and Rearing Habitat Enhancements in the Live Oak Restoration Reach ~~and Sediment Augmentation Program~~

Even though the goals and objectives of the spawning gravel and habitat enhancements in the Live Oak Restoration Reach ~~and Sediment Augmentation Program~~ are aimed at steelhead, there would be overlap with the gravel sizes Pacific lamprey need for spawning. This Program would improve spawning substrate and geomorphic processes within the CWMZ and reduce and reverse channel incision, benefiting Pacific lamprey their habitat. Maintenance would include placing gravel which would be covered under the SMP and its extensive BMPS, Pacific lamprey would have the same short-term less than significant impacts from maintenance and monitoring and the same benefits from long-term maintenance of spawning gravels and rearing habitat enhancements. Combined, these improvements would support a larger and more resilient Pacific lamprey population.

Sediment Augmentation Program

Even though the goals and objectives of the Sediment Augmentation Program are aimed at steelhead, the general improvement in geomorphic processes in Coyote Creek would benefit Pacific lamprey. This Program would improve geomorphic processes within the CWMZ and reduce and reverse channel incision, benefiting Pacific lamprey and their habitat. Maintenance would include placing sediment which would be covered under the SMP and its extensive BMPs, Pacific lamprey would have the same short-term less than significant impacts from maintenance and monitoring and the same benefits from long-term maintenance of the Sediment Augmentation Program. Combined, these improvements would support a larger and more resilient Pacific lamprey population.

Phase 2 Coyote Percolation Dam CM Operations

Operations of the Coyote Percolation Dam will provide safe, effective, and timely upstream and downstream passage of anadromous fish, including Pacific lamprey. Pacific lamprey would have the same short-term less-than-significant impacts from maintenance and monitoring and some of the same benefits from enhanced migration conditions from Coyote Percolation Dam operations as described for steelhead. These improvements would support a larger and more resilient Pacific lamprey.

Project and FAHCE Adaptive Management

As discussed for steelhead and Chinook salmon, refinements under the AMP would likely have impacts similar to those discussed in this EIR under Conservation Measures Construction but at a much smaller scale for Ogier Ponds CM and the Phase 2 Coyote Perc Dam. Similarly, adaptive management of the Sediment Augmentation Program and Live Oak Restoration Reach ongoing maintenance would have short-term impacts similar to those described for placement and ongoing, periodic maintenance of gravels. Therefore, some short-term impacts would be predicted if there are any construction components to the adaptive management of Conservation Measures and long-term benefits from operation of these Conservation Measures would be predicted given that the AMP focuses on enhancing steelhead and Chinook salmon habitat and Pacific lamprey have a lot of overlap in habitat needs with steelhead.

Under the AMP, there would be compliance monitoring, validation monitoring, effectiveness monitoring, and a long-term trend monitoring program. Compliance and validation monitoring would collect data through passive monitoring technology and habitat surveys and would have no impact on Pacific lamprey. Long-term trend monitoring would include passive monitoring such as VAKI Riverwatchers or PIT antennas using noninvasive technology and would have no impact on Pacific lamprey.

Long-term monitoring would also include stunning through electrofishing, capturing/netting, crowding, handling, DNA sampling, and PIT tagging steelhead which may incidentally stun, capture/net, or crowd adult Pacific lamprey in their pre-spawning holding life history stage. These activities can cause acute physiological stress and occasional (but rare) incidental injury and/or mortality. Often electrofishing settings aimed at steelhead are not as effective at stunning and capturing Pacific lamprey larvae burrowed in fine sediment but there may still be some stunning of larvae during electrofishing monitoring. Electrofishing would follow standard NMFS and CDFW survey protocols, which would minimize injury and mortality of Pacific lamprey during stunning, capturing, handling, and sampling steelhead.

The monitoring program would provide valuable long-term individual and population information for steelhead and Chinook salmon that could be used to adjust components of the Project through the AMP to be more beneficial to steelhead and Chinook salmon over the long term. Any adaptive management measures that are implemented would probably benefit Pacific lamprey as well, given common habitat needs with the focal fish species. Also, information about Pacific lamprey would be collected incidentally while monitoring steelhead and Chinook salmon. There are still many information gaps about Pacific lamprey life history, behavior, habitat needs, as well as their population. Any new information would help inform future conservation management efforts aimed at Pacific lamprey by providing best available information. Therefore, the impacts of monitoring activities implemented under the AMP would not be substantial and may prove to be beneficial for Pacific lamprey.

The post-construction operations flow releases from Anderson Dam may be modified in a Geomorphic Flows Plan (Section 2.4, *Overview of Project Components*) to achieve geomorphic function of the river system via floodplain inundation, spawning gravel maintenance, and channel formation. Implementation of geomorphic flows in conjunction with the Sediment Augmentation Program (Section 2.6.3, *Sediment Augmentation Program*) would address historical blockage of sediment by Anderson Dam and Reservoir restoring more natural geomorphic processes downstream of the dam benefiting Pacific lamprey and their habitat.

Overall, the Project and FAHCE AMP would benefit Pacific lamprey. Any adaptive measures with a construction component would likely have less than significant impacts on steelhead and long-term benefits

Significance Conclusion Summary for Pacific Lamprey

The Project would result in certain impacts on Pacific lamprey from Seismic Retrofit Project Construction; Conservation Measures Construction; Construction Monitoring; Post-Construction Instream Flows Operations; and Anderson Dam and Conservation Measures Maintenance, and Adaptive Management. The Project would benefit Pacific lamprey and their habitat through Seismic Retrofit Project operation; Conservation Measures operation; Construction Monitoring; Post-Construction Instream Flows Operations, and the Project and FACHE AMP. Overall, impacts on Pacific lamprey would be **less than significant** in the short term. There would be long-term benefits to the Pacific lamprey population and habitat.

Mitigation Measures

No mitigation is required.

Impact FR-1d: Sacramento Hitch **(Less than Significant)**

Seismic Retrofit Construction

Seismic Retrofit Construction Activities

Sacramento hitch are found in the reservoir, as well as below the dam. Limited sampling has occurred upstream of Anderson Reservoir; however, Sacramento hitch have been captured in Coyote Reservoirs and during recent fyke net trapping efforts during Anderson Reservoir dewatering in Coyote Creek (Leidy 2007; Valley Water 2020c, 2021d ~~2021c~~). Anderson Reservoir Fyke Trapping in fall 2020 and spring 2021 sampled the fish potentially moving from the reservoir to Coyote Creek during reservoir drawdown. A total of 62 live and 2 dead Sacramento hitch were captured during the fyke trapping efforts, suggesting that a population may be present in Anderson Reservoir, but since there was over 30 meters of channel upstream of the fyke trap, it cannot be confirmed if the hitch actually came from the reservoir or were just using that portion of the channel. Some exploratory sampling with an electrofishing boat in 2023 did not detect Sacramento hitch in the reservoir but the sampling was limited in coverage so cannot confirm hitch absence under existing conditions baseline and hitch can be reseeded in the reservoir from upstream locations and Coyote reservoir (Valley Water 2023c ~~C. Leal Pers. comm. 2023~~). These results indicate that at least some Sacramento hitch present during reservoir dewatering may successfully pass downstream and occupy stream habitats downstream of Anderson Dam, where Sacramento hitch are present (Leidy 2007, Valley Water 2021a).

Seismic Retrofit construction activities could impact Sacramento hitch individuals or their habitat in the reservoir pool and from immediately downstream of the dam to Alviso Slough. Construction activities within the reservoir would include dewatering of the reservoir to elev. 450 ~~467~~ feet during Year 1, elev. 450 feet during Year 2, elev. 453 feet during Years 3, 4, 5, and 6; installation of a cofferdam with sheet pile cutoff wall and temporary sediment check dams; construction of the Stage 2 diversion system; excavation and reconstruction of the dam including raising the dam crest; interim dam winterization; construction of the outlet works; and spillway replacement. In addition to reservoir dewatering, Seismic Retrofit construction may require some other localized dewatering within the construction footprint in the reservoir.

In Year 5, blasting at the BHBA could directly impact Sacramento hitch in the Anderson Reservoir if present. Blasting would occur throughout Year 5 (11 months) and blasting noise and vibrations may cause acute physiological stress, changes in behavior (e.g., changing from foraging to hiding), and, in extreme cases, injury or death if the noise and vibrations are substantial, close by, and/or repeated. Blasting procedures would be developed by a qualified blaster to control noise, air-overpressure, ground vibration, flyrock, and dust. The contractor would be required to implement minimization measures to limit noise generated by blasting to 75 dBA or less towards residential receptors which would also minimize noise and vibrations for Sacramento hitch. All impacts from noise and vibration disturbance from blasting at the BHBA are anticipated to be sublethal and not substantial to the Sacramento hitch population.

Sacramento hitch are present in Coyote Creek in various life stages throughout the year. Sacramento hitch can spawn as early as February and as late as July, hatching typically occurs within a week, and then young Sacramento hitch spend about 2 months in shallow water or near aquatic plant beds before moving to open water. Sacramento hitch are not migratory and would be present in Coyote Creek year-round.

Seismic Retrofit construction activities downstream of the dam would have the same impacts on Sacramento hitch as described for rearing steelhead. The specific project component aquatic species rescue and relocation plan for dewatering activities outlined in the Project Description would reduce impacts of fish stranding during dewatering activities by having each contractor develop an aquatic species rescue and relocation plan that would need prior approval by NMFS and CDFW prior to implementation during localized dewatering for relevant construction components (LLOW construction and~~,~~ Cochrane Rd realignment~~, North Channel Extension~~). BMP BI-2 will further restrict any routine in-channel vehicle traffic during construction activities to the dry season work window. BMPs and AMMs implemented to reduce impacts on steelhead will also reduce impacts from in-channel construction activities downstream of the dam on Sacramento hitch. Noise and vibration disturbance or injury risk would be the same for near channel work that is not in channel as described for steelhead.

Staging and stockpiling immediately downstream of the dam would have the same impacts on Sacramento hitch as described for steelhead. BMPs and AMMs implemented to reduce impacts on steelhead will also reduce impacts from staging and stockpiling downstream of the dam on Sacramento hitch. In Year 5, blasting at the BHBA would have the same impacts on Sacramento hitch immediately downstream of the dam as described for steelhead. Construction and use of the temporary access road would also have the same impacts on Sacramento hitch as described for steelhead. BMPs and AMMs implemented to reduce impacts from the temporary access road on steelhead would also reduce impacts on Sacramento hitch.

Sacramento hitch are abundant and widely distributed in Coyote Creek (Leidy 2007, Valley Water 2021a); therefore, overall impacts on the Sacramento hitch population from Seismic Retrofit construction would not be substantial.

Additionally, the seismically retrofitted dam would be allowed to refill once ~~seismic~~ restrictions are lifted allowing more available habitat in the reservoir and storage for cold water pool management post-construction compared to the existing conditions baseline and the new, multi-level intake structure would allow more precise temperature control on downstream releases relative to the existing conditions baseline in the long-term. Hitch have broader temperature tolerance than steelhead so it may not benefit them directly, but lower temperatures would decrease suitability for non-native species within the creek system which would be a benefit. With regard to adverse impacts of refilling the reservoir, there would be no impact.

Overall, Seismic Retrofit construction activities will adversely impact hitch, but the impacts will not be substantial with the application of BMPs, and AMMs; therefore, Seismic Retrofit construction activities impacts would be less than significant on Sacramento hitch.

Seismic Retrofit (Anderson Dam) and Instream Flows Operation during Seismic Retrofit Construction

This section analyzes the impacts of Seismic Retrofit (Anderson Dam) and instream flows operations downstream of Anderson Dam during Seismic Retrofit Construction on Sacramento hitch compared with the Pre-FERC Order Baseline.

During Seismic Retrofit construction, generally, there would be wet seasons, spring reservoir drawdown, and dry construction seasons. During the wet season, the outlet of the dam would be fully open and all inflows to the reservoir would be diverted and released downstream as quickly as possible given the type of diversion (Stage 1 or Stage 2). During the wet seasons and the spring drawdown, the Stage 2 diversion would be constructed allowing faster drawdown, up to 6,000 cfs, of reservoir storage when needed, a considerably higher conveyance capacity than the Stage 1 diversion even paired with the existing outlet. In April, or when conditions allow following April, the reservoir would be drawn down to the elevation needed to conduct construction activities during the dry construction season. The rate of drawdown would depend on antecedent conditions in the watershed and the type of diversion in place (Stage 1 or Stage 2) but should take about 2-4 weeks. Once the reservoir has been drawn down to the correct elevation to initiate in-channel work, then the construction activity for that year would commence and any inflows coming into the reservoir would be diverted (or sometimes pumped) around the work area and released downstream. Sacramento hitch, which are found in the reservoir as well as below the dam, could be entrained in the outlet or diversion systems during reservoir dewatering, which could result in injury or mortality; however, fyke trapping in 2020 and 2021 indicated that at least some Sacramento hitch may successfully pass through the outlet during reservoir dewatering with minimal or no injury or mortality. Rapid dewatering could strand individuals along the banks of the reservoir or trap them in pools as water levels decrease. Sacramento hitch could also become trapped between the dam and the cofferdam and become stranded if they do not make it through the dam and downstream. It is not feasible to conduct a fish rescue and relocation effort between the dam and the cofferdam because the muddy conditions make it hazardous and unsafe for staff. However, Sampling conducted in Anderson Reservoir using boat electrofishing in 2017 and 2019, which was distributed throughout all quadrants of the reservoir did not detect Sacramento hitch in the system (Valley Water 2020~~-~~). Additionally, exploratory electrofishing in the reservoir in 2023, during FOCP, did not detect any hitch but it was limited in area surveyed. Based on this sampling, the abundance of Sacramento hitch if present at all seems low. If they are present in the reservoir, they can be reseeded each wet season, and the abundance in the reservoir would be a very small percentage of the overall population in the Coyote Creek watershed. Additionally, despite implementation of the FOCP Reservoir Drawdown and Operations Plan, water temperatures in Anderson Reservoir have not yet exceeded suitable conditions for rearing Sacramento hitch (less than 86 °F [30 °C]) (Moyle 2002) and dry season temperatures during Project would be similar to existing conditions or colder once the chillers are installed.

The drawdown activities would not result in adverse impacts to Sacramento hitch in Coyote Creek. This species is adapted to variable flow conditions, are non-migratory and have a broad window that spawning can occur.

Therefore, overall, the impacts from Seismic Retrofit (Anderson Dam) and Instream Flows Operation would be less than significant for Sacramento hitch population and their habitat.

Hydrology

During construction, hydrology downstream of the dam would be more dynamic during the wet season and follow a more natural flow regime that is driven by precipitation (see Section 3.11, *Hydrology* ~~*Hyrdology*~~). Hitch are well adapted to changing flow conditions in coastal watersheds and changes in hydrology would have no impact on hitch. Higher flows during Project construction may provide geomorphic processes~~)~~. Operation of Coyote Reservoir, bypassing flows through Anderson Reservoir to Coyote Creek, augmentation of streamflow in the FCWMZ using native water released through the dam, supplemented by imported water released through CDL, and additional downstream instream flow augmentation via the Cross Valley

Pipeline Extension following its construction, Valley Water would maintain suitable habitat for Sacramento hitch. Also, installation of the Cross Valley Pipeline Extension would help to maintain habitat used by Sacramento hitch in the reaches downstream of Ogier Pond. Therefore, overall, the impacts from changes in hydrology would be less than significant for Sacramento hitch population and their habitat.

Water Quality – Dissolved Oxygen and Temperature

Water quality is potentially limiting in the dry construction season when there is more risk of temperature increases and associated potential declines in dissolved oxygen. During the dry season work window, inflows passed through the reservoir combined with chilled water from the CDL would be at least 10 cfs. Chillers would be used to chill up to 10 cfs of imported water to within a more suitable temperature range for steelhead which is within the wide range of temperatures suitable for hitch and associated DO would also be in the suitable range for hitch so there would be no impacts from changes in DO and temperature on Sacramento hitch. Also imported water releases from the Cross Valley Pipeline Extension would continue to be used for groundwater recharge and to provide incidental instream flows to prevent dryback downstream of Ogier Ponds.

Water Quality - Sediment Transport During Wet Seasons and Spring Drawdown

During the wet season and spring drawdown, water would be drawn down quickly under the Stage 2 diversion. Drawing water down faster and keeping a lower elevation in the reservoir would result in increased sediment erosion and transport downstream during drawdowns and high-flow events following precipitation. This section evaluates the impacts of increased erosion and sediment transport in Coyote Creek to Alviso slough when bypassing flows from the reservoir to the creek during the wet season and during spring drawdowns. Effects of wet season bypass and reservoir drawdown on hitch within the reservoir are considered in the section above.

Sacramento hitch are assumed to be present within Coyote Creek from the estuary to Anderson Dam, spawning in the clean gravel of riffles after increased flows resulting from spring rains (Moyle 2002). Sacramento hitch are adapted to the high disturbance regimes typical of lower reaches of central coast watersheds, including warm water, and periodic increases in flow and suspended sediment (Moyle et al. 1982 ~~and Daniels 1982~~, Moyle 2002). Under all of the modeled sediment transport scenarios in all construction years, suspended sediment was not predicted to be high enough or to persist long enough in duration to pose a substantial risk to Sacramento hitch (Appendix F ~~G~~).

Following Year 6, the reservoir would be allowed to refill via inflows and, if possible, imported water up to the new maximum level and the FAHCE rule curves would be initiated. With the reservoir refilled, suspended sediment would decrease during constant inflow or precipitation events because the full reservoir would re-inundate previously exposed erodible and suspended sediment would return to near Pre-FERC Order Baseline Conditions.

Non-Native Species

Under existing conditions and construction, the assemblage or distribution of non-native fish species in Coyote Creek is not expected to change. Changes associated with the project will not provide habitat that is more suitable. The Anderson Reservoir drawdown activities could create conditions that may allow for increase access of non-native species to Coyote Creek. Actions taken by Valley Water during sampling activities and construction related dewatering will help reduce the abundance of non-native species. For the same reasons outlined here and further analyzed in the steelhead section, impacts on Sacramento hitch from the release of non-native species from Anderson Reservoir downstream would not be significant.

Instream Flows During Construction Summary

Overall, instream flows would maintain Sacramento hitch throughout the entire construction phase of the Project by providing flows, sediment concentrations, temperatures, and DO within a range that can support Sacramento hitch in Coyote Creek downstream of the dam. Also, compared to Pre-FERC Order Conditions flows bypassed through the reservoir would result in variable flows downstream, which is presumably beneficial for the native hitch that evolved in dynamic aquatic habitats.

Therefore, overall, the impacts from instream flows during construction would be less than significant for Sacramento hitch population and their habitat.

Conservation Measures Construction

The following Conservation Measures, Normal Operation of Coyote Reservoir and Construction Period Imported Water Releases and Operation of Chillers, do not have a construction component and were previously considered as part of the *Instream Flows during Seismic Retrofit Construction* under the *Seismic Retrofit Construction Activities Impacts Analysis,* so they are not discussed further in this section.

Impacts resulting from construction activities for the Conservation Measures that require construction are considered in this section. Conservation measure construction could impact Sacramento hitch in the short-term but would benefit Sacramento hitch in the long-term. Conservation Measure construction components that could impact Sacramento hitch are assessed in further detail in this section.

Ogier Ponds Conservation Measure Project

Similar to what was described above for steelhead, the Ogier Ponds CM would benefit Sacramento hitch through improved water quality (i.e., lower water temperature), enhanced fish passage, and reduced habitat for warm water, non-native fish, particularly that of predatory species, in the system compared to Pre-FERC Order and existing conditions. Construction of the Ogier Ponds CM could have short-term impacts on Sacramento hitch during localized dewatering and in-channel and near-channel construction activities that could degrade water quality downstream of the Ogier Ponds.

In-channel construction activities for the Ogier Ponds CM would have the similar impacts on Sacramento hitch as described for rearing steelhead, but the dry season work window and BMP BI-2 would not reduce impacts on Sacramento hitch because they can occur from the dam to Alviso Slough year-round, so impact reduction would mostly come from the aquatic species rescue and relocation plan that would be developed for Ogier Ponds CM. However, the in-dry season work window would minimize some impacts during part of the spawning season. Also, Sacramento hitch are more ubiquitous throughout Coyote Creek than steelhead, so localized effects would not impair the population of hitch within the Creek.

Noise and vibration disturbance or injury would be the same for near channel work that is not in-channel as described for steelhead. Cofferdam installation and diverting water around the work area would restrict rearing habitat and limit access to the FCWMZ upstream of Ogier Ponds. BMPs and AMMs implemented to reduce impacts on steelhead would also reduce impacts on Sacramento hitch from cofferdam installation and diverting water around the Ogier Ponds work area.

Excavation of ponds and new creek channel, filling of ponds, and staging and stockpiling for the Ogier Ponds CM would have the same impacts on Sacramento hitch as described for steelhead. BMPs and AMMs implemented to reduce impacts on steelhead would also reduce impacts from staging and stockpiling downstream of the dam on Sacramento hitch. Clearing and grubbing would remove vegetation and roots from the flood plain in preparation for excavation of the channel leading to some loss of habitat complexity for Sacramento hitch; however, adequately sized trees would be kept in place whenever feasible and, once the channel is reestablished in that area, the riparian corridor would be revegetated with native plants, benefiting fish habitat in the newly established channel.

The restored channel created via the Ogier Ponds CM will operate and function as a natural creek channel. There will be no management of flows or manipulation of features as a result of operations. Weirs will be activated infrequently when flow levels reach 2000 cfs and will be spillover, not requiring any actions.

Overall, Sacramento hitch are abundant in the watershed and occur upstream and downstream of Anderson Dam. They would be rescued and relocated during localized dewatering and the other identified BMPs and AMMs will minimize construction impacts. They are tolerant of warm temperatures and non-migratory, so temporary dewatered portions of the channel would not interfere with movement of the species. This species also tolerant of capture and handling that may occur during the relocation effort. For these reasons, Ogier Ponds CM construction would have less-than-significant impacts on Sacramento hitch in the short-term. Over the long-term, Sacramento hitch would benefit from improved water quality and decreased habitat for warm water, non-native predatory fish in the system.

Maintenance of the North Channel Reach ~~*North Channel Extension and Habitat Enhancement*~~

If there is water in the North Channel and Sacramento hitch are present, localized dewatering during ~~construction~~ maintenance activities could strand or trap them in pools, subjecting them to increased predation pressure or water quality degradation. Similar to what was described above for steelhead, Sacramento hitch would be rescued, relocated, and/or excluded from the ~~excluded with nets and a cofferdam would be built at the lower limit of the backwater to keep water from entering the~~ work area. ~~An aquatic species rescue and relocation plan for the North Channel Extension and Habitat Enhancement would reduce impacts of fish stranding during dewatering by implementing a fish rescue and relocation effort where any remaining Sacramento hitch in the upstream pool would be captured and relocated prior to and during dewatering the pool.~~ Pollution from construction equipment or sediment-laden materials could enter the channel if the channel were activated during high flows, but unlikely since all work will be conducted during the dry season. BMPs and AMMs implemented to reduce impacts on steelhead would also reduce impacts on Sacramento hitch.

~~Grading the North Channel to create positive drainage toward the existing south channel confluence and backwater and elimination of deep pools in the existing wetted channel is not anticipated to impact Sacramento hitch because they would have already been excluded from the work area and the area would be dewatered. Similar to steelhead, over the long-term, Sacramento hitch would benefit from reduced stranding and predation in the existing North Channel pools when they dewater following activation. Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach will maintain hitch spawning habitat that was improved under FOCP.~~

~~The continued placement of spawning gravels within Live Oak Restoration Reach proposed by this Project will incidentally provide new and enhanced spawning and rearing habitat for Sacramento hitch during the construction phase and after completion.~~ There may be temporary adverse effects during implementation, but through AMMs and BMPs those effects are reduced. The maintenance of the ~~Live Oak Restoration Reach~~ North Channel would have a long-term benefit for Sacramento hitch by maintaining spawning and other habitats that was enhanced during FOCP by directing high flows through the North Channel.

~~Placement of gravels has the potential to degrade water quality downstream of the work area if gravels and associated fine sediment enter the stream at the time of placement, which could impact hitch. However, gravels would not be placed directly in the channel, but would be placed adjacent to the channel or on benches above the channel so there would be no impact from introducing gravels to the channel at the time of placement. Also, when flows are high enough to mobilize the gravels in the gravel augmentation piles, there would already be elevated background levels of suspended sediment; therefore, additional sediment from the gravel piles would not add substantially to the total sediment that is already suspended during high flows.~~

~~Though it is not anticipated that gravels and associated fine sediment would enter the stream at the time of placement, measures would be implemented to protect Sacramento hitch in the unlikely event that this occurs. BMPs and AMMs implemented to reduce impacts on steelhead would also reduce impacts on Sacramento hitch by minimizing pollution to enter the channel from equipment or staging and stockpiling areas.~~

In the short term, construction impacts on Sacramento hitch would be less than significant. Over the long term, Sacramento hitch would benefit from Maintenance of the North Channel ~~Extension~~ Reach and helping maintain ~~maintaining~~ Live Oak Restoration Reach habitat that was enhanced during FOCP.

Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach

For the same reasons described for rearing steelhead, in the short-term, impacts on Sacramento hitch from placement and maintenance of spawning gravels during the dry season work window would be less than significant and, over the long-term, Sacramento hitch would benefit from Project maintenance of spawning habitat that was enhanced during FOCP.

Though it is not anticipated that fine sediment would enter the stream at the time of placement, measures would be implemented to protect Sacramento hitch in the unlikely event that this occurs. BMPs and AMMs implemented to reduce impacts on steelhead would also reduce impacts on Sacramento hitch by minimizing pollution to enter the channel from equipment or staging and stockpiling areas.

In the short-term, impacts on Sacramento hitch would not be substantial. Over the long-term, Sacramento hitch would benefit from maintaining spawning habitat that was enhanced during FOCP.

Sediment Augmentation Program

The Sediment Augmentation Program would improve geomorphic processes that create and maintain spawning habitat and reduce and reverse channel incision, benefiting Sacramento hitch in Coyote Creek. Sediment would be placed on the benches next to the channel in the CWMZ so that it would be mobilized during high-flow events. Placement of sediment has the potential to degrade water quality downstream of the work area if sediment enters the stream at the time of placement which could impact Sacramento hitch. However, sediment would be placed during the dry weather work window and would not be placed directly in the channel expect for the toe of the sediment pile and the rest ~~but~~ would be placed adjacent to the channel or on benches above the channel so there would be minimal ~~no~~ impact from introducing sediment to the channel at the time of placement. A small rise in suspended sediment could occur when sediment is mobilized during high-flow events which may cause acute physiological stress and impeded foraging ability in Sacramento hitch. However, the increased turbidity and any associated stress and impeded foraging would resolve quickly (less than 8 hours) and would not be sufficient in terms of sediment concentrations or duration to adversely impact Sacramento hitch. Furthermore, when flows are high enough to mobilize the sediment in the sediment augmentation piles there would already be elevated background levels of suspended sediment; therefore, additional sediment from the piles would not add substantially to the total sediment that is already suspended during high flows.

Disturbance or injury impacts and measures to protect Sacramento hitch would be the same as described for steelhead. In the short term, Sediment Augmentation Program impacts on Sacramento hitch would be less than significant. Over the long-term, Sacramento hitch would benefit from improved geomorphic processes that create and maintain spawning habitat and reduce and reverse channel incision.

Phase 2 Coyote Percolation Dam CM

Construction for the Phase 2 Coyote Percolation Dam CM requires localized dewatering during construction activities which has the potential to strand Sacramento hitch or trap them in pools, subjecting them to increased predation pressure or water quality degradation. Construction activities also have the potential to degrade water quality downstream of the work area due to increased suspended sediment or other materials in the water.

Similar to what was described above for steelhead, Sacramento hitch would be excluded from the work area with block nets and/or captured and relocated prior to and during dewatering. A dewatering and aquatic species rescue and relocation plan for the Phase 2 Coyote Percolation Dam CM would reduce impacts of fish stranding during localized dewatering by implementing a fish rescue and relocation effort. Expected acute physiological stress during rescue and relocation would be a lesser impact than likely mortality due to stranding, predation, and/or deteriorating water quality conditions if rescue and relocation during localized dewatering were not implemented. BMPs and AMMs implemented to reduce impacts from dewatering on steelhead will also reduce impacts on Sacramento hitch.

Sediment entering the channel from the construction work area would have the same impacts as described for steelhead, except the hitch are generally more tolerant of sediment than steelhead. BMPs and AMMs implemented to reduce impacts on steelhead, such as installing erosion control measures and minimizing pollution from construction equipment, would also reduce impacts from sediment on Sacramento hitch.

Overall, Phase 2 Coyote Percolation Dam CM construction would have less-than-significant impacts on Sacramento hitch.

Construction Monitoring

Construction Phase Fisheries Monitoring

Fisheries monitoring would provide valuable information to inform management of steelhead and other species in the study area and guide Valley Water and regulatory agencies in decision-making regarding the steelhead Fish Rescue and Relocation Plan. Water ~~temperature~~ quality monitoring, suspended sediment monitoring, sediment deposition monitoring, VAKI Riverwatcher adult escapement monitoring, spawning surveys, eDNA, ~~and~~ migration flow monitoring, PIT tag migration study, growth comparative study, non-native control methods, reptile monitoring, and terrestrial animal monitoring ~~are all non-invasive monitoring methods targeting steelhead data collection that~~ would have no impacts on Sacramento hitch. Sensitive habitat monitoring and groundwater monitoring would not adversely impact Sacramento hitch as these studies do not require in-channel sampling. Groundwater monitoring would not adversely impact Sacramento hitch because monitoring wells are located outside the active channel of Coyote Creek.

Sacramento hitch may be unintentionally captured during juvenile rearing studies ~~fishing surveys~~. Capturing and handling Sacramento hitch could cause acute physiological stress. Injury and mortality are rare but happen occasionally. Valley Water would be subject to the terms and conditions of their California Scientific Collecting Permits which include impact avoidance and minimization measures during these studies.

Construction Phase Fish Rescue and Relocation; Juvenile Rearing, Migration, and Growth

If monitoring of water temperature and DO indicates that conditions for rearing steelhead would become unsuitable within the Coyote Creek FCWMZ as a result of Seismic Retrofit construction activities, steelhead and Pacific lamprey would be rescued and relocated per the Fish Rescue and Relocation Plan. Capture methods would include backpack electrofishing and/or seining. Sacramento hitch may be incidentally captured during the steelhead and Pacific lamprey rescue efforts but would not be relocated as the species is more tolerant of high temperatures than steelhead (Moyle 2002, Leidy 2007). Also, Sacramento hitch may be captured during the juvenile rearing sampling which uses the same backpack electrofishing methods Sacramento hitch may be stunned/netted, captured, and handled causing acute physiological stress that would be temporary. Injury or mortality can happen occasionally but are rare. Most Sacramento hitch tolerate capture and handling and would be released quickly after capture to minimize this impact.

Invasive Species Monitoring and Control Plan

Impacts on and benefits to Sacramento hitch from implementing the Invasive Species Monitoring and Control Plan would be the same as outlined for steelhead. This plan would result in a reduction to potential predators to Pacific lamprey and would benefit the species in the short term.

Construction Monitoring Summary

Overall, construction monitoring would result in short-term, less-than-significant impacts on Sacramento hitch. In the long-term, data collection on the species and its habitat will allow Valley Water to better understand the species and guide any management that may be necessary.

Post-Construction Instream Flows Operations (FAHCE Rule Curves)

This section analyzes the impacts and benefits of implementing the FAHCE rule curves (i.e., the Project) compared with Pre-FERC Order Baseline Conditions and Future Baseline conditions downstream of the dam. Spawning and Incubation Habitat (February through July)

The Project is predicted to result in an increase in spawning and incubation habitat for Sacramento hitch. The steelhead section provides discussion of the extensive spawning habitat that was created under FOCP and would be maintained under the Project. Sacramento hitch have a wider range of physiological tolerance for temperatures and often spawn in warmer waters than steelhead. However, the steelhead spawning habitat restoration efforts would include gravels through both Maintenance of Live Oak Restoration Reach Conservation Measures and the Sediment Augmentation Program Conservation Measures. These programs maintain gravels sizes on a long-term basis that are also used by Sacramento hitch for spawning. Given a preference to spawn in slightly warmer waters, Sacramento hitch may shift their spawning habitat downstream once the FAHCE rule curves are implemented but spawning habitat should remain plentiful for Sacramento hitch, and the post-construction operations would result in similar amounts of spawning habitat while the restoration projects would increase spawning habitat.

The spawning and incubation habitat available for Sacramento hitch that might be present in the reservoir will not differ greatly compared to Pre-FERC Order Conditions. The reservoir operations will not reduce access to the habitat in the upstream creek systems.

Overall, the amount of spawning and incubation habitat under the Project would increase in Coyote Creek but may shift slightly downstream as compared to the Pre-FERC Order and future conditions baselines to remain in warmer waters once the FAHCE rule curves are implemented. If Sacramento hitch are present in Anderson Reservoir post construction operations will not influence access to spawning habitat.

Rearing

The Project is predicted to result in an increase in rearing habitat for Sacramento hitch compared to Pre-FERC Order and future conditions baseline. The steelhead section provides discussion of the extensive rearing habitat that was created under FOCP and would be maintained under the Project. Sacramento hitch have a wider range of physiological tolerance for temperatures and can tolerate warmer waters than steelhead. Therefore, all of the rearing habitat created for steelhead would also be usable by Sacramento hitch for rearing. The Sacramento hitch population is abundant, and habitat is plentiful in the watershed. Also, Sacramento hitch occur in the Coyote reservoir and tributaries and can continue to provide new Sacramento hitch downstream during high-flow events.

Overall, the amount of rearing habitat under the Project would increase.

Post-Construction Instream Flows (FAHCE Rule Curves) Summary

The post-construction instream flows would have no adverse impact on the Sacramento hitch population or its habitat, and would increase the amount of spawning, incubation and rearing habitat compared to Pre-FERC Order and future conditions.

Post-Construction Seismic Retrofit and Conservation Measures Operations, Maintenance, and Adaptive Management

All post-construction monitoring and maintenance activities that were previously described in the steelhead and Chinook salmon equivalent sections that were covered by the DMP, SMP, and PMP also apply to the Sacramento hitch analysis and are not repeated here. Anderson Dam and Conservation Measures post-construction maintenance would have less-than-significant impacts on Sacramento hitch in the short term and operations, maintenance, and monitoring would have long-term benefits to southern coastal roach and their habitat.

Anderson Dam Post-Construction Operations, Maintenance, and Monitoring

Sacramento hitch would have the same short-term less than significant impacts from Anderson Dam maintenance and monitoring as steelhead. Sacramento hitch may benefit from more flexible operations of Anderson Dam as were described for steelhead. However, Sacramento hitch have high-temperature tolerance, therefore benefits or impacts from dam operations would be negligible for the Sacramento hitch population in the watershed.

Ogier Ponds CM Operations, Maintenance, and Monitoring

The restored channel created via the Ogier Ponds CM will operate and function as a natural creek channel. There will be no management of flows or manipulation of features as a result of operations. Weirs will be activated infrequently when flow levels reach 2000 cfs and will be spillover, not requiring any actions.

Sacramento hitch would have the same short-term less-than-significant impacts from operations, maintenance and monitoring and the same benefits from a restored channel as were described for steelhead. These improvements are expected to support a larger and more resilient Sacramento hitch population in the watershed.

North Channel Reach ~~Extension~~ Operations, Maintenance, and Monitoring

Sacramento hitch would have the same short-term, less-than-significant impacts and the same benefits from enhanced conveyance of geomorphic flows and decreased stranding risk as were described for steelhead. These improvements would support a larger and more resilient Sacramento hitch population in the watershed.

Spawning Gravel and Rearing Habitat Enhancements in the Live Oak Restoration Reach ~~and Sediment Augmentation Program~~ Operations, Maintenance, and Monitoring

Sacramento hitch would have the same short-term, less-than-significant impacts as described for steelhead. Even though the goals and objectives of the spawning gravel ~~and sediment augmentation program~~ are aimed at steelhead, there would be overlap with the gravel sizes Sacramento hitch need for egg incubation and other habitat needs (Moyle 2002) providing a benefit. These improvements would support a larger and more resilient Sacramento hitch population.

Sediment Augmentation Program Maintenance, and Monitoring

Sacramento hitch would have the same short-term, less-than-significant impacts as described for steelhead. Even though the goals and objectives of the Sediment Augmentation Program are aimed at steelhead, the general improvement in geomorphic processes in Coyote Creek would benefit Sacramento hitch as well (Moyle 2002). These improvements would support a larger and more resilient Sacramento hitch population.

Phase 2 Coyote Percolation Dam CM Operations, Maintenance, and Monitoring

Sacramento hitch would have the same short-term, less-than-significant impacts from maintenance of Phase 2 Coyote Percolation Dam as described for steelhead. Sacramento hitch are non-migratory so there would be no impact from post-construction operations of the Coyote Percolation Dam long-term.

Project and FAHCE Adaptive Management

As discussed for steelhead, Chinook salmon, and Pacific lamprey, refinements under the AMP would likely have impacts similar to those discussed in this EIR under Conservation Measures Construction but at a much smaller scale for Ogier Ponds and the Coyote Percolation Dam. Therefore, some short-term impacts would be predicted if there are any construction components to the adaptive management measures and long-term benefits would be predicted given that the AMP is aimed at enhancing steelhead and Chinook salmon habitat, and Sacramento hitch have less stringent habitat needs.

Under the AMP, there would be compliance monitoring, validation monitoring, effectiveness monitoring, and a long-term trend monitoring program. Compliance and validation monitoring would collect data through passive monitoring technology and habitat surveys and would have no impact on Sacramento hitch. Long-term trend monitoring would include passive monitoring such as VAKI Riverwatchers or PIT tag readers using noninvasive technology and would have no impact on Sacramento hitch.

Long-term monitoring would also include stunning through electrofishing, capturing/netting, crowding, handling, DNA sampling, and PIT tagging steelhead. These activities can cause acute physiological stress and occasional (but rare) incidental injury and/or mortality if Sacramento hitch are stunned, captured and handled during electrofishing surveys for steelhead. Backpack electrofishing surveys are limited to relatively shallow habitats and will not cover deeper habitats where Sacramento hitch may be abundant. Electrofishing would follow standard NMFS and CDFW survey protocols, which would minimize injury and mortality of Sacramento hitch during stunning, handling, and sampling.

The monitoring program would provide valuable long-term individual and population information for steelhead, Chinook salmon, and Sacramento hitch, that could be used to adjust components of the Project through the AMP to be more beneficial to native fish over the long term. Any adaptive management measures that are implemented would likely benefit Sacramento hitch as well. Information about Sacramento hitch would also be collected while monitoring steelhead and Chinook salmon. Any new information would help inform future conservation management efforts aimed at Sacramento hitch by providing best available information. Therefore, the impacts of monitoring activities implemented under the AMP would not be substantial and may prove to be beneficial for Sacramento hitch.

The post-construction operations flow releases from Anderson Dam may also be modified to achieve better geomorphic function of the river system via floodplain inundation, spawning gravel maintenance, and channel formation which would address historical blockage of sediment by Anderson Dam and Reservoir restoring more natural geomorphic processes downstream of the dam benefiting Sacramento hitch and their habitat.

Therefore, there would be less-than-significant, short-term impacts on Sacramento hitch from Project and FAHCE adaptive management and likely long-term benefits.

Significance Conclusion Summary for Sacramento Hitch

The Project would result in less than significant impacts on Sacramento hitch from Seismic Retrofit Project Construction; Conservation Measures Construction; Construction Monitoring; Post-Construction Instream Flows Operations; and Anderson Dam and Conservation Measures Maintenance and Adaptive Management. The Project would benefit Sacramento hitch and their habitat through Conservation Measures Construction; and Anderson Dam and Conservation Measures Operations, Maintenance, and Adaptive Management. Overall, impacts on Sacramento hitch would be short-term and **less than significant**. There would be long-term benefits to the Sacramento hitch population and habitat.

Mitigation Measures

No mitigation is required.

Impact FR-1e: Southern Coastal Roach (Less than Significant)

Seismic Retrofit Construction

Seismic Retrofit Construction Activities

Construction activities in the construction footprint could impact southern coastal roach individuals or their habitat from immediately downstream of Anderson Dam to Alviso Slough. Construction activities upstream of the dam in the reservoir would not impact southern coastal roach individuals directly as this species has not been observed in the reservoir (Valley Water 2020c ~~2019c~~). There would be increased sediment transport compared with the existing conditions baseline when the reservoir is held at low elevations because sediment that is usually inundated in the reservoir would be exposed and become more erodible during precipitation events. While associated with construction, sediment transport downstream of the dam is more applicable to the construction phase flow operations that would carry the sediment downstream; therefore, impacts from increased sediment transport on coastal roach downstream of the dam are analyzed in the next section *Seismic Retrofit (Anderson Dam) and Instream Flows Operations during Seismic Retrofit Construction* while this section analyzes the impacts of seismic retrofit construction activities (e.g., excavation, fill, use of heavy equipment, pile driving, staging, and stockpiling, etc.).

Southern coastal roach are present in Coyote Creek in various life stages throughout the year. Southern coastal roach would be present in Coyote Creek year-round but spawning specifically takes place between March and July. Southern coastal roach occupy similar habitats as Sacramento hitch in Coyote Creek downstream of the dam; impacts on southern coastal roach from construction activities downstream of the dam would be the same as those described for Sacramento hitch.

Southern coastal roach could be impacted by in-channel construction activities, in-channel and near channel noise and vibration, excavation, fill, heavy equipment operation and potential for decreased water quality from pollution from those activities as well as staging and stockpiling area and associated equipment. Pollutants discharged may include increased sediment in Coyote Creek, fuels, lubricants and other construction related pollutants. The specific Project component aquatic species fish rescue and relocation plans for dewatering activities outlined in the Project Description would reduce impacts of fish stranding during localized dewatering activities as discussed for hitch. BMP BI-2 will minimize some impacts of construction activities on spawning but would not address other life stages.

Overall, Seismic Retrofit construction activities will adversely impact southern coastal roach downstream of the dam, but the impacts will not be substantial with the application of relevant BMPs and AMMs, and after application of the dewatering and aquatic species rescue and recovery plans for localized dewatering; therefore, Seismic Retrofit construction activities impacts would be less than significant on southern coastal roach.

Seismic Retrofit (Anderson Dam) and Instream Flows Operations during Seismic Retrofit Construction

Impacts and benefits from Anderson Dam and instream flows operations during Seismic Retrofit construction on southern coastal roach would be essentially the same as those described for Sacramento hitch downstream of the dam because the two species overlap considerably in habitat needs and both could occur downstream of the dam to Alviso Slough. Overall, the impacts from Anderson Dam and instream flows operations during construction would be less than significant for the southern coastal roach population and habitat.

Conservation Measures Construction

The following Conservation Measures, Normal Operation of Coyote Reservoir and Construction Period Imported Water Releases and the Operation of Chillers, do not have a construction component and were previously considered as part of the *Instream Flows during Seismic Retrofit Construction* under the *Seismic Retrofit Construction Activities Impacts Analysis,* so they are not discussed further in this section.

Construction activities for the Conservation Measures that require construction are considered in this section. Conservation Measures construction could impact southern coastal roach in the short-term but would benefit southern coastal roach in the long-term. Conservation measure construction components that could impact southern coastal roach are assessed in further detail in this section.

Ogier Ponds CM

Similar to what was described above for steelhead, the Ogier Ponds CM would benefit southern coastal roach through increased rearing habitat, improved water quality (i.e., lower water temperature), enhanced fish passage, and reduced habitat for warm water, non-native fish, particularly that of predatory species, in the system compared to Pre-FERC Order Conditions. Construction of the Ogier Ponds CM could have short-term impacts on southern coastal roach during localized dewatering and in-channel and near-channel construction activities that could degrade water quality downstream of the Ogier Ponds.

In-channel and near channel construction activities for the Ogier Ponds CM would have the same impacts on southern coastal roach as described for Sacramento hitch. The dry season work window would minimize some impacts on spawning, but individuals would be present year-round. The same BMPs, AMMs, dewatering, and aquatic species rescue and relocation plan for localized dewatering will also apply to southern coastal roach.

Southern coastal roach are common in reaches that support native fish and are less common in reaches with non-native, particularly predatory species (Moyle 2002). One of the results of the Ogier Ponds CM would be to reduce habitat for non-native, piscivorous species which would benefit southern coastal roach.

The restored channel created via the Ogier Ponds CM will operate and function as a natural creek channel. There will be no management of flows or manipulation of features as a result of operations. Weirs will be activated infrequently when flow levels reach 2000 cfs and will be spillover, not requiring any actions.

Overall, southern coastal roach are abundant in the watershed and occur downstream of Anderson Dam. They would be rescued and relocated during localized dewatering and the other identified BMPs and AMMs would minimize construction impacts. They are tolerant of warm temperatures and non-migratory so temporary dewatered portions of the channel would not interfere with important life history phases that require migration. For these reasons, Ogier Ponds CM construction would have less-than-significant impacts on southern coastal roach in the short-term. Over the long-term, southern coastal roach would benefit from improved water quality and decreased habitat for warm water, non-native predatory fish in the system.

Maintenance of the North Channel Reach ~~North Channel Extension~~

If there is water in the North Channel and southern coastal roach are present, localized dewatering during ~~construction~~ maintenance activities could strand or trap them in pools, subjecting them to increased predation pressure or water quality degradation. Similar to what was described above for steelhead, ~~southern coastal roach would be excluded with nets and a cofferdam would be built at the lower limit of the backwater to keep water from entering the work area. The~~ the Aquatic Species Rescue and Relocation Plan for Maintenance of the North Channel ~~Extension~~ Reach would reduce impacts of fish stranding during dewatering by implementing a fish rescue and relocation effort where any remaining southern coastal roach in any ~~the upstream~~ pools would be captured and relocated prior to and during dewatering the pool. Pollution from construction equipment or sediment-laden materials could enter the channel when it is activated during high flows. BMPs and AMMs implemented to reduce impacts on steelhead will also reduce impacts on southern coastal roach so that they are less than significant.

~~Grading the North Channel to create positive drainage toward the existing confluence with the South Channel backwater and elimination of deep pools in the existing wetted channel is not anticipated to impact southern coastal roach, because they would have already been excluded from the work area and the area would be dewatered.~~ Similar to Sacramento hitch, over the long term, southern coastal roach would benefit from the protection of enhanced habitat in the South Channel by high flow conveyance through the North Channel. ~~reduced stranding and predation in the existing North Channel pools when they dewater following activation.~~

Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach

For the same reasons described for Sacramento hitch, in the short-term, impacts on southern coastal roach from placement and maintenance of spawning gravels during the dry season work window would be less than significant and, over the long-term, southern coastal roach would benefit from Project maintenance of spawning habitat that was enhanced during FOCP.

Though it is not anticipated that ~~gravels and associated~~ fine sediment would enter the stream at the time of placement, measures would be implemented to protect southern coastal roach in the unlikely event that this occurs. BMPs and AMMs implemented to reduce impacts on steelhead would also reduce impacts on southern coastal roach by minimizing pollution to enter the channel from equipment or staging and stockpiling areas.

In the short-term, impacts on southern coastal roach would not be substantial. Over the long-term, southern coastal roach would benefit from maintaining spawning habitat that was enhanced during FOCP.

Sediment Augmentation Program

The Sediment Augmentation Program would improve geomorphic processes that create and maintain spawning habitat and reduce and reverse channel incision, benefiting southern coastal roach in Coyote Creek. Sediment would be placed on the benches next to the channel in the FCWMZ during the dry season work window, so that it would be mobilized during high-flow events. Placement of sediment has the potential to degrade water quality downstream of the work area if sediment enters the stream at the time of placement which could impact southern coastal roach. However, sediment would not be placed directly in the channel except for the toe of the sediment pile, the rest ~~but~~ would be placed adjacent to the channel or on benches above the channel so during dry weather there would be minimal ~~no~~ impact from introducing sediment to the channel at the time of placement. A small rise in suspended sediment could occur when sediment is mobilized during high-flow events which may cause acute physiological stress and impede foraging ability in southern coastal roach. However, the increased turbidity and any associated stress and impeded foraging ability would resolve quickly (less than 8 hours) and would not adversely impact southern coastal roach. Furthermore, when flows are high enough to mobilize the sediment in the sediment augmentation piles there would already be elevated background levels of suspended sediment; therefore, additional sediment from the piles would not add substantially to the total sediment that is already suspended during high flows.

Disturbance or injury impacts and measures to protect southern coastal roach would be the same as described for steelhead, but provide a conservative assessment as California roach are more tolerant of suspended sediment. In the short-term, impacts on southern coastal roach would be less than significant. Over the long-term, southern coastal roach would benefit from improved geomorphic processes that create and maintain spawning habitat and reduce and reverse channel incision.

Phase 2 Coyote Percolation Dam CM

The Phase 2 Coyote Percolation Dam Fish Passage Enhancement construction activities to complete the conservation measure could have short-term impacts on southern coastal roach. Construction of this Conservation Measure requires localized dewatering during construction activities which has the potential to strand southern coastal roach or trap them in pools, subjecting them to increased predation pressure or water quality degradation. Construction activities also have the potential to degrade water quality downstream of the work area due to increased suspended sediment or other materials in the water.

Similar to what was described above for Sacramento Hitch, southern coastal roach would be excluded from the work area with block nets and/or captured and relocated prior to and during dewatering. The Aquatic Species Rescue and Relocation Plan for the Phase 2 Coyote Percolation Dam CM would reduce impacts of fish stranding during dewatering by implementing a fish rescue and relocation effort. Expected acute physiological stress during rescue and relocation would be a lesser impact than likely mortality due to stranding, predation, and/or deteriorating water quality conditions if rescue and relocation during localized dewatering were not implemented. BMPs and AMMs implemented to reduce impacts from dewatering on steelhead will also reduce impacts on southern coastal roach.

Sediment entering the channel from the construction work area would have the same impacts as described for steelhead. BMPs and AMMs implemented to reduce impacts on steelhead, such as installing erosion control measures and minimizing pollution from construction equipment, will also reduce impacts from sediment on southern coastal roach.

Construction impacts on southern coastal roach would be short term and less than significant.

Construction Monitoring

Construction Phase Fisheries Monitoring

Fisheries monitoring would provide valuable information to inform management of steelhead and other species in the study area and guide Valley Water and regulatory agencies in decision making regarding the Fish Rescue and Relocation Plan. Water ~~temperature~~ quality monitoring, suspended sediment monitoring, sediment deposition monitoring, VAKI Riverwatcher adult escapement monitoring, spawning surveys, ~~sediment monitoring,~~ eDNA, ~~and~~ migration flow monitoring, PIT tag migration study, growth comparative study, non-native control methods, reptile monitoring, and terrestrial animal monitoring ~~are all non-invasive monitoring methods targeting steelhead data collection that~~ would have no impacts on southern coastal roach. Sensitive habitat monitoring and groundwater monitoring would not adversely impact southern coastal roach as these studies do not require in-channel sampling. Groundwater monitoring would not adversely impact southern coastal roach, because monitoring wells are located outside the active channel of Coyote Creek.

Southern coastal roach may be unintentionally captured during ~~bi-annual~~ juvenile rearing ~~monitoring~~ studies. Capturing and handling southern coastal roach could cause acute physiological stress. Injury and mortality are rare but happen occasionally. Valley Water would be subject to the terms and conditions of their California Scientific Collecting Permits, which include impact AMMs during these studies.

Construction Phase Fish Rescue and Relocation; Juvenile Rearing, Migration, and Growth

If monitoring of water temperature and DO indicates that conditions for rearing steelhead would become unsuitable within the Coyote Creek FCWMZ as a result of Seismic Retrofit construction activities, steelhead would be rescued and relocated per the Fish Rescue and Relocation Plan. Capture methods would include backpack electrofishing and/or seining. Southern coastal roach may be incidentally captured during the steelhead rescue efforts but would not be relocated as the species is more tolerant of high temperatures and low dissolved oxygen than steelhead (Moyle et al. 2015). Southern coastal roach may be stunned/netted, captured, and handled causing acute physiological stress. Injury or mortality can happen but are rare. Most southern coastal roach tolerate capture and handling and would be released quickly after capture to minimize this impact.

Invasive Species Monitoring and Control Plan

Impacts on and benefits to southern coastal roach from implementing the Invasive Species Monitoring and Control Plan would be the same as outlined for steelhead. This plan would result in a reduction to potential predators to California roach and would benefit the species in the short-term.

Construction Monitoring Summary

Overall, construction monitoring would result in less-than-significant impacts on southern coastal roach in the short-term.

Post-Construction Instream Flows Operations (FAHCE Rule Curves)

Impacts on and benefits to southern coastal roach from implementing the FAHCE rule curves would be essentially the same as Sacramento hitch downstream of Anderson Dam, as these species have very similar life history requirements. Overall, the amount of spawning and incubation habitat under the Project is anticipated to increase in Coyote Creek but may shift slightly downstream as compared to the Pre-FERC Order and future conditions baselines to remain in warmer waters once the FAHCE rule curves are implemented. If southern coastal roach are present in Anderson Reservoir post construction operations will not influence access to spawning habitat.

Post Construction Seismic Retrofit and Conservation Measures Operations, Maintenance, and Adaptive Management

All post-construction monitoring and maintenance activities that were previously described in the steelhead and Chinook salmon equivalent sections that were covered by the DMP, SMP, and PMP also apply to the southern coastal roach analysis and are not repeated here. Anderson Dam and Conservation Measures post-construction maintenance would have less-than-significant impacts on southern coastal roach in the short-term and operations, maintenance, and adaptive management would have long-term benefits to southern coastal roach and their habitat.

Significance Conclusion Summary for Southern Coastal Roach

The Project would result in impacts on southern coastal roach from Seismic Retrofit Project Construction; Conservation Measures Construction; Construction Monitoring; and Anderson Dam and Conservation Measures Operations, Maintenance, and Adaptive Management. The Project would benefit southern coastal roach and their habitat through Conservation Measures Construction; and Anderson Dam and Conservation Measures Operations, Maintenance, and Adaptive Management. Overall, impacts on southern coastal roach would be **less than significant** in the short term. There would be long-term benefits to the southern coastal roach population and habitat.

Mitigation Measures

No mitigation is required.

Impact FR-1f: Longfin Smelt (Less than Significant Impacts)

Seismic Retrofit Construction

Seismic Retrofit Construction Activities

The Seismic Retrofit construction footprint is located ~~over 25~~ approximately 32 stream miles upstream from the tidally influenced portions of Coyote Creek Watershed. Longfin smelt are present in nearshore waters where Coyote Creek meets San Francisco Bay. Larvae, juveniles and adults are typically found in salinity ranges greater than 2 ppt (Rosenfield 2010). Although exact locations of spawning adults are unknown, within the San Francisco Bay spawning appears to occur near the fresh-salt water mixing zone (Rosenfield 2010). It is thought the selection of a spawning site may be within an area that allows the transport of larvae into the fresh-salt water mixing zone as it is both a productive and turbid area within the San Francisco Bay (Rosenfield 2010). Given this information, it is unlikely for longfin smelt of any life-history stage to occur upstream of the tidally influenced portions of Coyote Creek Watershed. Therefore, Seismic Retrofit construction activities within the construction footprint are predicted to have no impacts directly on longfin smelt individuals or their habitat.

Seismic Retrofit and Instream Flows Operations during Seismic Retrofit Construction

Increased sediment transport associated with dewatering the reservoir and exposing erodible sediment that can be transported during precipitation events could impact longfin smelt individuals and their habitat within the tidally influenced portions of Coyote Creek.

There is evidence that longfin smelt spawn in the intertidal portion of Coyote Creek but there are many uncertainties surrounding spawning longfin smelt, including suspended sediment tolerances during the incubation period. However, due to the known primary spawning period (typically between February and April) and the fact that within central California winter rain events typically occur in this time period and lead to elevated levels of suspended sediment, it is assumed the species can tolerate some levels of suspended sediment during their incubation period.

Little scientific literature exists regarding the effects of suspended sediment on rearing and adult longfin smelt. However, the negative effects of suspended sediment on delta smelt (*Hypomesus transpacificus*) are minimal and longfin smelt are often associated with environments with higher turbidity (Gross et al. 2021). It is likely longfin smelt have similar suspended sediment tolerances as delta smelt, and possibly prefer habitat with seasonal sediment increases similar to delta smelt (Gross et al. 2021). In addition, turbidity due to suspended sediment is thought to shield longfin smelt larvae and juveniles from predators as they are weak swimmers (Rosenfield 2010). Potential suspended sediment increases at the mouth of Coyote Creek due to Seismic Retrofit construction would be temporary, would occur with seasonal precipitation events, and any adult longfin smelt individuals in the area would be able to behaviorally regulate their exposure by swimming to another area of the San Francisco Bay or tidally influenced creek systems so impacts would be less than significant.

Inorganic sediment inputs are critical to the health of the bay in the near term. These inputs are important in fighting climate change in the future and provide long-term marsh resilience to sea level rise (Dusterhoff et al. 2021). Tidally influenced areas in the San Francisco Bay are unlikely to naturally receive enough of a sediment input to survive sea level rise in the future (Dusterhoff et al. 2021). Increased sediment transported during precipitation events due to Seismic Retrofit construction activities may benefit the health of the Bay in the long term by resulting in more inorganic sediment than would otherwise be transported. Therefore, in the long-term, increased sediment transport downstream of the construction footprint may benefit the health of South San Francisco Bay as a whole, which would benefit native species in the area including longfin smelt.

Longfin smelt forage and spawn in tidally-influenced portions of Coyote Creek, where refugia with cooler temperatures are present. Smelt have adapted to thrive in intertidal delta conditions, where periodic high flows transporting substantial suspended sediment is common. In the Delta Conveyance EIR DWR has explored options for increasing suspended sediment and turbidity to improve conditions for smelt species (DWR 2022). It is expected that reservoir drawdowns and flows passing through the drained Anderson Reservoir would increase the amount of suspended sediment being transferred downstream (see the Steelhead Construction Phase Water Quality, Sediment Transport During Wet Season and Spring Drawndown section). For these reasons, the increase in flows and suspended sediment in the intertidal areas compared to Pre-FERC Order Conditions is likely to benefit longfin smelt, and any adverse impacts from sediment transport would be less than significant.

Conservation Measures Construction

The following Conservation Measures, Normal Operation of Coyote Reservoir Construction Period Imported Water Releases, Geomorphic Flow Plan and the Operation of Chillers, do not have a construction component and were previously considered as part of the *Instream Flows during Seismic Retrofit Construction* under the *Seismic Retrofit Construction Activities Impacts Analysis,* and would not impact longfin smelt.

Construction and maintenance activities for the Conservation Measures that require such activities are assessed further in this section.

Ogier Ponds CM

The Ogier Ponds CM construction footprint is located over 25 ~~20~~ miles upstream from the tidally influenced portions of Coyote Creek Watershed. Longfin smelt do not occur within or near the Ogier Ponds CM construction footprint. Therefore, Ogier Ponds CM construction activities within the construction footprint are predicted to have no direct impact on longfin smelt individuals or their habitat. Construction activities including staging and stockpiling, vegetation removal on the banks, filling in Pond 1 and 5, partially filling Pond 2, and 4, constructing an earthen berm, installing overflow weirs, and restoring the Coyote Creek Channel have the potential to temporarily degrade water quality downstream of the work area at the time of construction or thereafter due to increased suspended sediment or other materials in the water which could impact longfin smelt located downstream of the Ogier Ponds.

However, during the in-channel work window, longfin smelt adults are not present in the study area and only larval juveniles may be present in the tidal reaches well downstream of the work area for Ogier. Either way, flows are not expected to be high enough to carry elevated levels of suspended sediment 25 ~~20~~ miles downstream to where longfin smelt occur. Also, dewatering prior to construction would minimize sediment transport downstream. Following the in channel work window, the construction site would undergo winterization and the same BMPs and VHP conditions discussed in the steelhead impact assessment would minimize suspended sediment transported downstream during high flows. Even if there were elevated levels of suspended sediment, the species has high tolerance of suspended sediment and even a preference for associated turbidity so there would be no adverse impacts on longfin smelt from Ogier Ponds CM construction.

Maintenance of the North Channel Reach ~~North Channel Extension~~

The North Channel ~~Extension construction footprint~~ Reach is located over 30 ~~25~~ miles upstream from the tidally influenced portions of Coyote Creek Watershed. Longfin smelt are not present within or near the North Channel Reach ~~Extension construction footprint~~. Therefore, North Channel ~~Extension~~ maintenance ~~construction~~ activities ~~within the construction footprint are predicted to~~ would have no direct impact on longfin smelt individuals or their habitat. ~~Construction activities have the potential to temporarily degrade water quality downstream of the work area due to increased suspended sediment or other materials in the water.~~

Also ~~However~~, during the in-channel work window, longfin smelt adults would not be present in the study area and flows are not expected to be high enough to carry elevated levels of suspended sediment 30 ~~25~~ miles downstream to where larval longfin smelt could occur. Also, dewatering prior to ~~construction~~ maintenance, when needed, would minimize sediment transport downstream. However, even if there were elevated levels of suspended sediment, the species has high tolerance of suspended sediment and even a preference for associated turbidity and impacts so there would be no adverse impacts on longfin smelt from maintenance of the North Channel Reach ~~Extension construction~~.

Maintenance Activities at the Live Oak Restoration Reach

The Live Oak Restoration Reach footprint is located over 30 ~~25~~ miles upstream from the tidally influenced portions of Coyote Creek Watershed. Longfin smelt do not occur within or near the Live Oak Restoration Reach footprint. Therefore, Live Oak Restoration Reach maintenance activities within the construction footprint would have no direct impact on longfin smelt individuals or their habitat. Placement of gravels during the work window and maintaining habitat complexity has the potential to temporarily degrade water quality downstream of the work area if ~~gravels and associated~~ fine sediment enters the stream or construction equipment moving and placing habitat complexity features disturbs erodible material.

However, during the in-channel work window, adult longfin smelt would not be present in the study area and flows are not expected to be high enough to carry elevated levels of suspended sediment 30 ~~25~~ miles downstream to where larval longfin smelt could occur. Also, silt curtains and a belting conveyor would be used to place gravel minimizing impacts to aquatic habitat. The same BMPs and VHP conditions used to minimize erosion and sediment transport discussed in the steelhead impact assessment would minimize suspended sediment transported downstream. ~~Also, when flows are high enough to mobilize the gravels in the gravel augmentation piles, there would already be elevated background levels of suspended sediment; therefore, additional sediment from the gravel piles is unlikely to substantially add to the total sediment in a way that would impact longfin~~ Longfin smelt ~~that~~ have a high tolerance of suspended sediment and even a preference for associated turbidity so there would be no adverse impacts on longfin smelt from maintenance of spawning gravel and rearing habitat improvements in the Live Oak Restoration Reach.

Sediment Augmentation Program

The Sediment Augmentation Program resulting in placement of coarse sediments and spawning gravels within the CWMZ located 25 to 30 ~~17 to 25~~ miles upstream of the intertidal portion of Coyote Creek would have the same potential impacts as maintenance of the Live Oak Restoration Reach discussed in the section above, and the same justification for no adverse impacts to longfin smelt.

Phase 2 Coyote Percolation Dam CM

The Phase 2 Coyote Percolation Dam CM construction footprint is located ~~over 17~~ approximately 22 stream miles upstream from the tidally influenced portions of Coyote Creek Watershed. Longfin smelt do not occur within or near the Phase 2 Coyote Percolation Dam CM construction footprint. Therefore, Phase 2 Coyote Percolation Dam CM construction activities within the construction footprint are predicted to have no direct impact on longfin smelt individuals. Construction activities have the potential to temporarily degrade water quality downstream of the work area due to increased suspended sediment or other materials in the water.

However, during the dry season work window, longfin smelt adults are not likely to be present in the study area and flows are not expected to be high enough to carry elevated levels of suspended sediment 22 ~~17~~ miles downstream to where longfin smelt larvae may occur. Also, the construction site would be dewatered prior to construction further avoiding sediment transport impacts. Following the in-channel work window, the construction site would undergo winterization and the same BMPs and VHP conditions discussed in the steelhead impact assessment would minimize suspended sediment transported downstream during high flows. Even if there were elevated levels of suspended sediment, the species has high tolerance of suspended sediment and even a preference for associated turbidity so there would be no adverse impacts to longfin smelt from Phase 2 Coyote Percolation Dam CM.

Construction Monitoring

Longfin smelt would not be present during monitoring activities in the locations where monitoring activities that would affect the channel would occur; therefore, there would be no impact on longfin smelt from construction monitoring.

Post-Construction Instream Flows Operations (FAHCE Rule Curves)

Longfin smelt spawning occurs in the intertidal sloughs of the study area. These tidally influenced areas are ~~over 25~~ approximately 32 stream miles from Anderson Dam and longfin smelt likely occur too far downstream to be impacted by the Project flow operations. The species' habitat is greatly influenced by tidal action and freshwater inputs from tributaries; therefore, any change in flow operations is likely muted and negligible by the time water from the reservoir reaches the intertidal zone.

Additional analyses of potential changes in salinity using the largest monthly average value of changes in flow for Coyote Creek) were conducted; changes in salinity were selected as the best indicator of environmental changes to estuarine habitat that could be caused by post construction operations based upon the FAHCE rule curves. These analyses showed an extremely small change in salinity in the intertidal zone—a net increase in salinity of only about 0.043 percent from the FAHCE rule curves, when compared with the total volume of the South Bay Estuary of 86 million cubic meters. This analysis is provided in Appendix L of the Final EIR. Also, a 1998 USGS report (~~USGS~~ Bovee et al. 1998) on salinity in the South San Francisco Bay suggests that salinity changes in the South Bay estuary are driven by large storm events—less so by reservoir releases. The results of these salinity studies can be extrapolated to anticipated effects of post-construction FAHCE rule curve reservoir operations on other water quality constituents in the intertidal zone. The implementation of the FAHCE rule curves, which would increase reservoir releases by 10 to 20 cubic feet per second, a miniscule amount of fresh water compared with the total South Bay volume or the typical runoff from a winter storm event (less than 1 percent), would not result in a discernable change from the Pre-FERC Order Baseline Condition or future conditions baseline within the tidally influenced areas or estuary. Under FAHCE, the natural range and frequency of freshwater flows experienced by the river systems would not change and, by inference, the ecological habitats and other water quality parameters in these tidal prism areas should not be affected by post-construction operations.

Given the above analysis, the FAHCE rule curves are unlikely to cause any meaningful effects on the salinity or other water quality parameters or biological features relevant to longfin smelt habitat suitability in tidally influenced areas and the South Bay estuary. Given these results, there would be no impact of the post-construction operations (FAHCE rule curves) on longfin smelt.

Post-Construction Seismic Retrofit and Conservation Measures Operations, Maintenance, and Adaptive Management

All post-construction monitoring and maintenance activities that were previously described in the steelhead and Chinook salmon equivalent sections that will be covered by the DMP, SMP, and PMP and associated CEQA compliance also apply to the longfin smelt analysis and are not repeated here.

Anderson Dam Post-Construction Operations

Longfin smelt occur too far downstream to be impacted by or benefit from increased operational flexibility at Anderson Dam because longfin smelt habitat is also greatly influenced by tidal action and freshwater inputs from tributaries; therefore, any change in operational flexibility is likely muted and negligible by the time water from the reservoir reaches the intertidal zone so there would be no impact.

Ogier Ponds CM Operations

The most downstream extent of the Ogier Ponds CM is over 25 ~~20~~ miles upstream of the tidally influenced portion of Coyote Creek; therefore, no impacts from Ogier Ponds CM operations are predicted for longfin smelt However, enhanced sediment transport and conveyance of freshwater downstream to the intertidal zone may benefit longfin smelt because the species is thought to have better reproductive success when there is increased sediment, which provides cover for emergent larvae and juveniles (Rosenfield 2010, Lewis et al. 2020). These improvements could support a larger and more resilient longfin smelt population and, with respect to adverse impacts, there would be no impact.

North Channel Reach ~~Extension~~ Operations

Longfin smelt would benefit from enhanced passage of geomorphic flows as were described for steelhead which include the potential to release up to 6,000 cfs through the improved outlet and maintained North Channel Reach ~~Extension~~. ~~Improved conveyance~~ Conveyance of freshwater downstream of that magnitude to the intertidal zone compared to Pre-FERC Order Conditions may benefit longfin smelt in years that it is activated because the species is thought to have better reproductive success when there is more freshwater input, which provides high densities of food items for emergent larvae and juveniles (Rosenfield 2010, Lewis et al. 2020). These improvements would support a larger and more resilient longfin smelt population in years that it is activated, and, with regard to adverse impacts, there would be no impact on longfin smelt.

Spawning Gravel and Rearing Habitat Enhancements in the Live Oak Restoration Reach and Sediment Augmentation Program

The CWMZ is located over 25 ~~20~~ miles upstream from the tidally influenced portions of Coyote Creek Watershed. Longfin smelt do not occur within or near the CWMZ. Therefore, Spawning Gravel and Sediment Augmentation Program Maintenance activities are predicted to have no direct impact on longfin smelt individuals. However, placement of sediment has the potential to degrade water quality downstream of the work area if gravels and associated fine sediment enter the stream. However, the species is not present near the placement or later gravel mobilization by high flows so there would be no direct impact from placement of the gravels and sediment. Also, when flows are high enough to mobilize the sediment in the sediment augmentation piles, but there would already be elevated background levels of suspended sediment; therefore, additional sediment from the piles would not add substantially to the total sediment that is already suspended during high flows.

As previously described, longfin smelt spawning appears to occur near the fresh-salt water mixing zone (Rosenfield 2010) and if the species spawn in Coyote Creek, it is likely in the intertidal portion of the creek. It is assumed the longfin smelt can tolerate some levels of suspended sediment during their incubation period. Therefore, water quality and sediment impacts on Coyote Creek watershed and intertidal areas would not affect spawning longfin smelt. In addition, the BMPs and AMMs discussed in the impact analysis for steelhead will minimize water quality impacts as previously discussed. Further, noticeable effects of sediment or water quality impacts due to maintenance are not anticipated given the distance from the construction footprint to the tidally influenced portions of Coyote Creek (over <u>25</u> ~~20~~ miles). As discussed previously, it is likely longfin smelt tolerate and even seem to prefer turbid water with relatively high suspended sediment so no impacts on longfin smelt are predicted from the sediment and gravel augmentation programs.

In addition, increased sediment transport downstream of the construction footprint may benefit the health of South San Francisco Bay, which would benefit native species in the area, including longfin smelt. Increased sediment transport from the gravel and sediment augmentation programs would result in more inorganic material than would otherwise be transported. Within the San Francisco Bay, this century, supplementary sediment sources will be required to allow tidal marshes and mudflats to gain elevation faster than projected sea-level rise (Dusterhoff et al. 2021). These environments are crucial to the health of the Bay and support endangered species, provide nutrients that benefit aquatic species, and purify the surface water discharging into Francisco Bay (Dusterhoff et al. 2021); therefore, with respect to adverse impacts there would be no impact.

Phase 2 Coyote Percolation Dam CM Operations

The Coyote Percolation Dam is ~~over 17~~ <u>approximately 22 stream</u> miles upstream of the tidally influenced portions of Coyote Creek, so operation of the dam would have no impact on longfin smelt.

Project and FAHCE Adaptive Management

As discussed for the previous fish species, refinements under the AMP would likely have impacts similar to those discussed in this EIR under Conservation Measures Construction but at a much smaller scale for Ogier Ponds and the Coyote Percolation Dam. Therefore, there would be no impact on longfin smelt.

Under the AMP, there would be compliance monitoring, validation monitoring, <u>effectiveness monitoring,</u> and a long-term trend monitoring program however all monitoring would occur in areas where longfin smelt do not occur so there would be no impact on longfin smelt from these monitoring activities.

The post-construction operations flow releases from Anderson Dam may be modified to achieve geomorphic function of the river system via floodplain inundation, spawning gravel maintenance, and channel formation. Improved geomorphic flows in conjunction with the continued maintenance of the Live Oak Restoration Reach together with the Sediment Augmentation Program (Section *2.6.3 Sediment Augmentation Program*) would address historical blockage of sediment by Anderson Dam and Reservoir restoring more natural geomorphic processes downstream of the dam benefiting longfin smelt and their habitat.

Significance Conclusion Summary for Longfin Smelt

The only components of the Project that could impact longfin smelt and their habitat would be the increased sediment transport to the intertidal reaches of Coyote Creek during Seismic Retrofit construction, and this impact would be **less than significant**. Increased sediment transport may benefit longfin smelt in both the short-term and long-term.

Mitigation Measures

No mitigation is required.

Impact FR-1g: White Sturgeon **(Less than Significant)**

Seismic Retrofit Construction

Seismic Retrofit Construction Activities

White sturgeon have been observed in the study area but only occur in the tidally influenced areas of Coyote Creek and not in the freshwater portions of Coyote Creek (Otolith Geochemistry & Fish Ecology Laboratory 2021, 2022, 2023). White sturgeon spawning occurs in the Sacramento River and is not documented to occur in Coyote Creek or other tributaries of its stature (Zeug et al. 2014, D. Salsbery, personal communication, as cited in Buckmaster and Hobbs 2009). The Seismic Retrofit construction footprint is located ~~over 25~~ <u>approximately 32 stream</u> miles upstream from the tidally influenced portions of Coyote Creek Watershed. White sturgeon do not occur within or near the Seismic Retrofit construction footprint. ~~.~~Therefore, Seismic Retrofit construction activities within or near the construction footprint are predicted to have no direct impact on white sturgeon individuals or their habitat.

Seismic Retrofit (Anderson Dam) and Instream Flows Operations during Seismic Retrofit Construction

White sturgeon spawning occurs in the Sacramento River and is not documented to occur in Coyote Creek (Zeug et al. 2014, D. Salsbery, personal communication, as cited in Buckmaster and Hobbs 2009). Therefore, sediment transported during the Project in the Coyote Creek watershed and intertidal areas would not affect spawning white sturgeon.

Little scientific literature exists regarding the effects of suspended sediment on other life stages of white sturgeon. It is likely white sturgeon have similar suspended sediment tolerances to Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*); the effects of suspended sediment on juvenile Atlantic sturgeon are minimal when individuals have the opportunity to escape conditions mimicking dredging operations (Wilkens et al. 2015). Sediment increases at the mouth of Coyote Creek during Seismic Retrofit construction activities, such as drawdown and bypass flows would be temporary and any white sturgeon in the area would be able to behaviorally regulate their exposure by swimming to another area of the San Francisco Bay or can handle the level of sediments that are present so there would be less-than-significant impacts on white sturgeon from sediment concentrations in instream flows during construction. In addition, it is likely white sturgeon have high tolerances to suspended sediment and increased sediment transport may benefit habitat in South San Francisco Bay. In the long term, inorganic sediment inputs to San Francisco Bay may benefit white sturgeon for the same reasons outlined for longfin smelt. Therefore, there would be no short-term or long-term impact from Anderson Dam construction activities or instream flow operations during Seismic Retrofit construction.

Conservation Measures Construction

The following Conservation Measures, Normal Operation of Coyote Reservoir, Construction Period Imported Water Releases, and the Operation of Chillers, do not have a construction component and would not impact white sturgeon.

Conservation Measures that require construction: Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach, Sediment Augmentation Program, Phase 2 Coyote Percolation CM would have no impact on white sturgeon as this species only occurs in the tidal reaches and construction related impacts will not be of a magnitude that will reach that portion of the system. See the reasons outlined for longfin smelt for additional detail.

Construction Monitoring Impacts Analysis

White sturgeon would not be present in the locations where monitoring activities that would affect the channel would occur; therefore, there would be no impact on white sturgeon from construction monitoring.

Post-Construction Instream Flows Operations (FAHCE Rule Curves)

White sturgeon spawning occurs in the Sacramento River and is not documented to occur in Coyote Creek (Zeug et al. 2014, D. Salsbery, personal communication, as cited in Buckmaster and Hobbs 2009). Therefore, there would be no effects of the Project on white sturgeon spawning habitat. White sturgeon likely use only the tidally influenced reaches of Coyote Creek, if any areas, for rearing and foraging. As described for longfin smelt, the tidally influenced areas are ~~over 25~~ approximately 32 stream miles from Anderson Dam and releases and potential changes in salinity are unlikely to cause any meaningful effects on white sturgeon or their habitat.

Therefore, there would be no impact from post-construction operations (FAHCE rule curves) on rearing and foraging white sturgeon.

Post-Construction Seismic Retrofit and Conservation Measures Operations, Maintenance, and Adaptive Management

White sturgeon spawning occurs in the Sacramento River and is not documented to occur in Coyote Creek (Zeug et al. 2014, D. Salsbery, personal communication, as cited in Buckmaster and Hobbs 2009). Therefore, there would be no effects of the Project's post-construction operations, maintenance, and monitoring on white sturgeon spawning habitat. White sturgeon likely use the tidally influenced reaches of Coyote Creek for rearing and foraging.

Due to their same occurrence in the intertidal areas of Coyote Creek and Alviso Slough, there would be no impact from Seismic Retrofit and Conservation Measures Construction or Post-Construction Operations, Maintenance, and Monitoring on rearing and foraging white sturgeon for the same reasons outlined for longfin smelt. Project and FAHCE Adaptive Management.

White sturgeon spawning occurs in the Sacramento River and is not documented to occur in Coyote Creek (Zeug et al. 2014, D. Salsbery, personal communication, as cited in Buckmaster and Hobbs 2009) and only occur in the tidally influenced reaches of Coyote Creek. Therefore, there would be no potential effects of the Project adaptive management on white sturgeon habitat.

Due to their same occurrence in the intertidal areas of Coyote Creek and Alviso Slough, there would be no impact from the Project and FAHCE AMP, and there would be likely long-term benefits for rearing and foraging white sturgeon for same reasons outlined for longfin smelt.

Significance Conclusion Summary for White Sturgeon

The only components of the Project that could impact white sturgeon and their habitat would be the increased flow and sediment transport to the intertidal reaches of Coyote Creek and Alviso Slough during Seismic Retrofit construction. In the short-term, there would **less-than-significant impacts** on white sturgeon from increased sediment transport and, in the long-term, the Project may benefit white sturgeon.

Mitigation Measures

No mitigation is required.

Impact FR-1h: Green Sturgeon (Southern Distinct Population Segment) (No Impact)

Green sturgeon do not spawn in the study area, so there would be **no impacts** to spawning green sturgeon from the Project. Green sturgeon could occur in the study area during rearing and foraging, but their occurrence is not documented in the study area or even in close proximity to the study area to Valley Water’s knowledge despite being designated critical habitat. Because their occurrence seems to be extremely rare or non-existent in the study area, there would be no adverse impacts to green sturgeon, but there may still be the same benefits to green sturgeon habitat for the same reasons outlined for longfin smelt and white sturgeon from increased sediment transport transferring inorganic sediment to San Francisco Bay.

Mitigation Measures

No mitigation is required.

Impact FR-1i: Riffle Sculpin (Less than Significant)

Seismic Retrofit Construction

Seismic Retrofit Construction Activities

Riffle sculpin occur in Upper Penitencia Creek (Moyle and Campbell 2022) and are not expected to occur in Coyote Creek mainstem at or downstream of the Seismic Retrofit construction footprint; therefore, no impacts or benefits on riffle sculpin from Seismic Retrofit construction activities would occur.

Seismic Retrofit (Anderson Dam) and Instream Flow Operations during Seismic Retrofit Construction

Riffle sculpin do not occur in Coyote Creek downstream of the construction footprint. Therefore, instream flow operations during Seismic Retrofit construction activities would not affect flow magnitudes, temperatures, DO, or sediment transport in riffle sculpin habitat. Instream flow operations during construction would have no impacts or benefits for riffle sculpin individuals or habitat.

Conservation Measures Construction

Riffle sculpin are not expected to occur in Coyote Creek at or downstream of the locations of each conservation measure; therefore, there would be no impacts or benefits for riffle sculpin from Conservation Measure construction.

Construction Monitoring

The only cause of Project impacts on riffle sculpin would be from non-native species or diseases transferred from Coyote Creek to Upper Penitencia Creek during implementation of the Fish Rescue and Relocation Plan, which could result in the relocation of *O. mykiss* from Coyote Creek to Upper Penitencia Creek if necessary. The relocation could result in the transfer of non-native species or pathogens to Upper Penitencia Creek either via vehicles and equipment or from the fish themselves. Introduction of non-native species or novel pathogens to Upper Penitencia Creek could cause more pathology, disease, predation, or competition for riffle sculpin.

However, in 2020, *O. mykiss* were rescued from Coyote Creek and relocated to Upper Penitencia Creek during a fish rescue and relocation effort (Valley Water 2021c ~~2021h~~). Valley Water implemented a “triple rinse” of relocated O. mykiss to aid with acclimation, as well as to ensure that no water from Coyote Creek entered Upper Penitencia Creek. Valley Water sampled eDNA at the sites from which *O. mykiss* were rescued from in Coyote Creek and the sites *O. mykiss* were relocated to in Upper Penitencia Creek in May and September of the year following the relocation effort for amphibian pathogens Bd, Bsal and ranavirus. Relocation sites on Upper Penitencia Creek were visually surveyed for New Zealand Mud Snails (NZMS) and eDNA samples were collected and analyzed for NZMS DNA in May and September following the fish rescue and relocation effort. No new pathogens attributable to fish relocation or new non-native species introductions were observed or detected (Valley Water 2022c ~~2021j~~).

Based on data collection during existing conditions regarding steelhead presence in the FWCMZ, it is suggesting that *O. mykiss* were able to persist despite temperatures above optimal in the late summer and early fall (Valley Water 2022). Therefore, future relocations of *O. mykiss* to Upper Penitencia Creek are less likely to occur, but if they do occur, given the low likelihood of relocation and the low likelihood of introduced species or diseases that do not already exist in Upper Penitencia Creek, impacts to riffle sculpin from Construction Monitoring would be less than significant.

Post-Construction Instream Flows Operations (FAHCE Rule Curves)

Riffle sculpin have not been observed in Coyote Creek downstream of Anderson Dam but are found in Upper Penitencia Creek. There would be no Project impact associated with implementing the FAHCE rule curves.

Post-Construction Seismic Retrofit and Conservation Measures Operations, Maintenance, and Adaptive Management

Riffle sculpin occur in Upper Penitencia Creek (Moyle and Campbell 2022) and are not expected to occur in Coyote Creek mainstem at or downstream of Anderson Dam, where all post-construction monitoring and maintenance activities that were previously described in the steelhead and Chinook salmon equivalent sections that were covered by the DMP, SMP, and PMP occur. Therefore, no impacts or benefits are predicted for riffle sculpin from the post-construction monitoring and maintenance activities.

Anderson Dam Post-Construction Operations

Riffle sculpin occur in Upper Penitencia Creek (Moyle and Campbell 2022) and are not expected to occur in Coyote Creek mainstem at or downstream of Anderson Dam; therefore, no impacts or benefits are predicted for riffle sculpin from Anderson Dam post-construction operations.

Ogier Ponds CM Operations

Riffle sculpin have not been observed downstream of Anderson Dam in Coyote Creek. As they are located in Upper Penitencia Creek, there would be no impact from Ogier Ponds CM operations.

North Channel ~~Extension~~ Operations

Riffle sculpin have not been observed downstream of Anderson Dam in Coyote Creek. As they are located in Upper Penitencia Creek, there would be no impact from Maintenance of the North Channel Reach ~~Extension~~ operations.

Maintenance Activities at the Live Oak Restoration Reach and Sediment Augmentation Program

Riffle sculpin have not been observed downstream of Anderson Dam in Coyote Creek. As they are located in Upper Penitencia Creek, there would be no impact from spawning gravel and rearing habitat enhancements or the Sediment Augmentation Program.

Phase 2 Coyote Percolation Dam CM

Riffle sculpin have not been observed downstream of Anderson Dam in Coyote Creek. As they are located in Upper Penitencia Creek, there would be no impact from Phase 2 Coyote Percolation Dam CM operations and maintenance.

Project and FAHCE Adaptive Management

Riffle sculpin have not been observed downstream of Anderson Dam in Coyote Creek and only occur in Upper Penitencia Creek in the study area, so there would be no impacts from Adaptive Management or geomorphic flows, which is related to Coyote Creek under the FAHCE Program for steelhead and Chinook salmon.

Significance Conclusion Summary for Riffle Sculpin

The only cause of impacts on riffle sculpin would be from invasive species or disease transferred from Coyote Creek to Upper Penitencia Creek from the Fish Rescue and Relocation Plan. As discussed in the impact assessment, future relocation to Upper Penitencia Creek is unlikely and impacts would be **less than significant** if it were to occur.

Mitigation Measures

No mitigation is required.

3.4.5 Cumulative Impacts

The geographic study area for fisheries resources encompasses the Coyote Creek watershed downstream of Coyote and Anderson Dams, the Upper Penitencia Creek watershed, and South San Francisco Bay.

This section describes the Project's contribution to cumulative impacts on fisheries resources, as summarized in **Table 3.4-12.**

Cumulative impact thresholds for fisheries resources are the same as the impact thresholds presented in Section 3.4.3.6 ~~3.4.4~~, *Thresholds of Significance*.

Table 3.4-12. Summary of Project Impact Contribution to Cumulative Impacts on Biological Resources – Fisheries Resources

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact FR-1: Have a substantial adverse effect, either directly, through habitat modifications, or through substantial interference with movement on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS in the fisheries resources study area	No	No	NCC	None	No

Cumulative Impact FR-1: Have a substantial adverse effect, either directly, through habitat modifications, or through substantial interference with movement on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS in the fisheries resources study area (Not Cumulatively Considerable)

The Project's impact on special-status fisheries resources, including CCC steelhead, Chinook salmon, Pacific lamprey, Sacramento hitch, southern coastal roach, longfin smelt, white sturgeon, green sturgeon (Southern DPS), and riffle sculpin, would be less than significant in the short-term and less than significant or beneficial in the long-term for all stages of the Project.

The Project would result in certain construction phase impacts to these fisheries resources from Seismic Retrofit Construction; Conservation Measures Construction; and Construction Monitoring. In the post-construction phase, there would also be some impacts from Anderson Dam and Conservation Measures monitoring and maintenance; Instream Flows Operations (FAHCE rule curves); and the Project and FAHCE AMP. These impacts would be less than significant. These impacts would be reduced through BMPs, VHP conditions, and Project Conservation Measures.

The Project would benefit fisheries resources over the long-term through Seismic Retrofit Construction and Post-Construction Operations, Monitoring, and Maintenance; Conservation Measures Construction and Post-Construction Operations, Monitoring, and Maintenance; Construction Monitoring; Post-Construction Instream Flows Operations (FAHCE rule curves); and the Project and FAHCE AMP. Benefits to fisheries resources include increased, restored, and enhanced habitat, improved and increased passage conditions, improved rearing conditions, all of which support larger and more resilient populations of steelhead and Chinook salmon. Post-Construction Flow Operations are specifically designed to enhance conditions for steelhead and Chinook salmon and all these actions will be further adapted to benefit the species through the AMP process.

Possible impact mechanisms on longfin smelt, white sturgeon, and green sturgeon would be increased flow and sediment transport to the intertidal reaches of Coyote Creek and Alviso Slough during the Project. Longfin smelt could also be affected by salinity changes during the Project in intertidal areas compared with Pre-FERC Order Baseline Conditions. Post-Construction Instream Flows Operations (FAHCE rule curves) would not affect estuarine species such as longfin smelt, green sturgeon, and white sturgeon, as the magnitude and duration associated with changes in flow regimes are muted due to the distance between the dam release point and the habitat these fish are using. Conservation Measures Construction and Post-Construction Operations, Monitoring, and Maintenance; Construction Monitoring also are occurring in the reaches upstream of the habitat these species use, so no adverse impact is to occur during these actions. Seismic Retrofit Construction and Post-Construction Operations, Monitoring, and Maintenance; Conservation Measures Construction and Post-Construction Operations, Monitoring, and Maintenance; Construction Monitoring; Post-Construction Instream Flows Operations (FAHCE rule curves); and the Project and FAHCE AMP would not affect riffle sculpin as these actions do not take place in Upper Penitencia Creek. Invasive species or disease transferred from Coyote Creek to Upper Penitencia Creek from the FERC Ordered Fish Rescue and Relocation could affect riffle sculpin. However, none of these Project-related impacts would exceed the identified thresholds of significance as risk of transfer is low and BMPs and monitoring are in place to reduce said risks.

Overall, adverse impacts on fisheries resources would be periodic and temporary, and less than significant during the construction phase. The Project would benefit fisheries resources in the long term through increased and enhanced habitat supporting a larger and more resilient fish populations. The overall impact is less than significant.

Cumulative Effects of Project with the FOCP

The FOCP would involve modifications to the existing structures surrounding Anderson Dam and Reservoir, some of which could benefit fisheries ~~resources~~. The construction schedules for FOCP and Project would not overlap, reducing the potential intensity of ~~for~~ cumulative construction-related impacts. Also, the FOCP includes AMMs and a Habitat Mitigations and Monitoring Plan (HMMP), designed to minimize impacts on fish populations and habitats. The FOCP also includes the North Channel Extension, which would benefit fisheries resources by decreasing stranding risk from the existing backwater in the North Channel and decrease warm ponded water that promotes habitat for non-native piscivores. This would allow higher conveyance of flows through the North Channel which will protect the South Channel habitat enhancements, and allow for future geomorphic flows from the Geomorphic Flows Plan (a component of the Project). This would promote better geomorphic function of Coyote Creek expected to support native fish species (steelhead, Chinook salmon, Pacific lamprey, Sacramento hitch, southern coastal roach, longfin smelt, and white sturgeon) and limit non-native species.

The drawndown reservoir may contribute to cumulative temperature impacts on steelhead prior to installation of chillers. Despite the delay in the delivery of the chillers resulting from supply chain issues beyond Valley Water's control, *O. mykiss* have persisted at various age classes and in good body condition in Coyote Creek for three years of FOCP construction in the absence of chillers, including during extreme drought conditions characterizing 2 of those 3 years of construction.

Also, two fish rescues have been conducted under FOCP according to the Fish Rescue and Relocation Plan approved by NMFS resulting in the total capture of 235 and relocation of 121 *O. mykiss* (Valley Water 2021c). During these rescues, Valley Water documented mortality of four individual *O. mykiss* (less than 2 percent of captured *O. mykiss*).

The FOCP combined with the Project would therefore not cause significant cumulative impacts on fisheries, and the Project's contribution would be not cumulatively considerable. Combined with the FOCP, the Project would provide long term benefits to steelhead, Chinook salmon, Pacific lamprey, Sacramento hitch, southern coastal roach, longfin smelt, and white sturgeon.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Cumulative projects, plans, and programs, such as Valley Water's other seismic retrofit, dam improvement, and flood protection projects, could result in incrementally adverse impacts if their construction or operational timeframes overlap. The reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, when combined with impacts of the Project, have the potential to have a substantial adverse effect, either directly, through habitat modifications, or through substantial interference with movement on any fish species identified as a candidate, sensitive, or special-status species in the study area. Future projects such as Valley Water's other seismic retrofit, dam improvement, and flood protection projects; the San Francisco Bay Shoreline Protection Project; and various non-Valley Water development projects could adversely affect fisheries resources through mechanisms such as changes to aquatic habitats, including water temperature and flows, degradation of water quality, and increased sedimentation. However, future projects, such as FAHCE, SMP, the Encampment Clean Up Program, Valley Water restoration projects, and the Santa Clara Valley Habitat Restoration Program would have long-term beneficial effects on fisheries resources in the cumulative study area through improvements to fish habitat, including changes in the amount and timing of flows, maintaining the migration corridor, and improved water quality. Programs such as SMP and Valley Water restoration projects are or would be managed under state and federal permits with permit conditions that outline necessary avoidance and minimization measures and mitigation measures to protect resources. These conditions would reduce impacts and further reduce any cumulative effects. Because some of the future projects could result in adverse effects to fisheries resources, the Project, in combination with these other probable future projects within the study area, could have a short-term cumulative impact on fisheries resources, with long-term benefits, and the overall cumulative impact on fisheries resources would be less than significant.

Significance Conclusion Summary

The Project, FOCP, and most other probable future projects have the potential to affect fisheries resources through a variety of mechanisms during construction and/or long-term. As summarized above, the Project would result in certain construction phase impacts on fisheries resources from Seismic Retrofit Construction; Conservation Measures Construction; and Construction Monitoring. These impacts will be reduced <u>and offset</u> through BMPs, VHP conditions, and Project Conservation Measures. In the post-construction phase, there would also be some minor impacts from Anderson Dam and Conservation Measures monitoring and maintenance. Post-Construction Instream Flows Operations (FAHCE rule curves); and the Project and FAHCE AMP. These impacts would be less than significant. Other probable projects are managed under state and federal permits and impacts to species would be reduced in accordance to these regulations, thus reducing any cumulative impacts.

The Project would benefit fisheries resources over the long-term through Seismic Retrofit Construction and Post-Construction Operations, Monitoring, and Maintenance~~,~~; Conservation Measures Construction and Post-Construction Operations, Monitoring, and Maintenance; Construction Monitoring; Post-Construction Instream Flows Operations (FAHCE rule curves) and the Project and FAHCE AMP. These actions would result in increased and improved habitat conditions benefiting or having no adverse effect on fish resources within the project area. Also, through the Project and FAHCE AMP, adaptive actions would be implemented when AMP measurable objectives are not being met, which would reduce any cumulative impacts that may arise during Project implementation.

Adverse impacts on steelhead and other special-status fish species would be periodic and temporary, would be reduced through BMPs, VHP conditions, and Project Conservation Measures, and would be less than significant during the construction phase. The Project would benefit steelhead in the long-term through increased and enhanced habitat, and management supporting a larger and more resilient steelhead population. As a result, the Project's contribution to cumulative impacts to fisheries resources is **not cumulatively considerable.**

Mitigation Measures

No mitigation is required.

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3.5 Biological Resources—Wildlife and Terrestrial Resources

This section presents the environmental setting, regulatory setting, and impacts of the Project related to terrestrial biological resources (i.e., plants, animal species (excluding fish), land cover types, and sensitive and regulated habitats), including all biological resources, except fisheries. The *CEQA Guidelines* significance criteria for such resources address impacts related to special-status species and their habitats, sensitive communities, federally and State-regulated wetlands and other waters, wildlife movement and native wildlife nursery sites, conflicts with local policies, and conflicts with adopted HCPs.

The study area used to assess impacts on terrestrial biological resources consists of areas that may be affected as a result of the Project. The study area is depicted on **Figure 3.5-1**. The study area includes the Project Area, which consists of the footprints of all construction activities at the dam and the entire Anderson Reservoir bed (the Seismic Retrofit Area), and the footprints of conservation activities associated with the Project (the Conservation Measures Project Area), including the Ogier Ponds CM, the Coyote Percolation Dam CM, and Coyote Creek from Anderson Dam downstream to the Coyote Percolation Dam CM Areas. The study area also includes areas referred to herein as the “expanded study area”, consisting of nearby areas and areas along Coyote Creek and in San Francisco Bay downstream from Project activities that would be impacted by Project activities, as indicated on **Figure 3.5-1**; that figure includes labels for areas that are discussed later in this section as being included in the expanded study area.

Figure 3.5-1. Terrestrial Biological Resources Study Area

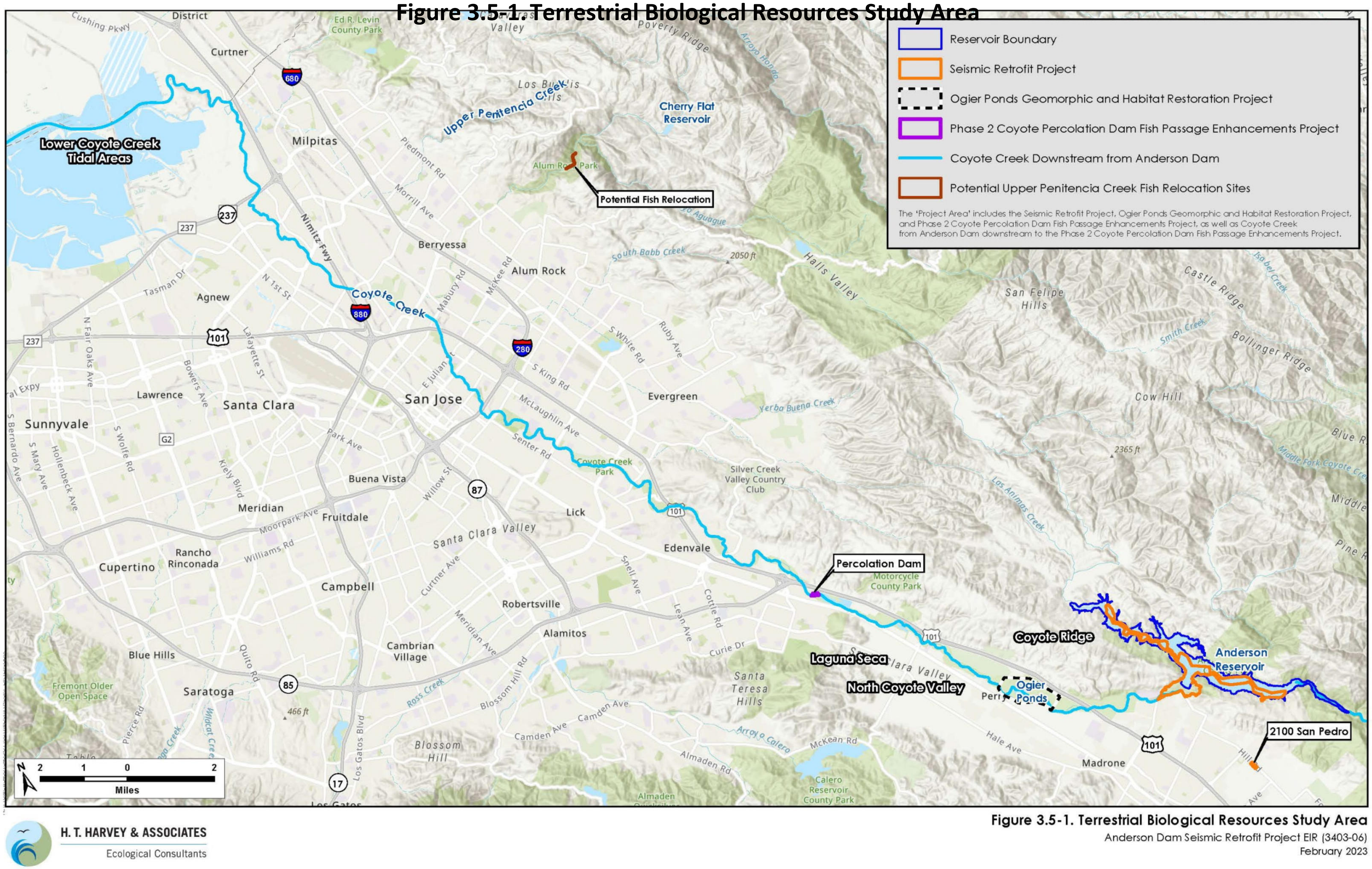

Figure 3.5-1. Terrestrial Biological Resources Study Area
Anderson Dam Seismic Retrofit Project EIR (3403-06)
February 2023

3.5.1 Environmental Setting

To identify existing biological conditions in the study area, a number of information sources were reviewed, including the following:

- Documents prepared for the FOCP (Horizon 2020, Valley Water 2020a ~~2020c~~, 2020b ~~2020d~~), and USFWS consultation on the FOCP (USFWS 2020)
- Documents prepared for Valley Water's evaluation of its DMP (Valley Water 2008, 2012a)
- Documents prepared for Valley Water's SMP ~~2 Update~~ (Valley Water 2011a ~~2011b~~, 2011c ~~2021b~~, 2019a), and the USFWS Biological Opinion on the SMP ~~2~~ (USFWS 2014)
- The Ogier Ponds Feasibility Study (Valley Water 2018a)
- The VHP (ICF 2012)
- Data on special-status species occurrences (Bousman 2007a, Shuford and Gardali 2008, California Natural Diversity Data Base [CNDDB] 2022)
- California Rare Plant Ranks (CRPR; formerly known as California Native Plant Society [CNPS] lists; CNPS 2022) and applicable records
- *The Jepson Manual,* Second Edition (Baldwin et al. 2012)
- Reports on the results of numerous surveys and assessments performed by Valley Water and its consultants, including the following:
  - Habitat/land cover mapping for the FOCP (Horizon 2020), refined through 2022 to include habitats in additional areas
  - Delineation of potential waters of the U.S. in the Anderson Dam area performed for the DMP (Valley Water 2008) and FOCP (Valley Water 2020b ~~2020d~~), and in additional areas from 2013 to 2022 as the Project Area has been refined (Valley Water ~~2022c~~ 2024b)
  - Reconnaissance-level surveys of the Project Area for wildlife species and their habitats, conducted on numerous occasions from 2013 to 2022
  - Surveys for the plant pathogen *Phytophthora* around Anderson Dam and Anderson Reservoir to inform planning, impact assessment, and Conservation Measures to protect sensitive plant species and vegetative communities from the spread of *Phytophthora* (Phytosphere Research 2018~~; 2022~~)
  - Protocol-level surveys for special-status plants in 2006 and 2008 as part of Valley Water's evaluation of its DMP (Valley Water 2012a), the FOCP, and Project in 2013 and 2014 (Valley Water 2014a, 2014b) and in 2017, 2018, and 2021 (Valley Water 2021a ~~2021f~~)
  - Monitoring of a San Francisco collinsia (*Collinsia multicolor*) population on an eroding serpentine slope along the shoreline of Anderson Reservoir, since it was discovered by a Valley Water botanist in 2009 ~~(Valley Water 2012d),~~ including annual surveys of the abundance and distribution of this population through 2022
  - A survey for adult Bay checkerspot butterflies conducted in April 2014, in compliance with the VHP, in all areas of the Project Area providing potential habitat for the species

- A survey of the Anderson Dam area for milkweed (*Asclepias* spp.), the larval hostplant of the monarch butterfly, conducted in 2021 (Valley Water 2021b) and a reconnaissance survey for special-status bumblebees conducted at Anderson Reservoir in July 2022
- Annual fiber-optic scoping inspections, from 2010 to 2013, of all burrows on both faces of Anderson Dam to determine whether California tiger salamander, California red-legged frog, or other special-status species were present in those burrows prior to the burrows' destruction (Valley Water 2010a, 2011b ~~2011a~~, 2012d ~~2012c~~, 2013 ~~2013c~~)
- A reconnaissance-level survey and habitat assessment for special-status amphibians and reptiles, including the California tiger salamander, California red-legged frog, foothill yellow-legged frog, and northwestern pond turtle, conducted in 2016 in areas to be monitored, in accordance with VHP conditions, for effects of dewatering associated with the Project (Valley Water 2016); focused surveys for those species conducted in those monitoring areas in 2019 (Valley Water 2019b ~~2019e~~); and numerous preactivity surveys for these species performed prior to geotechnical investigations for the Project, around Anderson Dam, and in the unlined portion of the spillway, from 2014 to 2022 (e.g., Valley Water 2020c ~~2020b~~)
- Monitoring for northwestern pond turtle performed for the FOCP in Anderson Reservoir and along Coyote Creek downstream to the Coyote Percolation Pond in 2021 and 2022, in accordance with the FOCP western pond turtle monitoring plan (Valley Water 2020d ~~2020i~~)
- Habitat surveys for the tricolored blackbird conducted at various locations around Anderson Dam, Anderson Reservoir, and along Coyote Creek between Anderson Dam and the Coyote Percolation Dam in 2013, 2017, 2018, and 2022
- Surveys for nesting bald eagles and golden eagles in the vicinity of Anderson Reservoir, with informal surveys in 2018 and early 2019 (Valley Water 2019c ~~2019b~~), a single aerial survey in May 2019 (Valley Water 2019d ~~2019c~~), and intensive surveys from the ground and by helicopter during the 2020, 2021, and 2022 breeding seasons (Valley Water 2020e ~~2020a~~, 2021c ~~2021e~~, 2022a ~~2022b~~)
- A focused 2017 survey for ringtails at Basalt Hill, using bait stations and motion-sensor cameras, as well as genetic analysis of scat (Valley Water 2017)
- Monitoring surveys at a pallid bat (*Antrozous pallidus*) colony in a barn along Cochrane Road (hereafter "Cochrane Road barn") near the base of Anderson Dam, in 2019, 2021, and 2022 (Valley Water 2019e ~~2019d~~, 2021d)

3.5.1.1 Existing Land Cover Types, Natural Communities, and Habitats

Based on dominant plant species and general community composition, the Seismic Retrofit Project Area supports 15 land cover types, natural communities, and habitats, defined and named in accordance with VHP conventions and hereafter referred to as "land cover types" per the VHP. The distributions of these land cover types are depicted on **Figure 3.5-2** and **Figure 3.5-3** for the Seismic Retrofit, ~~**Figure 3.5-3**~~ **Figure 3.5-4** for the Ogier Ponds CM, **Figure 3.5-5** for the Coyote Percolation Dam CM, **Figure 3.5-6** for the North Channel Reach ~~Extension Area~~ and ~~the~~ Live Oak Restoration Reach maintenance areas, and **Figure 3.5-7** for the remainder of Coyote Creek between the Seismic Retrofit Coyote Percolation Dam CM Area.

Figure 3.5-2. Seismic Retrofit Project Land Cover Map

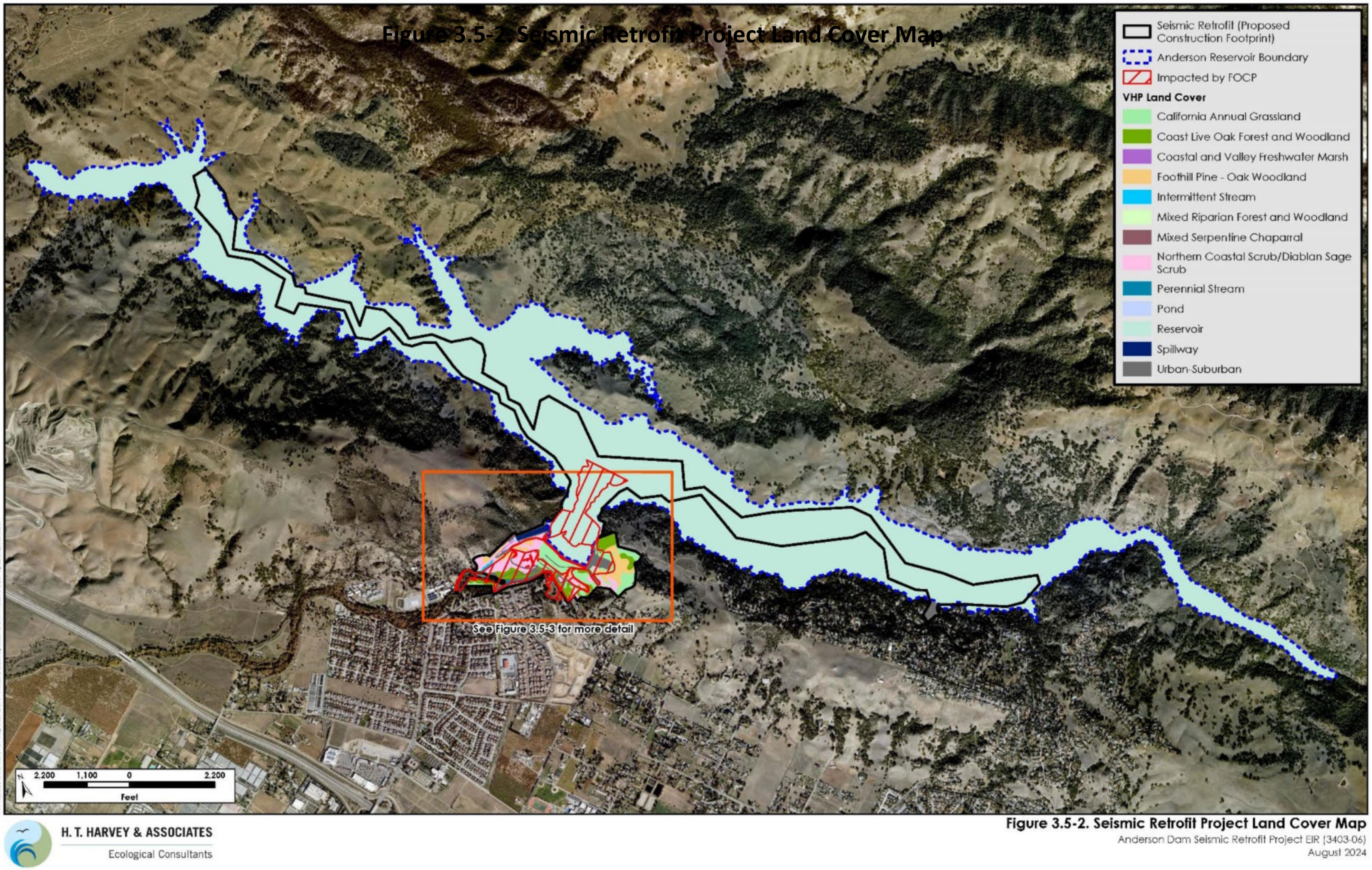

Figure 3.5-2. Seismic Retrofit Project Land Cover Map
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2024

Figure 3.5-3. Seismic Retrofit Project Land Cover Map – Anderson Dam Area

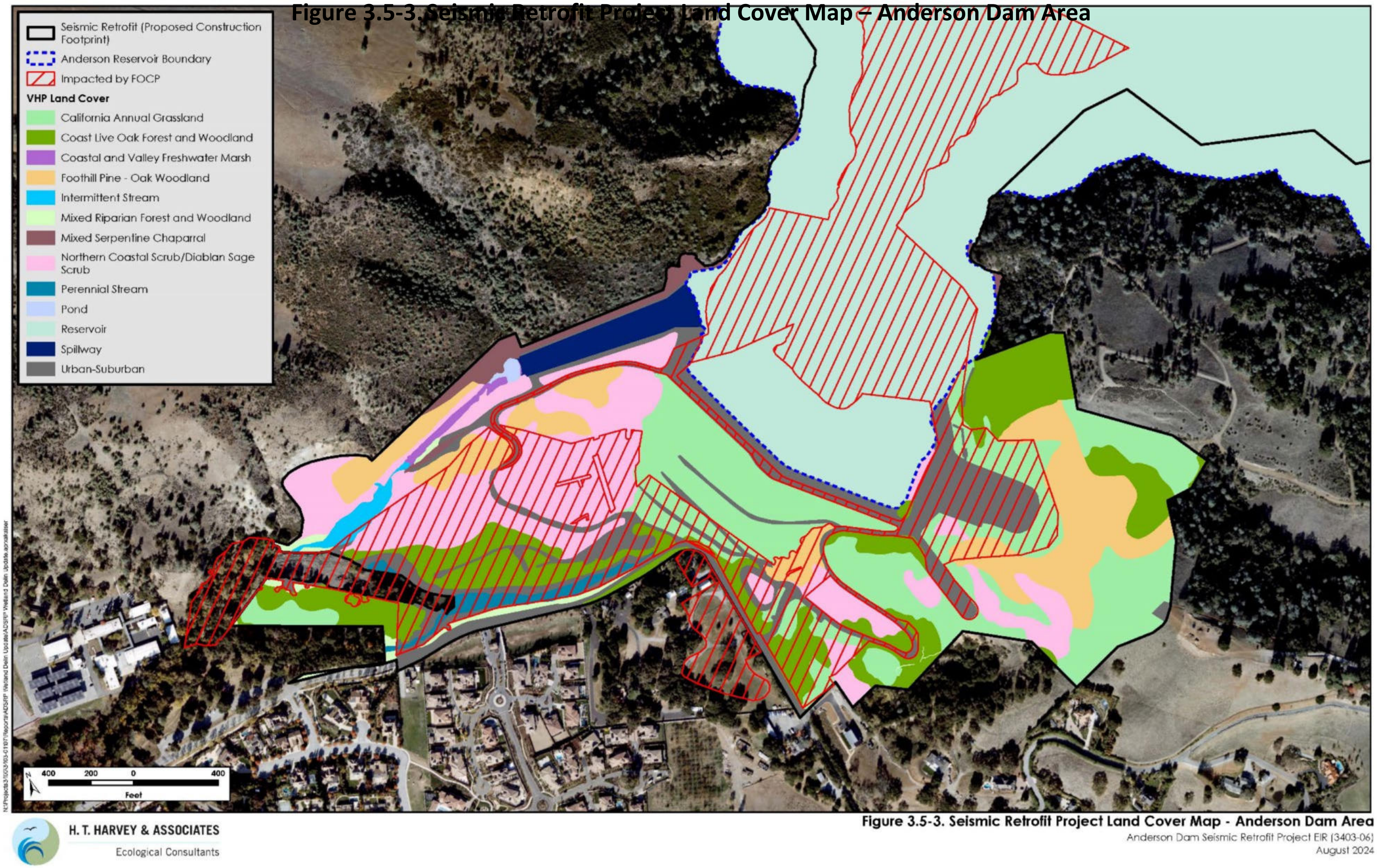

Figure 3.5-4. Ogier Ponds Geomorphic and Habitat Restoration Project Land Cover Map

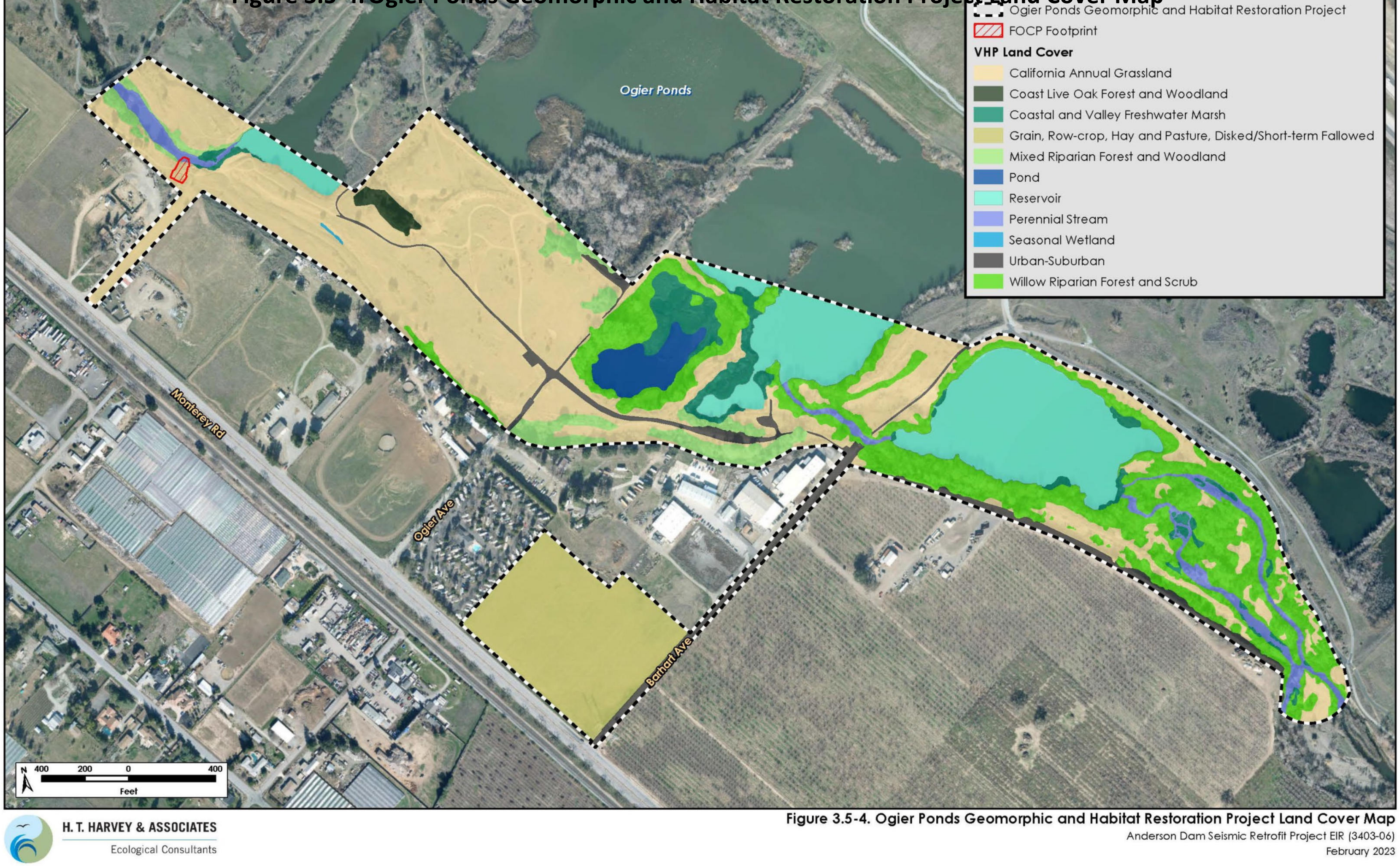

Figure 3.5-5. Phase 2 Coyote Percolation Dam Fish Passage Enhancement Project Land Cover Map

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Figure 3.5-5. Phase 2 Coyote Percolation Dam Fish Passage Enhancements Project Land Cover Map
Anderson Dam Seismic Retrofit Project EIR (3403-06)
February 2023

Figure 3.5-6. North Channel Reach and Live Oak Restoration Reach Land Cover Map

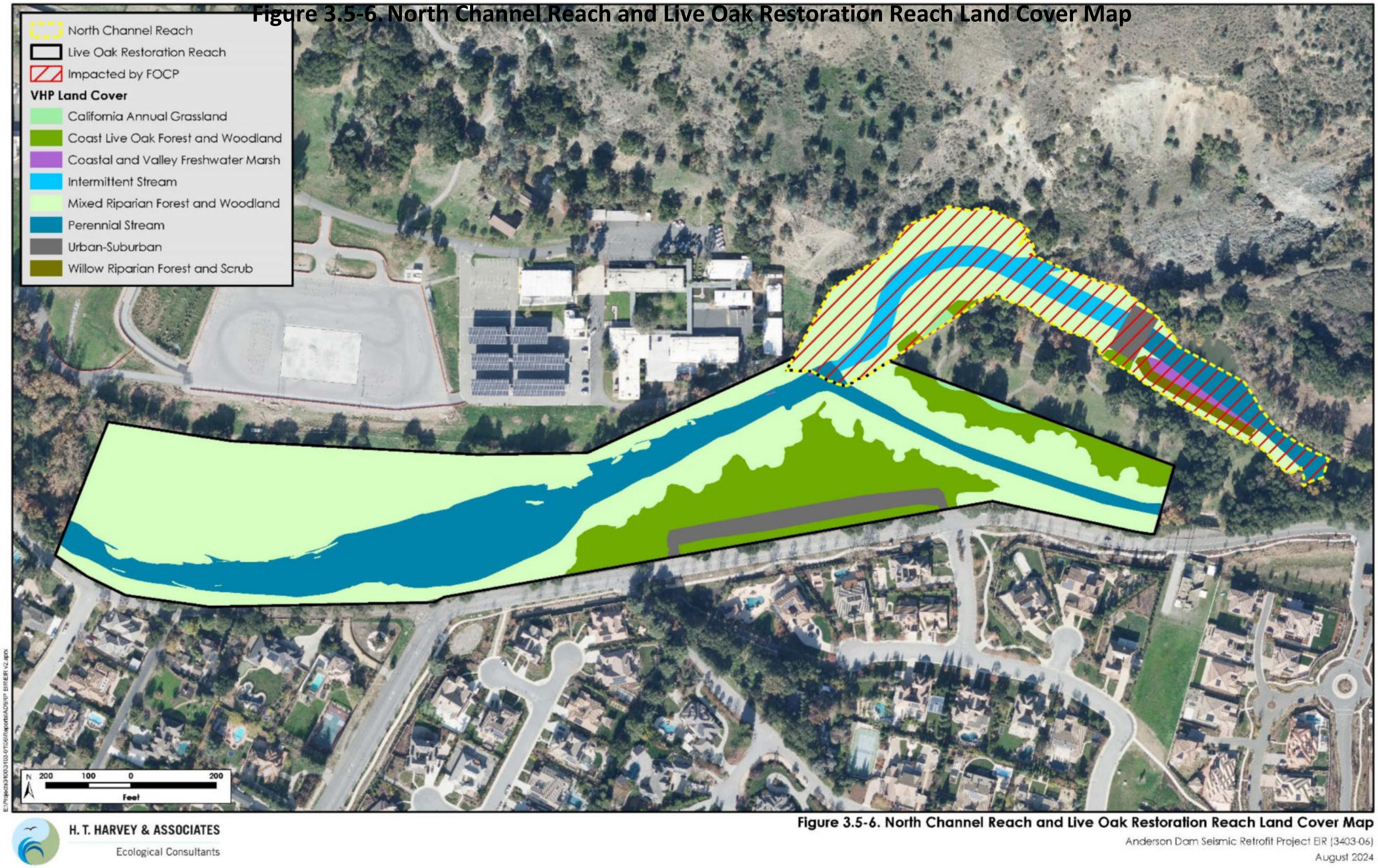

Figure 3.5-6. North Channel Reach and Live Oak Restoration Reach Land Cover Map
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2024

Figure 3.5-7. 3.5-6 Coyote Creek (Anderson Dam to Coyote Percolation Dam) Land Cover Map

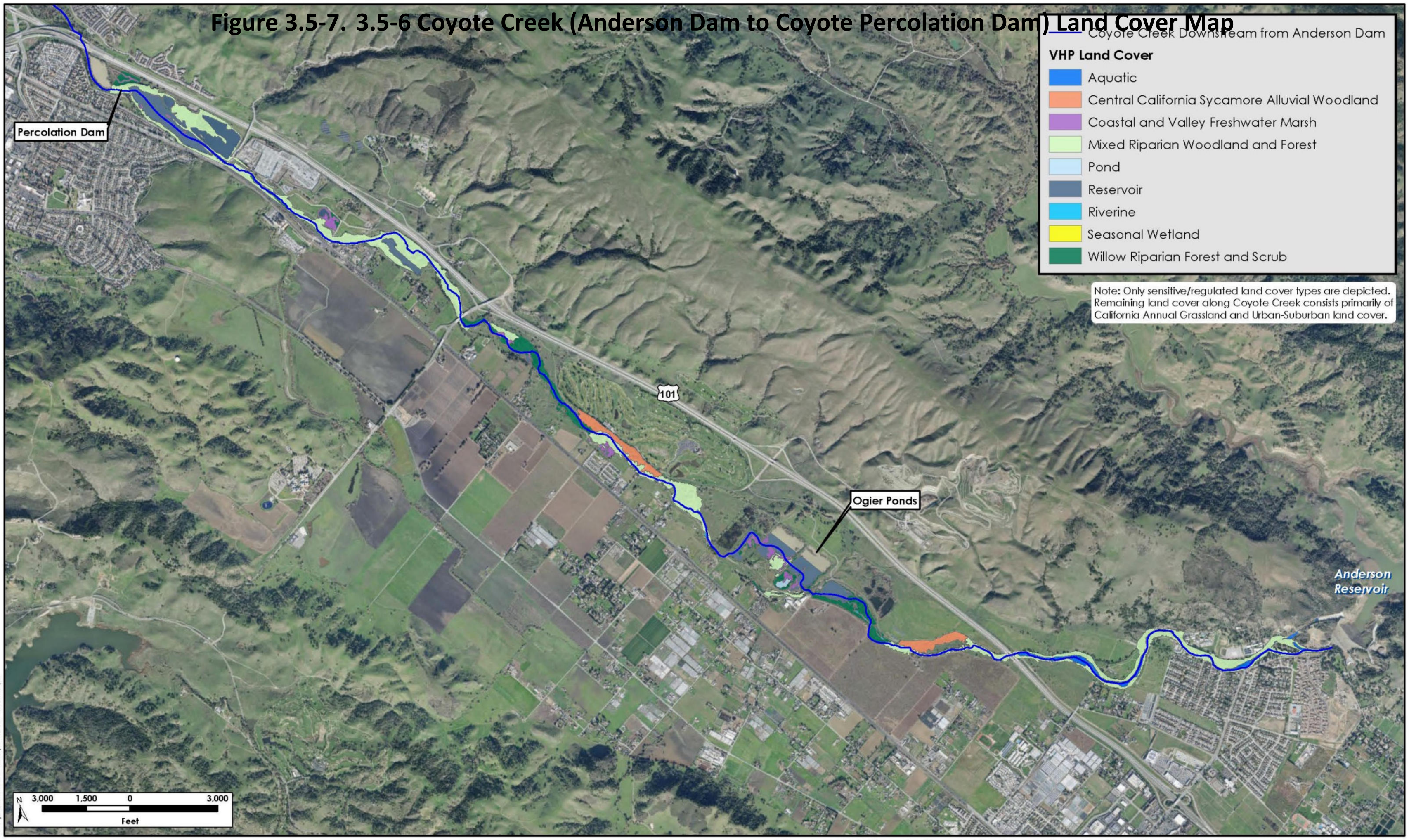

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Figure 3.5-7. Coyote Creek (Anderson Dam to Coyote Percolation Dam) Land Cover Map
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2024

The acreages of these land cover types within the Seismic Retrofit Area, Ogier Ponds CM Area, ~~and~~ Coyote Percolation Dam CM Area, and North Channel Reach and Live Oak Restoration Reach maintenance areas, are provided in **Table 3.5-1.** For perennial and intermittent streams, stream acreage is included in the acreage of mixed riparian woodland and forest, in accordance with VHP conventions, and the linear footage of streams in each of these Project Areas is provided in **Table 3.5-2**. The acreages/stream linear footage provided in these tables represent the extent of each land cover type within the footprint (i.e., potential impact area) of these Project components under baseline conditions.

Acreages of land cover types in the remainder of Coyote Creek between the Seismic Retrofit and Coyote Percolation Dam CM, as shown on **Figure 3.5-7**, are not summarized in **Table 3.5-1**, as no direct impacts are proposed in these areas. ~~Although Conservation Measures, including the Sediment Augmentation Program, are expected to occur somewhere in this segment of Coyote Creek, the locations and footprints of such Project activities within this area are not yet known.~~ An additional (15th) land cover type, Central California sycamore alluvial woodland, is present along this segment of Coyote Creek but not elsewhere in the Project Area.

In addition to these 15 land cover types, portions of the Seismic Retrofit, Ogier Ponds CM, and Coyote Percolation Dam CM Areas (summarized in the "Disturbed by FOCP" category in ~~(~~**Table 3.5-1**~~)~~ will have been impacted by the FOCP immediately prior to the commencement of the Seismic Retrofit. Permanent VHP impact fees will have been paid by Valley Water for areas that will have been permanently impacted by the FOCP. The CEQA baseline for construction impacts on terrestrial biological resources habitat conditions for the Seismic Retrofit and Conservation Measures construction (i.e., the Existing Conditions Baseline) is represented by existing conditions at the time of EIR preparation as modified by FOCP implementation (i.e., post-FOCP conditions). Initiation of Project construction would closely follow the completion of the FOCP, or at most, be separated by one wet season. As a result, when Project construction begins, much of the Project Area around Anderson Dam would have been recently disturbed by the FOCP. Vegetation present in disturbed upland (i.e., nonaquatic/wetland) areas, including riparian areas, would be likely to represent erosion-control seed mixes used to stabilize or winterize the FOCP-disturbed areas and would therefore be most similar to California annual grassland. Disturbed wetlands would still have wetland hydrology, but vegetation would not have had time to recover fully prior to Seismic Retrofit initiation. Portions of the FOCP impact area within Anderson Reservoir and within the Coyote Creek channel would represent the reservoir and perennial stream land cover types, respectively, but would have been recently disturbed by the FOCP. Because of the quick transition between the FOCP and commencement of the Seismic Retrofit, Valley Water would not have made an attempt to restore land cover types within areas of overlap between the two projects, so the conditions within those areas would either be developed ("urban-suburban") or some highly disturbed version of the underlying pre-FOCP land cover type that is no longer representative of a specific VHP land cover type when Seismic Retrofit activities commence. For these reasons, all areas that will have been disturbed by the FOCP and then would be subject to Project activities are represented by this "Disturbed by FOCP" land use category. However, the underlying pre-FOCP land cover types in these areas are depicted on **Figure 3.5-2** through **Figure 3.5-5**, in the areas overlaid by "FOCP Footprint" hatching. Also, because construction of the North Channel Extension as part of FOCP will result in changes in the location and extent of land cover types, the land cover types depicted on **Figure 3.5-6** and in **Table 3.5-1** reflect the type, location, and extent of land cover types in the North Channel Reach maintenance area as they are expected to be when ADSRP construction commences.

Table 3.5-1. Land Cover Types in the Seismic Retrofit, Ogier Ponds CM, Coyote Percolation Dam CM, North Channel ~~Extension~~ Reach, and Live Oak Restoration Reach Areas

Land Cover Type	Seismic Retrofit Area (acres)[1]	Ogier Ponds CM Area (acres)[1]	Coyote Percolation Dam CM Area (acres)[1]*	North Channel ~~Extension~~ Reach Area (acres)[1]	Live Oak Restoration Reach Area (acres)[1,~~2~~]	Total (acres)[~~3~~]
Reservoir	1,206.8[2]	17.2	0 –	0	0	1,224.0
Pond	0.19	2.13	0	0	0	2.32
Perennial Stream	0.05[3] ~~0.73[5]~~	1.25	0.39	0.68 ~~0.02~~	4.45 ~~3.79~~	6.82 ~~6.18~~
Intermittent Stream	0.88 ~~1.02~~			0.99 ~~0.26~~		1.87 ~~1.14~~
Coastal and Valley Freshwater Marsh	0.43 ~~0.52~~	3.65	0	0.12 ~~0.01~~	0.01	4.21 ~~4.19~~
Seasonal Wetland	0	0.05	0	0	0	0.05
Mixed Riparian Woodland and Forest	~~4.14~~ 1.29	4.95	0.20	2.67 ~~2.13~~	10.41 ~~7.64~~	19.34 ~~19.06~~
Willow Riparian Forest and Scrub	0 –	14.35	0	0.17	0	14.52 ~~14.35~~
California Annual Grassland	~~21.2~~ 10.5	40.5	0	0.05 ~~0.02~~	0.1	51.15 ~~61.7~~
Mixed Serpentine Chaparral	2.3 ~~2.5~~	0	0	0	0	2.3 ~~2.5~~
Northern Coastal Scrub/Diablan Sage Scrub	9.64 ~~11.1~~	0	0	0	0	9.64 ~~11.1~~
Coast Live Oak Forest and Woodland	9.4 ~~14.3~~	0.7	0	0.1 ~~0.04~~	3.7 ~~0.1~~	13.9 ~~15.1~~
Foothill Pine-Oak Woodland	5.6 ~~11.2~~	0	0	0	0	11.2
Grain, Row-Crop, Hay and Pasture, Disked/Short-Term Fallowed	0	11.7	0	0		11~~.7~~
Urban-Suburban	8.7 ~~12.0~~	4.7	2.9	0	0.6 ~~0.01~~	16.9 ~~19.6~~
Disturbed by FOCP[64]	78.8 ~~87.5~~	0.1	0.1	0	0	79.0 ~~87.7~~
Total	**1,334.6 ~~1,373.1~~**	**101.2**	**3.6**	**4.8 2.5**	**19.3 ~~11.6~~**	**1,463.5 ~~1,492.0~~**

Notes:

[1] In accordance with VHP conventions, acreages are reported to the nearest 0.1 acres except for wetland and riparian land cover types (and except where the acreage is very low).

~~[2] Acreages for the Live Oak Restoration Reach in this table do not include portions of that Conservation Measure that overlap the North Channel Extension (0.002 acres of intermittent stream, 0.02 acres of perennial stream, 0.001 acres of coastal and valley freshwater marsh, and 0.20 acres of mixed riparian woodland and forest) or Seismic~~

~~Retrofit Area (0.68 acres of perennial stream, 0.003 acres of coastal and valley freshwater marsh, 2.87 acres of mixed riparian woodland and forest, 3.5 acres of coast live oak forest and woodland, 0.1 acres of California annual grassland, and 0.6 acres of urban-suburban).~~

[~~3~~] ~~The "Total" column summarizes the total acreages within the Seismic Retrofit, Ogier Ponds CM, and Coyote Percolation Dam CM Areas. Additional impacts may result from Conservation Measures, such as the Sediment Augmentation Program, though the locations and extents of such impact areas are not yet known.~~

[34] A total of 357.6 acres of reservoir are present within the currently proposed Seismic Retrofit construction footprint, and an additional 849.2 acres are within additional areas within the reservoir where construction activities could potentially occur.

[3~~5~~] In addition to the 0.73 acres of perennial stream that will be impacted by Seismic Retrofit construction outside the FOCP footprint, 1.5 ~~1.98~~ acres that will have been temporarily impacted by the FOCP may be impacted by Seismic Retrofit construction as well.

[4~~6~~]*Portions of the Project Area in the "Disturbed by FOCP" category will have been impacted by the FOCP immediately prior to the commencement of the Seismic Retrofit, Ogier Ponds CM, and Coyote Percolation Dam CM. Permanent VHP impact fees will have been paid by Valley Water for impacts to the areas that will have been permanently impacted by the FOCP. The conditions within those areas will either be developed ("urban-suburban") or some highly disturbed version of the underlying pre-FOCP land cover type that is no longer representative of a specific VHP land cover type when Seismic Retrofit activities commence. Therefore, the Project baseline land cover type for these areas is not provided in* ***Table 3.5-1****. However, the underlying pre-FOCP land cover types in these areas are depicted on* ***Figure 3.5-2*** *through* ***Figure 3.5-5***, in the areas overlaid by "FOCP Footprint" hatching.

Key: CM = Conservation Measures; FOCP = Federal Energy Regulatory Commission Order Compliance Project

Table 3.5-2. Stream Linear Footage in the Seismic Retrofit, Ogier Ponds CM, ~~and~~ Coyote Percolation Dam CM, North Channel Reach ~~Extension~~, and Live Oak Restoration Reach Areas

Land Cover Type	Seismic Retrofit Area (linear feet)[1]	Ogier Ponds CM Area (linear feet)	Coyote Percolation Dam CM Area (linear feet)[2]	North Channel ~~Extension~~ Reach Area (linear feet)	Live Oak Restoration Reach (linear feet)[3]	Total (linear feet)[4]
Intermittent Stream	668 ~~864~~	0	0	678 ~~482~~	0	1,346
Perennial Stream	120 ~~1,082~~	2,020	584	470 ~~30~~	1,761	4.955 ~~5,477~~
Total	788 ~~1,946~~	2,0~~20~~	584	1,140 ~~512~~	1,761	6,301 ~~6,823~~

Notes:

[1] Totals for the Seismic Retrofit Area do not include approximately 1.3 ~~1.98~~ acres and 1,338 ~~1,674~~ linear feet of perennial stream that will have been impacted by the FOCP but that may also be present prior to the start of, and may therefore be impacted by, Seismic Retrofit construction.

[2] Totals for the Coyote Percolation Dam CM Area do not include approximately 65 linear feet of perennial stream that will have been impacted by the FOCP prior to the start of Coyote Percolation Dam CM construction.

~~[3] Linear footages for the Live Oak Restoration Reach in this table do not include portions of that Conservation Measure that overlap the North Channel Extension (17 linear feet of intermittent stream and 72 linear feet of perennial stream) or Seismic Retrofit Area (990 linear feet of perennial stream).~~

~~[4] The "Total" column summarizes the total linear footage of streams within the Seismic Retrofit, Ogier Ponds CM, and Coyote Percolation Dam CM Areas. Additional impacts may result from Conservation Measures, such as Sediment Augmentation Program, though the locations and extents of such impact areas are not yet known.~~

Key: CM = Conservation Measures

Habitat conditions, dominant plant species, and representative animal species for each of the 15 land cover types in the Project Area, as well as perennial and intermittent streams, are described in detail below. Special-status species are mentioned in the following land cover descriptions if they occur regularly in a given land cover type (as opposed to occurring infrequently); additional information on occurrences of special-status species, and those species' habitat associations, is provided in **Table 3.5-4** (for plants) and **Table 3.5-5** (for animals).

Reservoir

Habitat Conditions/Vegetation. Anderson Reservoir is an anthropogenic feature created from the impoundment of Coyote Creek. The reservoir is impounded by a compacted embankment dam made of earth and rock, which is approximately 240 feet high. The reservoir land cover type was mapped in all areas below the elevation of the reservoir's rim, which is 627.9 feet, equivalent to the spillway elevation. Currently, the water level in Anderson Reservoir is in a drawn-down condition, well below the height of its original design elevation due to DSOD and FERC restrictions. The exposed shoreline rim is rocky, steeply sloped, and sparsely vegetated in many areas, although some vegetation, including grasses, bull thistle (*Cirsium vulgare*), coyote brush (*Baccharis pilularis*), and Russian thistle (*Salsola tragus*), has become established in areas that have not recently been inundated. No substantial amounts of emergent vegetation are present in or around Anderson Reservoir.

The reservoir land cover type is also present within the Ogier Ponds CM Area; there, the larger impoundments (Ponds 1, 2, and 4 of the Ogier Ponds complex) were considered reservoir due to the large size and deep nature of these artificial waterbodies. Further downstream, the portion of the Coyote Percolation Pond immediately upstream from the Coyote Percolation Dam CM was also considered reservoir.

Wildlife. Common resident waterbirds that occur in and along the shoreline of Anderson Reservoir and the reservoir land cover types at the Ogier Ponds and Coyote Percolation Pond include the pied-billed grebe (*Podilymbus podiceps*), Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), American coot (*Fulica americana*), common merganser (*Mergus merganser*), and killdeer (*Charadrius vociferus*), among others. Shorebirds and wading birds, such as the greater yellowlegs (*Tringa melanoleuca*), spotted sandpiper *(Actitis macularius*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), and others forage at the edges of the reservoir land cover type during migration and winter, and bald eagles forage for fish and waterfowl. Amphibian species that may breed in these reservoirs include the native western toad (*Anaxyrus boreas*), Sierran chorus frog (*Pseudacris sierra*), and the nonnative bullfrog (*Lithobates catesbeianus*). ~~Western~~ Northwestern pond turtles are also known to occur in this land cover type at the Ogier Ponds and Coyote Percolation Pond and have been reported from Anderson Reservoir (CNDDB 2022).

Pond

Habitat Conditions/Vegetation. The pond land cover type is present in the Seismic Retrofit Area in a small pool immediately below the concrete-lined spillway at Anderson Dam, and in portions of the Ogier Ponds CM area. The small pond below the concrete-lined spillway is lined with rock and supports no substantive vegetation. At the Ogier Ponds, the pond land cover type is represented by Pond 5, a groundwater-supported pond that is not in-line with Coyote Creek as Ponds 1 through 4 are. Pond 5 is a shallow pond ringed by cattails (*Typha* spp.) and other emergent vegetation. Along Coyote Creek between the Seismic Retrofit and Coyote Percolation Dam CM Areas, additional off-channel ponds occur at the Ogier Ponds and near Coyote Ranch.

Wildlife. Due to the small size of the pond downstream from the concrete-lined spillway at Anderson Dam, relatively few pond-associated wildlife species occur there. However, mallards, great blue herons (*Ardea herodias*), great egrets, and snowy egrets forage there, and western toads, Sierran chorus frogs, and bullfrogs are present. In addition to these species, pond habitats at the Ogier Ponds support a variety of waterfowl, including gadwall (*Mareca strepera*), cinnamon teal (*Spatula cyanoptera*), and double-crested cormorant (*Nannopterum auritum*). ~~Western~~ Northwestern pond turtles also occur occasionally in these pond habitats, though at the Ogier Ponds, they occur more abundantly in the reservoir land cover type.

Perennial Stream

Habitat Conditions/Vegetation. In the Project Area, perennial stream habitat is represented solely by Coyote Creek. Coyote Creek originates on Mount Sizer, located approximately 7 miles northeast of Anderson Dam, and flows through the western slope of the Diablo Range. At the base of the Diablo Range, the creek is impounded by two dams, first by Coyote Reservoir and then by Anderson Reservoir. Downstream of Anderson Reservoir the creek continues north from Morgan Hill into San José and empties into San Francisco Bay. In some areas, the perennial stream habitat supports perennial marsh vegetation (discussed separately in the coastal and valley freshwater marsh section below). Flow in the reach of Coyote Creek downstream of Coyote Dam and entering Anderson Reservoir is regulated by releases from Coyote Dam; these releases maintain perennial flows in the intervening reach. Downstream from Anderson Dam, flow is regulated primarily by releases from Anderson Dam. The perennial stream land cover type includes short segments of channel within the Ogier Ponds complex that carry water between reservoir/pond land cover types, as well as the reach of Coyote Creek within the Coyote Percolation Dam CM Area and Live Oak Restoration Reach.

Wildlife. Amphibians, such as the western toad, Sierran chorus frog, and bullfrog, are present in the perennial creek land cover type. The native northwestern pond turtle occurs in Coyote Creek, along with nonnative turtles that have been released locally from captivity, primarily red-eared sliders (*Trachemys scripta*). Waterbirds, such as the mallard, green heron (*Butorides virescens*), great egret, and belted kingfisher (*Megaceryle alcyon*), forage in the waters of perennial streams. Bats, including the Yuma bat (*Myotis yumanensis*) and big brown bat (*Eptesicus fuscus*), forage aerially on insects over these streams.

Intermittent Stream

Habitat Conditions/Vegetation. In the Seismic Retrofit Area, the intermittent stream land cover type is present within a channel between the waterfall downstream from the unlined portion of the Anderson Dam spillway and the North Channel of Coyote Creek, and within the North Channel itself.~~(including the North Channel Extension Area).~~ These areas experience wet-season flow, typically at very low rates unless Anderson Reservoir is spilling. The majority of intermittent stream channel bed is excavated bedrock (associated with previous quarrying activities at Chert Hill) with little soil development, and therefore vegetation is typically sparse. Water moves within a dispersed, finger-like network of smaller channels during low flow events. Only during reservoir spill releases is the entire channel filled with water. Further downstream, the North Channel of Coyote Creek is dominated by cobbles. Here the intermittent channel is underlain by riverwash and a riparian forest canopy grows along the channel up to the top of bank.

Wildlife. Water in the intermittent stream channel supports invertebrates, which attract foraging avian insectivores, such as flycatchers and swallows. Other birds, such as herons and egrets, may also forage along this channel as may common mammals, such as the raccoon (*Procyon lotor*).

Coastal and Valley Freshwater Marsh

Habitat Conditions/Vegetation. In the Seismic Retrofit Area, coastal and valley freshwater marsh occurs within the unlined portion of the Anderson Dam spillway and in very limited areas along the North Channel of Coyote Creek. Vegetation within this habitat is dominated by perennial aquatic emergent vegetation, such as cattails, and shoreline plants that grow along the edge of the aquatic habitat, such as iris-leaved rush (*Juncus xiphioides*), tall flatsedge (*Cyperus eragrostis*), fringed willow herb (*Epilobium ciliatum*), and fiddle dock (*Rumex pulcher*).

Coastal and valley freshwater marsh is present in several areas within the Ogier Ponds CM Area. There, large stands of coastal and valley freshwater marsh dominated by cattails and California bulrush (*Schoenoplectus californicus*) are present in the southwest portion of Pond 2 and around Pond 5, and small patches occur around the perimeter of Pond 1. Along Coyote Creek between the Seismic Retrofit and Coyote Percolation Dam CM Areas, coastal and valley freshwater marsh occurs in several additional areas, including areas downstream from the Coyote Creek Golf Course access road, upstream from Bailey Avenue, and near Coyote Ranch.

Wildlife. Freshwater marshes often provide habitat for a distinctive suite of wetland-associated wildlife species. Amphibians such as the native Sierran chorus frog and western toad, as well as the nonnative bullfrog, inhabit these wetlands. Avian species that nest and forage in adjacent riparian and oak woodland habitats forage in these wetlands. Common wetland-associated birds, such as the song sparrow (*Melospiza melodia*), red-winged blackbird (*Agelaius phoeniceus*), and common yellowthroat (*Geothlypis trichas*), nest and forage within these wetlands. Emergent wetlands at the Ogier Ponds provide nesting habitat for the American coot and common gallinule (*Gallinula galeata*) and foraging sites for herons and egrets.

Seasonal Wetland

Habitat Conditions/Vegetation. No seasonal wetland is present within the Seismic Retrofit Area or Coyote Percolation Dam CM Area. At the Ogier Ponds CM Area, seasonal wetland is represented by a small depressional area in the historical channel of Coyote Creek, just south of Pond 4 at the Ogier Ponds. This seasonal wetland is likely supported by high groundwater during the wet season and is dominated by annual beard grass (*Polypogon monspeliensis*). This wetland is shallow and does not pond for long periods, even during the wet season. Along Coyote Creek between the Seismic Retrofit and Coyote Percolation Dam CM Areas, additional seasonal wetlands occur in portions of the Ogier Ponds complex that are outside of the Ogier Ponds CM Area.

Wildlife. The seasonal wetland near the Ogier Ponds does not provide surface water long enough to support breeding amphibians or to provide aquatic foraging habitat for waterbirds. Although a variety of animals may drink or bathe in this wetland when surface water is present, the wildlife using this feature are primarily the species that occur in adjacent California annual grassland.

Mixed Riparian Woodland and Forest

Habitat Conditions/Vegetation. In the Seismic Retrofit Area, mixed riparian woodland and forest occurs along riparian corridors downstream of the Anderson Reservoir spillway and along Coyote Creek, including both the North and South Channels. This land cover type includes a variety of riparian shrubs and trees including arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), California sycamore (*Platanus racemosa*), bigleaf maple (*Acer macrophyllum*), and white alder (*Alnus rhombifolia*). These riparian tree species often co-occur with coast live oaks (*Quercus agrifolia*), and mixed riparian woodland and forest intergrades with coast live oak forest and woodland in some areas. The understory is composed of California blackberry (*Rubus ursinus*), California wildrose (*Rosa californica*), and other shrubs and herbaceous species along the banks.

Extensive mixed riparian woodland and forest is present in the Ogier Ponds CM Area along the historical Coyote Creek channel downstream from Barnhart Avenue, along the current Coyote Creek channel at the downstream end of the Ogier Ponds complex, in the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach, and in several locations around the pond and reservoir land cover types. Dominant plant species here include arroyo willow, red willow, California sycamore, and Fremont cottonwood (*Populus fremontii*). At the Coyote Percolation Dam CM Area, and along much of Coyote Creek between the Seismic Retrofit and Coyote Percolation Dam CM Areas, mixed riparian woodland and forest lines both sides of Coyote Creek.

Wildlife. The structural diversity of the mixed riparian woodland and forest habitat in the Project Area supports a high diversity of animal species. Riparian forests provide habitat for relatively high densities of native nesting songbirds, such as the song sparrow, Pacific-slope flycatcher (*Empidonax difficilis*), black-headed grosbeak (*Pheucticus melanocephalus*), warbling vireo (*Vireo gilvus*), chestnut-backed chickadee (*Poecile rufescens*), oak titmouse (*Baeolophus inornatus*), bushtit (*Psaltriparus minimus*), house wren (*Troglodytes aedon*), American robin (*Turdus migratorius*), and many others. During spring and fall migration, high densities of migrant songbirds forage in these habitats. Oak and sycamore trees also support cavity-nesting bird species, such as woodpeckers and American kestrels (*Falco sparverius*). Leaf litter, downed tree branches, and fallen logs provide cover for the arboreal salamander (*Aneides lugubris*), slender salamander (*Batrachoseps attenuatus*), and several lizards may also occur here, including the western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*), and southern alligator lizard (*Elgaria multicarinata*). Small mammals, such as the ornate shrew (*Sorex ornatus*), California vole (*Microtus californicus*), and Audubon's cottontail (*Sylvilagus audubonii*), use these riparian habitats as well. Medium-sized mammals, such as the raccoon, striped skunk (*Mephitis mephitis*), and bobcat (*Lynx rufus*), also occur in this land cover type.

Willow Riparian Forest and Scrub

Habitat Conditions/Vegetation. No willow riparian forest and scrub is present within the Seismic Retrofit Area or Coyote Percolation Dam CM Area. At the Ogier Ponds CM Area, this land cover type occurs in a number of locations. It is present along the segments of Coyote Creek that flow into and through the pond complex, around the perimeters of some of the pond/reservoir land cover types, and in a portion of the historical Coyote Creek channel downstream from Ogier Avenue. This land cover type is dominated by arroyo willow, red willow, and Fremont cottonwood, often in very dense stands. Willow riparian forest and scrub is also present along several segments of Coyote Creek between the Seismic Retrofit and Coyote Percolation Dam CM Areas. A limited area of willow riparian forest and scrub will have been created in the North Channel Reach by the FOCP just prior to ADSRP initiation.

Wildlife. The animals associated with willow riparian forest and scrub are largely the same as those described above for mixed riparian woodland and forest.

California Annual Grassland

Habitat Conditions/Vegetation. California annual grassland is an herbaceous plant community dominated by nonnative annual grasses. Within the Seismic Retrofit Area, this land cover type is found on the downstream dam face, in areas within the BHBA and along access roads to that borrow area, along the edge of the reservoir rim (just above the high-water line), and within the Live Oak Picnic Area. This land cover type also dominates most of the upland portions of the Ogier Ponds CM Area, as well as most upland areas along Coyote Creek between the Seismic Retrofit and Coyote Percolation Dam CM Areas. Dominant species include nonnative grasses such wild oats (*Avena fatua*), bromes (*Bromus* spp.), and Italian rye grass (*Festuca perennis*). Common nonnative and native forbs include clovers (*Trifolium* spp.), filarees (*Erodium* spp.), Jersey cudweed (*Pseudognaphalium luteoalbum*), lupines (*Lupinus* spp.), yarrow (*Achillea millefolium*), and California poppy (*Eschscholzia californica*). Several invasive weeds are also common, including yellow star-thistle (*Centaurea solstitialis*), bull thistle (*Cirsium vulgare*), and milk thistle (*Silybum marianum*). In addition, several small patches of native bunchgrass habitat are present around Anderson Dam (such as in and just north of the BHBA) within areas mapped as California annual grassland or in small openings within other habitat types. Purple needlegrass (*Stipa pulchra*) is the dominant species in these native grasslands.

Wildlife. Small mammals such as the California ground squirrel (*Otospermophilus beecheyi*), valley pocket gopher (*Thomomys bottae*), and deer mouse (*Peromyscus maniculatus*) are common residents of annual grasslands in the Project Area. Black-tailed deer (*Odocoileus hemionus*) are common browsers, and other large mammals, especially crepuscular and nocturnal mammals such as the coyote (*Canis latrans*) and bobcats, forage in grasslands as well. Vegetation within much of the grassland in the Project Area is too sparse to support ground-nesting grassland birds, but areas with higher densities of grassland vegetation support common grassland-nesting bird species, such as the western meadowlark (*Sturnella neglecta*). Additional bird species that nest in adjacent habitats frequently forage in grasslands. These include lark sparrow (*Chondestes grammacus*), western bluebird (*Sialia mexicana*), barn swallow (*Hirundo rustica*), violet-green swallow (*Tachycineta thalassina*), red-tailed hawk (*Buteo jamaicensis*), and white-tailed kite (*Elanus leucurus*). Grassland provides abundant refugia for reptiles, with numerous large rocks to provide crevices for refuge and hunting. Reptile species occurring in the annual grassland in the Project Area include the western fence lizard, gopher snake (*Pituophis catenifer*), northern Pacific rattlesnake (*Crotalus oreganus*), and western terrestrial garter snake (*Thamnophis elegans*).

Mixed Serpentine Chaparral

Habitat Conditions/Vegetation. Mixed serpentine chaparral occurs in the Seismic Retrofit Area on dry slopes underlain by serpentine soils. The majority of mixed serpentine chaparral is present on the northern side of the Anderson Dam spillway (including both the concrete-lined and unlined portions), where extensive stands of this land cover type covering the ridge to the north barely extend into the Project Area. Smaller areas of mixed serpentine chaparral are present within the Project Area just northeast of the spillway and northeast of the boat ramp at Anderson Dam; in both areas, Project activities will extend into the chaparral above the reservoir rim, into mixed serpentine chaparral. Coyote ceanothus forms dense stands and dominates this land cover type. Other common shrubs include California sagebrush (*Artemisia californica*), toyon (*Heteromeles arbutifolia*), coyote brush, and bigberry manzanita (*Arctostaphylos glauca*). This habitat also includes several small serpentine rock outcrops at the base of Silica Carbonate Hill. Just outside the Project footprint, Santa Clara Valley dudleya occur on these outcrops, though none are present within the construction footprint itself.

Wildlife. The mixed serpentine chaparral provides nesting habitat for birds, such as the California scrub-jay (*Aphelocoma californica*), California towhee (*Melozone crissalis*), spotted towhee (*Pipilo maculatus*), wrentit (*Chamaea fasciata*), California thrasher (*Toxostoma redivivum*), lesser goldfinch (*Spinus psaltria*), and Anna's hummingbird (*Calypte anna*). Mammal species that use such scrub habitat include the coyote, California mouse (*Peromyscus californicus*), and brush rabbit (*Sylvilagus bachmani*). Reptiles that occur here include the gopher snake, northern Pacific rattlesnake, southern alligator lizard, and western fence lizard.

Northern Coastal Scrub/Diablan Sage Scrub

Habitat Conditions/Vegetation. The northern coastal scrub/Diablan sage scrub land cover type occurs on dry, exposed slopes with shallow soils within the Seismic Retrofit Area. This land cover type includes several different shrub communities that intergrade on the site. Areas of northern coastal scrub/Diablan sage scrub in the BHBA are dominated by coyote brush and support little plant diversity. A large contiguous patch of scrub habitat on the right (north) abutment of Anderson Dam and patches along the southern edge of the unlined portion of the Anderson Dam spillway and in the former Chert Hill quarry area support a diverse assemblage of native shrubs, including California sagebrush, black sage (*Salvia mellifera*), and yerba santa (*Eriodictyon californicum*). California buckwheat (*Eriogonum fasciculatum*), sticky monkey flower (*Diplacus aurantiacus*), Coyote ceanothus, and bigberry manzanita also occur in this land cover type. In areas with dense shrub cover, there is very little herbaceous community; however, occasional openings support both native and nonnative grasses and forbs.

Wildlife. Animals using the northern coastal scrub/Diablan sage scrub land cover type are similar to those described above for mixed serpentine chaparral.

Coast Live Oak Forest and Woodland

Habitat Conditions/Vegetation. In the Seismic Retrofit Area, coast live oak forest and woodland generally occur on mesic (moderately moist) slopes and in lowland areas with relatively deep, fertile soil. The majority of this land cover type occurs on flat terrain along Coyote Creek in the Live Oak Picnic Area, directly north of Cochrane Road. Smaller patches are present on the northeast side of the BHBA and along its associated access road.

At the Ogier Ponds CM Area, coast live oak forest and woodland is present along the southwestern terrace above the historical Coyote Creek channel on either side of Ogier Avenue and in one small patch southeast of Pond 4. Coast live oak is the dominant tree species. The majority of areas mapped as this land cover type are woodlands with open canopies; however, several relatively small but dense patches support overlapping canopies and could be classified as forest. This land cover type also includes occasional California bay (*Umbellularia californica*) and California sycamore trees. Common woody understory species include toyon and California blackberry. The herbaceous community is similar to that of the California annual grassland community but with a greater component of native forbs and grasses.

Wildlife. The coast live oak forest and woodland land cover type provides good cover, nesting/roosting opportunities, and a diversity of foraging opportunities for wildlife species. Oaks provide nesting and foraging opportunities for cavity-nesting birds such as the western bluebird, white-breasted nuthatch (*Sitta carolinensis*), Nuttall's woodpecker (*Picoides nuttallii*), and oak titmouse. Raptors such as the Cooper's hawk (*Accipiter cooperii*) and American kestrel may nest in large oaks. Acorns provide food for a number of wildlife species, including the acorn woodpecker (*Melanerpes formicivorus*), California quail (*Callipepla californica*), and California scrub-jay. San Francisco dusky-footed woodrats (*Neotoma fuscipes annectens*) and other small rodents, especially those associated with adjacent scrub, grassland, and riparian habitats, occur in oak woodlands on the site. Coast live oak woodlands provide cover for bobcats and coyotes that may occasionally wander through the site. Several species of amphibians, such as the arboreal salamander, can be found in oak woodlands, especially where moisture is retained under fallen wood and in crevices in oaks. Reptiles that occur here include the ringneck snake (*Diadophis punctatus*) and western skink.

Foothill Pine-Oak Woodland

Habitat Conditions/Vegetation. Foothill pine-oak woodland generally occurs in drier areas with shallow soils and often intergrades with scrub and chaparral habitats. In the Seismic Retrofit Area, this land cover type occurs throughout much of the rocky BHBA, on portions of the right (north) abutment of Anderson Dam, and on slopes north of the unlined portion of the spillway and in the Chert Hill area. The dominant tree species is foothill pine (*Pinus sabiniana*). In disturbed areas, the understory is often dominated by nonnative, invasive species including pampas grass (*Cortaderia jubata*). In less disturbed areas, the understory contains a higher proportion of native trees and shrubs, including coast live oak, coyote brush, and toyon. The herbaceous layer is generally similar to that in the California annual grassland habitat but is sparse in some areas due to a buildup of pine needles and thatch.

Wildlife. Adjacent chaparral, coastal scrub, and annual grassland communities contribute to the species found in the small patches of foothill pine-oak woodland. Common amphibians and reptiles such as the slender salamander, western fence lizard, gopher snake, southern alligator lizard, racer (*Coluber constrictor*), and common kingsnake (*Lampropeltis getula*) make use of downed tree branches under pine and oak trees in this habitat. Bird species commonly found in mixed pine-oak woodlands include the western bluebird, acorn woodpecker, northern flicker (*Colaptes auratus*), white-breasted nuthatch, and other cavity-nesting species. Raptors, such as red-tailed hawks, as well as predatory mammals, such as coyotes, forage on ground squirrels and other small mammals that are often present in mixed woodland habitats.

Grain, Row-Crop, Hay and Pasture, Disked/Short-Term Fallowed

Habitat Conditions/Vegetation. The grain, row-crop, hay and pasture, disked/short-term fallowed land cover type occurs in the Project Area only at the Ogier Ponds CM Area. There, this land cover type is represented by an agricultural field on the northwest side of the Monterey Road/Barnhart Avenue intersection. Based on a review of aerial photos, this field is disked frequently and has been mostly bare in recent years, though it has apparently been planted in hay in some years. Weedy plant species, such as those occurring in California annual grassland described above, likely occur in this field when it is fallow.

Wildlife. Wildlife use of the grain, row-crop, hay and pasture, disked/short-term fallowed land cover type is limited due to the absence of vegetation much of the time and the structural simplicity of the vegetation when hay is planted. Western meadowlarks, American pipits (*Anthus rubescens*), and red-winged blackbirds forage in this field, but it is unlikely that any birds nest there. A variety of mammals may move through, or occasionally forage in, this field, but none den there.

Urban-Suburban

Habitat Conditions/Vegetation. The urban-suburban land cover type includes developed/artificial habitats such as access roads, parking lots, structures (including the dam spillway), park facilities associated with Anderson Lake County Park, and landscaped areas. This land cover type also includes areas with a very low cover of ruderal species, similar to those occurring within the California annual grassland plant community, growing on the rocky soils east of the dam crest. Several earthen or concrete-lined swales occur directly adjacent to the existing roads. Urban-suburban areas are also present along roads at the Ogier Ponds CM Area and hardscaped and graveled areas at the Coyote Percolation Dam CM Area. Landscaped areas support a variety of nonnative and native species, including Peruvian pepper tree (*Schinus molle*), rosemary (*Rosmarinus officinalis*), and planted coast live oaks.

Wildlife. Developed habitats in the urban-suburban land cover type are used for foraging by a variety of animals associated with adjacent, less developed land cover types. Some species, such as the black phoebe (*Sayornis nigricans*), house finch (*Haemorhous mexicanus*), barn swallow, and cliff swallow (*Petrochelidon pyrrhonota*), nest on artificial structures, such as those at Anderson Dam, and the northern rough-winged swallow (*Stelgidopteryx serripennis*) and violet-green swallow nest in weep holes in the concrete spillway of Anderson Dam.

Central California Sycamore Alluvial Woodland

Habitat Conditions/Vegetation. The central California sycamore alluvial woodland land cover type is absent from the Seismic Retrofit, Ogier Ponds CM, and Coyote Percolation Dam CM Areas, and no Project construction activities are proposed or expected to occur in sycamore alluvial woodland. However, this land cover type is described here, because it is present in two areas along Coyote Creek between the Seismic Retrofit Area and the Coyote Percolation Dam CM Area. Sycamore alluvial woodland is present on the northeast side of Coyote Creek just downstream from US 101 (upstream from the Ogier Ponds) and adjacent to the Coyote Creek Golf Course. Sycamore alluvial woodland occurs in broad floodplains with deep alluvial material and is dominated by western sycamores, with lesser numbers of species, such as willows and coast live oak. The sycamores are widely spaced, allowing ample light to reach the ground, so that ground cover is similar in most areas to California annual grassland.

Wildlife. Sycamore alluvial woodland supports a variety of wildlife species, including many of those associated with mixed riparian forest and woodland, willow riparian forest and scrub, and California annual grassland. Mature sycamores often have cavities that provide dens for raccoons, roost sites for bats, and nest sites for birds, such as the northern flicker, western bluebird, acorn woodpecker, tree swallow (*Tachycineta bicolor*), wood duck (*Aix sponsa*), and common merganser (*Mergus merganser*).

Habitat Conditions and Characteristic Species in the Expanded Study Area

In addition to affecting terrestrial biological resources in the Project Area, the Project would also result in impacts on biological resources in additional portions of the study area that are outside the Seismic Retrofit Area and Conservation Measures Project Areas, and are thus not described above. These additional portions of the study area, called the expanded study area, are described below. The limits of the expanded study area cannot be defined precisely due to uncertainty regarding the extent to which indirect effects (such as effects of nitrogen emissions and deposition) may occur, but **Figure 3.5-1** constitutes a good base reference for purposes of identifying the additional portions of the study area described in the following bullets:

- Areas immediately adjacent to the Seismic Retrofit Area and Conservation Measures Project Area, where Project activities may disturb special-status animals through noise or construction activities, or special-status plants through dust mobilized by construction activities. These adjacent areas generally consist of the same land cover types that are within the portions of the Project Area to which they are adjacent and are thus dominated by the same plant and animal species described above for those land cover types. At the Seismic Retrofit Area, adjacent habitat areas will have been affected to varying degrees by noise, construction activity, dust mobilization, and other impacts from FOCP activities. However, in contrast to the areas included in the “Disturbed by FOCP” category in **Table 3.5-1**, these adjacent areas will still retain their pre-FOCP land cover types.
- Portions of lower Coyote Creek and Upper Penitencia Creek that would serve as Central California coast steelhead (*Oncorhynchus mykiss*) relocation sites if steelhead need to be relocated from the CWMZ during Project construction. Steelhead may be relocated to Coyote Creek near its confluence with Upper Penitencia Creek and/or the reach of Upper Penitencia Creek in Alum Rock Park. Land cover types in both areas consist of perennial stream, mixed riparian woodland forest, and urban-suburban, and characteristic plant and animal species are as described above for those three land cover types.
- Coyote Creek from Anderson Dam downstream to south San Francisco Bay, approximately 32 stream miles to the uppermost tidal areas and 40 stream miles to the open Bay, that could be affected by changes in flow rates and sediment mobilization during Project construction; the lower limits of this impact area, at the mouth of Coyote Slough, were established by modeling of sediment mobilization (URS ~~AECOM~~ 2021). From Anderson Dam downstream to the upper limits of tidal influence, land cover types include primarily perennial stream, mixed riparian woodland and forest, willow riparian forest and scrub, coastal and valley freshwater marsh, and urban-suburban. Limited areas of central California sycamore alluvial woodland, which is dominated by California sycamore, are also present (e.g., just downstream from US 101 between Anderson Dam and the Ogier Ponds, and just downstream from the Ogier Ponds). In tidally influenced

areas, land cover types include tidal brackish marsh dominated by California bulrush, alkali bulrush (*Bolboschoenus maritimus* subsp. *paludosus*), cattails, and perennial pepperweed (*Lepidium latifolium*), and tidal salt marsh dominated by Pacific cordgrass (*Spartina foliosa*), pickleweed (*Sarcocornia pacifica*), and marsh gumplant (*Grindelia stricta*). These tidal marshes support a suite of specialized animals, including the California Ridgway's rail (*Rallus obsoletus obsoletus*), California black rail (*Laterallus jamaicensis coturniculus*), Alameda song sparrow (*Melospiza melodia pusillula*), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), marsh wren (*Cistothorus palustris*), and salt marsh harvest mouse. Tidal areas at elevations too low to support emergent vegetation consist of subtidal areas that are inundated even at the lowest tides and intertidal mudflats that are exposed during low tide. A variety of waterbirds forage in such habitats, including ducks such as the canvasback (*Aythya valisineria*), green-winged teal (*Anas crecca*), and lesser scaup (*Aythya affinis*) and shorebirds such as the long-billed curlew (*Numenius americanus*), marbled godwit (*Limosa fedoa*), western sandpiper (*Calidris mauri*), willet (*Tringa semipalmata*), and short-billed dowitcher (*Limnodromus griseus*).

- Areas along Coyote Creek and in North Coyote Valley supporting wetland (coastal and valley freshwater marsh and seasonal wetland), aquatic (pond and perennial stream), or riparian (mixed riparian woodland, and forest and willow riparian forest and scrub) habitats dependent on groundwater, which could be subject to reduced water availability if Coyote Creek flows decrease during Project construction. The characteristic plant and animal communities present in these areas are as described for these land cover types above. However, seasonal wetlands are much more extensive in North Coyote Valley than they are in the Project Area. In particular, Laguna Seca is a large seasonal wetland in North Coyote Valley (see **Figure 3.5-1**). During wet years, Laguna Seca becomes a large, shallow lake that provides foraging habitat for a variety of waterfowl in winter. As Laguna Seca draws down in spring, it becomes vegetated with a variety of seasonal wetland plants, and after particularly high-rainfall years, it may hold water long enough to support nesting by ducks and by shorebirds such as the black-necked stilt (*Himantopus mexicanus*).
- Serpentine communities (e.g., serpentine bunchgrass grassland and mixed serpentine chaparral), such as those on Coyote Ridge, that would be adversely affected by nitrogen emissions from equipment and vehicles during Project construction, and thus by the Project's contribution to cumulative effects of nitrogen deposition. The serpentine bunchgrass grasslands subject to such effects include much more extensive, higher-quality grassland, such as that dominating Coyote Ridge to the north of Anderson Dam, than is present in the Project Area. Serpentine bunchgrass grassland on Coyote Ridge supports native plant communities dominated by purple needlegrass and a variety of forbs, including rare plants such as Santa Clara Valley dudleya, Metcalf Canyon jewel-flower, and most beautiful jewel-flower (*Streptanthus glandulosus* ssp. *glandulosus*). Several invertebrate species, including the federally threatened Bay checkerspot butterfly, depend on serpentine bunchgrass grasslands because their host food plants are found primarily in these habitats.

Given the vast extent of this expanded study area, the uncertainty regarding the precise locations of impacts to this area, and the fact that impacts within the additional portions of the study area would not change habitat/land cover types, the habitat/land cover types within the expanded study area have not been mapped or quantified as those within the Project Area have.

3.5.1.2 Aquatic Resources and Other Sensitive Habitats

Waters of the U.S./Waters of the State[1]

As described in the Regulatory Setting section below, impacts to wetlands and other waters of the U.S. and waters of the State are regulated under sections 404 and 401 of the federal Clean Water Act (CWA) and under the Porter-Cologne Act. Some features within the Project Area are expected to be considered by the USACE to be waters of the U.S. and by the SWRCB to be waters of the State. These features include the reservoir, pond, coastal and valley freshwater marsh, and seasonal wetland land cover types depicted on **Figure 3.5-2** through **Figure 3.5-7**, as well as the Anderson Dam spillway and perennial and intermittent streams. These features were identified during field delineations to identify regulated habitats (Valley Water 2024b ~~2022c~~). Most of the regulated waters are unvegetated "other waters," including Anderson Reservoir, Coyote Creek, pond, and reservoir land cover types at the Ogier Ponds and Coyote Percolation Dam, and intermittent streams. In addition, vegetated wetlands, including coastal and valley freshwater marsh and seasonal wetland, are also present. The precise extent to which these features are jurisdictional waters of the U.S./State will be verified later pursuant to jurisdictional delineations submitted to USACE and the SWRCB.

Potentially jurisdictional wetlands and other waters present within the Seismic Retrofit Area, Ogier Ponds CM Area, ~~and~~ Coyote Percolation Dam CM Area, and North Channel Reach and Live Oak Restoration Reach Maintenance areas under baseline conditions are summarized in **Table 3.5-3**. All features that possess the characteristics of waters of the U.S. were determined by Valley Water (2024b ~~2022c~~) to be waters of the U.S. (e.g., none are considered to be nonjurisdictional, for example, due to isolation from navigable waters). Whereas USACE jurisdiction over waters of the U.S. extends upslope only as far as the ordinary high-water mark (OHWM) along streams and other waterbodies, in general the SWRCB may claim jurisdiction over riparian habitats upslope from the OHWM as waters of the State, to the top of bank or the outer edge of the canopy of riparian habitat rooted below top of bank, whichever is greater. Therefore, the presumed extent of waters of the State in the Project Area is greater than the extent of waters of the U.S., as indicated in **Table 3.5-3**.

In addition, waters of the U.S. and waters of the State are present within the expanded study area, such as along Upper Penitencia Creek, in Coyote Valley, and along Coyote Creek between the Project Area and San Francisco Bay. These waters have not been mapped or quantified, as fish relocation to Upper Penitencia Creek would not result in the loss of any waters of the U.S. and State, and no Project activities resulting in temporary or permanent loss of waters would be performed in regulated habitats in Coyote Valley or along lower Coyote Creek.

[1] Acreage of Waters of the U.S. in the environmental setting and proposed for creation were estimated using regulatory definitions that existed at the time the ~~this~~ Draft EIR was being prepared. Subsequently, the Supreme Court case Sackett v. EPA (2023), 143 S. Ct. 132)2 limited the types of wetlands that should be considered Waters of the U.S.~~WOTUS~~. This change in definition would likely lower the acreages of wetlands considered Waters of the U.S. ~~WOTUS~~that are presented in this ~~the~~ Final ~~Draft~~ EIR and would be implemented through revised regulatory definitions being drafted at the time the Draft EIR was released.

Beds and Banks Regulated under the Fish and Game Code Section 1600 et seq.

As described in the Regulatory Setting section below, the CDFW regulates diversions or activities that alter the bed and banks of rivers, lakes, and streams in the state. In the Project Area, features whose alteration would be regulated include the reservoir, perennial stream, and intermittent stream land cover types; the Anderson Dam spillway; ponds that are in-line with streams, such as the pond just below the lined portion of the spillway; and coastal and valley freshwater marsh, seasonal wetland, and riparian habitats associated with those features. In general, CDFW jurisdiction over such features extends upslope to the top of bank or the outer edge of the riparian canopy, whichever is greater.

Table 3.5-3. Jurisdictional Aquatic Resources in the Seismic Retrofit, Ogier Ponds CM, Coyote Percolation Dam CM, North Channel Reach ~~Extension~~, and Live Oak Restoration Reach Areas[1]

Project Component	Waters of the U.S.		Waters of the State		CDFW-Regulated Habitats	
	Area (acres)	Length (feet)	Area (acres)	Length (feet)	Area (acres)	Length (feet)
Seismic Retrofit Area~~[1]~~	1,249.38 ~~1,209.12~~	46,875 ~~1,946~~	1,251.25 ~~1,213.26~~	46,875 ~~1,946~~	1,251.95 ~~1,213.26~~	46,875 ~~1,946~~
Ogier Ponds CM Area	24.33 ~~24.28~~	4,300 ~~2,020~~	43.65 ~~43.58~~	4,300 ~~2,020~~	48.93 ~~43.50~~	4,300 ~~2,020~~
Coyote Percolation Dam CM~~[2]~~	0.53 ~~0.39~~	584	0.74 ~~0.59~~	584	0.59	584
North Channel Reach and Live Oak Restoration Reach ~~Extension~~	0.62 ~~0.29~~	400 ~~512—~~	1.20 ~~2.42~~	400 ~~512—~~	1.94 ~~2.42~~	400 ~~512—~~
~~Live Oak Restoration Reach[3]~~	~~3.80~~	~~1,761~~	~~11.44~~	~~1,761~~	~~11.44~~	~~1,761~~
Total	**1,274.86** ~~**1,239.52**~~	**52,159** ~~**6,823**~~	**1,296.84** ~~**1,281.21**~~	**52,159** ~~**6,033**~~	**1,303.41** ~~**1,281.16**~~	**52,159** ~~**6,033**~~

~~Source: Valley Water 2022c~~

~~Notes:~~

~~Locations and extents of Conservation Measures such as sediment augmentation have not yet been determined, so the acreage and linear footage of impacts from those activities are not yet known. It is expected that impacts of those activities on jurisdictional aquatic resources will be much lower than for the three Project components listed in this table.~~

[1] Impact totals include jurisdictional waters that ~~Totals for the Seismic Retrofit Area do not include approximately 1.98 acres and 1,674 linear feet of perennial stream that~~ will have been impacted by the FOCP prior to the start of Seismic Retrofit construction but that will still be jurisdictional.

~~[2] Totals for the Coyote Percolation Dam CM Area do not include approximately 65 linear feet of perennial stream that will have been impacted by the FOCP prior to the start of Coyote Percolation Dam CM construction.~~

~~[3] Acreages and linear footages for the Live Oak Restoration Reach in this table do not include portions of that Conservation Measure that overlap the North Channel Extension (0.002 acres and 17 linear feet of intermittent stream, 0.02 acres and 72 linear feet of perennial stream, and 0.2 acres of mixed riparian woodland and forest) or Seismic Retrofit Area (0.68 acres and 990 linear feet of perennial stream, 0.003 acres of coastal and valley freshwater marsh, and 2.87 acres of mixed riparian woodland and forest).~~

Key: CDFW = California Department of Fish and Wildlife; CM = Conservation Measures

Features that are expected to be regulated by CDFW under Section 1602 of the Fish and Game Code within the Seismic Retrofit Area, Ogier Ponds CM Area, and Coyote Percolation Dam CM Area are summarized in **Table 3.5-3**. These features were identified during field delineations to identify regulated habitats (Valley Water 2024b ~~2022c~~). In addition, CDFW-regulated habitats are present within the expanded study area, such as along Upper Penitencia Creek, in Coyote Valley, and along Coyote Creek between the Project Area and San Francisco Bay. These habitats have not been mapped or quantified, as fish relocation to Upper Penitencia Creek will not result in the loss of any such habitats, and no Project activities will be performed in regulated habitats in Coyote Valley or along lower Coyote Creek.

Other Sensitive Habitats

CDFW Natural Communities of Special Concern. CDFW natural communities of special concern are those that are of limited distribution statewide or within a county or region. These communities may or may not contain special-status species or their habitat. Most types of wetlands and riparian communities are considered special-status natural communities because of their limited distribution in California and their ecological importance. Additional CDFW natural communities of special concern mapped in the Project Area include serpentine bunchgrass and mixed serpentine chaparral (Holland 1986, Sawyer et al. 2009).

As described previously, serpentine bunchgrass grassland (present on Coyote Ridge and in other areas near the Project Area) and mixed serpentine chaparral generally support native plant communities including rare plants, such as the federally listed Coyote ceanothus, Santa Clara Valley dudleya and Metcalf Canyon jewel-flower, and the CRPR 1B most beautiful jewel-flower. Several invertebrate species, including the federally threatened Bay checkerspot butterfly, depend on serpentine bunchgrass grasslands because their host food plants are found primarily in these habitats. Likewise, serpentine outcrops/barrens, serpentine chaparral, and serpentine seeps are considered sensitive communities (ICF 2012) because of their importance to serpentine-endemic plants and invertebrates, and their limited regional distribution. The locations of, and habitat conditions within, the mixed serpentine chaparral land cover type in the Project Area is described above, and their locations are shown on **Figure 3.5-3**. Several very small patches of native-dominated bunchgrass also occur outside of serpentine soils, though they are too small to be mapped separately. Northern coastal salt marsh is also considered a sensitive community by CDFW. Although this habitat is absent from the Seismic Retrofit Area and Conservation Measures Project Area, it is present in tidal habitats along lower Coyote Creek/Coyote Slough that could be affected by high flows and sediment mobilized during Project construction.

Oak Woodlands. Oak woodlands are considered one of California's most productive and important natural communities. They support a rich plant and wildlife community; at least 60 of California's 169 terrestrial mammal species and approximately 60 species of birds are associated with oak woodlands (County 2005). In addition, oak trees play an important role in helping to maintain water quality in streams and rivers by reducing erosion, yet more than a million acres of oak savanna and oak woodlands in California are estimated to have been lost since 1945 (County 2005).

Areas in the Project Area mapped as coast live oak forest and woodland, and foothill pine-oak woodland, meet the State-regulatory definition of oak woodland because of their size, tree density, and connection to adjacent oak woodland. Areas mapped as mixed riparian woodland

and forest also meet the definition of oak woodland where coast live oak is a dominant species. No blue oak (*Quercus douglasii*) or valley oak (*Quercus lobata*) woodlands as defined or mapped by the VHP are present in the Project Area or elsewhere in the study area.

3.5.1.3 Invasive Species and Pathogens

Invasive Species

For over two centuries, humans have brought nonnative plants and animals into the Project vicinity, either accidentally (e.g., as stowaways on recreational equipment) or intentionally (e.g., released pets), and many of these species have now been introduced into the wild. Such species that cause harm and, once established, spread quickly from their point of introduction are often called "invasive" species.

Invasive species can threaten the diversity and abundance of native species through predation, competition for resources, transmission of disease, parasitism, and physical or chemical alteration of the habitat. Their effects on natural communities also may lead to direct effects on human activities, such as clogging waterways and water delivery systems, weakening flood protection structures, damaging crops, and diminishing sport fish populations (CDFW 2018).

A number of plant species that are considered invasive (California Invasive Plant Council [Cal-IPC] 2022) are present in portions of the Project Area. The more common and widespread of these species include yellow star-thistle, bull thistle, milk thistle, oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), eucalyptus (*Eucalyptus* spp.), Russian thistle, poison hemlock (*Conium maculatum*), fennel (*Foeniculum vulgare*), pampas grass, and black mustard (*Brassica nigra*). These plants easily colonize disturbed areas or substrate that is not otherwise dominated by native plants, such as the bed and banks of Anderson Reservoir as it has been drawn down.

In addition, several invasive animals are present in the Project Area. The American bullfrog has been accidentally and intentionally introduced (e.g., for food in the 1920s by commercial frog farmers) throughout the world and is now established throughout most of the western United States. The species' large size, mobility, generalized eating habits (their prey includes native amphibians such as California red-legged frog, foothill yellow-legged frog, and California tiger salamander as well as other aquatic and riparian vertebrates [Graber 1996]), and aggressive behavior have made bullfrogs extremely successful invaders and a threat to biodiversity. Nonnative turtles, particularly the red-eared slider, compete with the native <u>north</u>western pond turtle for high-quality basking sites. Nonnative species, such as feral house cats (*Felis felis*) and red fox (*Vulpes vulpes*), are known to occur in the Project Area and are predators of native birds and small mammals.

Feral pigs (*Sus scrota*; also called wild boars), which are present around Anderson Reservoir, the Ogier Ponds, and elsewhere along Coyote Creek outside of the most heavily urbanized areas, can damage natural habitats through herbivory, rooting, wallowing, and soil compaction. In California, feral pigs occur in a wide variety of habitats, including oak woodlands, mixed forests, grassy savannas, and other habitats. They move widely within their home range according to resource availability and weather. On average, boars have territorial sizes of 1.1 to 3.9 square kilometers (about 0.4 to 1.5 square miles). Female sounders (groups of pigs) tend to occupy a smaller region and keep to covered areas within a home range to protect themselves and their young. Feral pigs reproduce prolifically; females may become sexually mature at less than 1 year of age and may produce up to four litters per year, including up to 18 piglets per litter (Rust 2022).

Feral pigs require a nearby water source and dense vegetation for shelter to protect and conceal themselves from predators. They commonly use nearby woody vegetation for basic life functions. In warmer weather they are more inactive during the day, stay in shade, wallow in water sources to keep cool, and forage in the evening and night. If feral pigs actively feed during the day, they tend to avoid open areas that would make them more vulnerable to predation. Feral pigs are opportunistic omnivores. They are generalists and will readily eat whatever is available. They eat primarily plant material such as roots, bulbs, seeds, green plants, agriculture crops, fruit, and acorns, but they will also consume bird and reptile eggs, small rodents, amphibians, insects, and worms. Feral pigs will also eat human food. Land use authorities with feral pig experience consistently report a general opinion that feral pigs follow food sources. During dry years and in winter, feral pigs may expand their home ranges in search of high-quality feeding areas (University of California Agriculture and Natural Resources 2023).

Numbers of feral pigs in California are likely in the hundreds of thousands (Rust 2022), and feral pigs are present in the foothills and valley floor surrounding Anderson Reservoir and along Coyote Creek on the valley floor. County Parks has been managing pigs since 1994 (https://parks.sccgov.org/feral-pigs) and reports the presence of feral pigs to the south and west of Anderson Dam, in nearby County Park facilities, including Rosendin Park, Coyote Creek Parkway, and Coyote Lake Harvey Bear Ranch Park. California State Parks has noted that Henry Coe State Park, located to the east of Anderson Reservoir, is believed to support hundreds if not thousands of feral pigs. The Santa Clara Valley Open Space Authority has observed feral pigs on its Coyote Ridge Preserve, north of Anderson Dam. Valley Water staff have confirmed feral pigs at Valley Water's Coyote Ridge Preserve and is also aware of feral pig management at Coyote Creek Golf Course and Kirby Canyon Landfill, all north of Anderson Dam.

Numerous news stories and social media accounts (including NextDoor) document the presence of feral pigs throughout the South Valley region. Feral pigs have a documented history of moving into or through neighborhoods adjacent to Anderson Reservoir. As evidenced by a growing number of encounters within suburban and valley habitats throughout southern Santa Clara County, their populations can be assumed to be growing, and range expansion is possible.

There is no clear evidence that the drawdown of Anderson Reservoir as mandated by DSOD and FERC has resulted in changes to feral pig movement and distribution around Anderson Reservoir. This species' populations have been increasing throughout the region over the past several decades, and they are occurring in more areas, more regularly, and in greater abundance throughout the South Bay as a result, irrespective of the drawdown of Anderson Reservoir. As a result, feral pigs have caused damage to private property and residential neighborhoods throughout the region, including neighborhoods in Almaden Valley, Coyote Valley, Evergreen, Guadalupe Mines, Metcalf, Santa Teresa, and Silver Creek districts of San Jose, in addition to neighborhoods near Anderson Reservoir. Requests from residents and businesses for relief from feral pig damage has recently spurred the City of San José to take action and explore possible ordinance changes to facilitate the management of pigs within city boundaries.

Pathogens

Plant and animal pathogens, which can be spread by human activities, can also adversely affect native species and communities. *Phytophthora* is a taxonomic group of microscopic oomycetes (also known as water molds). More than 170 *Phytophthora* species have been described, and almost all are known to be pathogenic to plants. Plant diseases caused by *Phytophthora* include root rots, stem cankers, and fruit and leaf blights. *Phytophthora* is transmitted through the movement of contaminated soil and water, and some species are known to be airborne. Movement of contaminated soil, water, and plant material are primary pathways for spreading infection. Areas with woody vegetation and susceptible host plants are at greatest risk of being infested. Once introduced into native habitats, *Phytophthora* persists in soil and infected host roots and is very difficult to impossible to eradicate (Swiecki and Bernhardt 2017 ~~2014~~). Spread of contamination could result in long-term impairment of the health of native vegetation, resulting in declines in abundance of sensitive plant species and communities (Swiecki 2020).

Phytophthora has been detected at Anderson Dam and Reservoir on the western dam abutment near an historical set of restoration plantings, and adjacent to the boat launch in association with high-water flooding (Phytosphere Research 2018). It has also been detected along Lakeview Trail east of the boat launch, on the reservoir's south shore northeast of the boat launch, and along the reservoir's north shore east of the spillway (Phytosphere Research 2018). *Phytophthora* has not been detected at other sampling locations near the Lakeview Trail and north of the spillway on the south-facing slope. *Phytophthora* is known to occur throughout much of the San Francisco Bay Area and California. Because *Phytophthora* can disperse in water and water runoff, and because it has been detected at Anderson Dam and Reservoir, it is assumed that all Project sites located downstream of Anderson Dam and Reservoir are potentially contaminated.

Other pathogens can adversely affect animals. Ranaviruses can cause impaired health or mortality of amphibians, turtles, and fish. These viruses are transmitted through direct contact between infected and uninfected animals, contaminated water, or predation (e.g., ingestion of infected animals). Chytrid fungus is a water-borne fungus that can impair the health of amphibians. There are approximately 1,000 chytrid species, and *Batrachochytrium dendrobatidis* can infect the skin of amphibians (Longcore et al. 1999). Infected individuals may develop chytridiomycosis, a thickening of the skin that inhibits amphibians' ability to absorb water and electrolytes, eventually causing death (Voyles et al. 2009). Chytridiomycosis outbreaks have been linked to substantial declines in some amphibian populations (Berger et al. 1998, Fisher et al. 2009). Chytrid fungus may be spread by the dispersal of infection by translocation of zoospores by other animals or humans (including equipment and machinery) among waterbodies. Chytrid has been recorded in the upper watershed of Upper Penitencia Creek (Padgett-Flohr and Hopkins 2010) and was detected there by Valley Water in 2021, during monitoring associated with FOCP fish relocation efforts (Valley Water 2022b ~~2022a~~).

Shell disease can affect the health of northwestern pond turtles. Caused by fungal or bacterial infections, shell disease can result in lesions or irregularities in turtles' shells. This disease is known best in captive or domestic turtles, but there is concern that it could affect wild turtles, such as northwestern pond turtles (Washington Department of Fish and Wildlife 2016).

3.5.1.4 Special-Status Plant and Animal Species

CEQA requires an assessment of the effects of a project on species that are "threatened, rare, or endangered;" such species are typically described as "special-status species." For planning purposes and for assessment of impacts of the Project, special-status species have been defined as described below. Impacts on these species are reviewed in accordance with CEQA requirements, and some species are also regulated by federal and State laws and ordinances described in the Regulatory Setting section.

Special-Status Plants

Special-status plants that may occur in the study area, including not only the Project Area but also other areas that could be impacted by Project activities (i.e., the expanded study area), are discussed in **Table 3.5-4**. For purposes of this analysis, special-status plants are plant species that meet at least one of the following criteria:

- listed under ESA as threatened, endangered, proposed for listing as threatened, proposed for listing as endangered, or a candidate species for listing
- listed under CESA as threatened, endangered, rare, or a candidate species for listing
- included in the CNPS's developed CRPR as rare or endangered with ranks 1A, 1B, 2A, or 2B (defined in the footnotes of **Table 3.5-4**)
- included in the CRPR with ranks 3 or 4 (defined in the footnotes of **Table 3.5-4**)

Using CRPR (2022) and CNDDB (2022) records and other references described at the beginning of the Environmental Setting above, a list of 75 special-status plants known to occur within the general vicinity of the Seismic Retrofit Project Area was compiled. For purposes of assessing potentially occurring plant species, the "general vicinity" included the USGS 7.5-minute quadrangles, including or surrounding the Seismic Retrofit and Conservation Measures Project Areas for CRPR 1-3 species and VHP-covered species, and all the County for CRPR 4 species. These species were then reviewed for their potential to occur in the Project Area. Analysis of the documented habitat requirements and occurrence records associated with all of the special-status plant species considered allowed botanists to reject 62 of these plant species as not having a reasonable potential to occur in the Project Area. A list of all plant species considered but rejected from consideration in the EIR, and the reason for rejection, is provided in Appendix G.

Of the initial list, the remaining 13 plant species were further considered for potential occurrence in the Project Area based on their general habitat requirements and known distributions, and focused surveys for those species were conducted. Valley Water has conducted focused surveys for special-status plants in the Project Area on a number of occasions, including in 2006 and 2008 as part of Valley Water's evaluation of its DMP (Valley Water 2012a) and for the FOCP and the Project in 2013 and 2014 (Valley Water 2014a, 2014b) and in 2017, 2018, and 2021 (Valley Water 2021a ~~2021f~~). As a result, the special-status plants occurring within the Seismic Retrofit Area are well-known, in terms of their distributions and abundance.

Eight of the 13 special-status plant species thought to have some potential for occurrence in the Project Area have been observed within or immediately adjacent to the Seismic Retrofit Area during Valley Water's surveys. These species are Coyote ceanothus, most beautiful jewel-flower, smooth lessingia (*Lessingia micradenia* var. *glabrata*), woodland woollythreads (*Monolopia gracilens*), Mt. Hamilton thistle (*Cirsium* ~~*wainsoni3.5-33*~~ *fontinale* var. *campylon*), Santa Clara Valley dudleya, San Francisco collinsia, and Hall's bush-mallow (*Malacothamnus hallii*). The Existing Conditions Baseline distributions of these eight species in and adjacent to the Seismic Retrofit Area, based on surveys conducted to date and assuming that all areas impacted by the FOCP will remove any special-status species present in those areas, are depicted in **Figure 3.5-8** (Coyote ceanothus) and **Figure 3.5-9** (other species); the lone Hall's bush-mallow plant previously recorded at Anderson Dam has been impacted and is not depicted on those figures. The other five species initially thought to have some potential for occurrence in the Project Area—big-scale balsamroot (*Balsamorhiza macrolepis*), Loma Prieta hoita (*Hoita strobilina*), Tiburon paintbrush, fragrant fritillary (*Fritillaria liliacea*), and Metcalf Canyon jewel-flower—were not detected in the portions of the Seismic Retrofit Area that were surveyed in 2013 and 2014 (Valley Water 2014a, 2014b), and in 2017, 2018, and 2021 (Valley Water 2021a ~~2021f~~). These species are therefore likely absent from the Seismic Retrofit Area. Focused special-status plant surveys have not been performed in the Conservation Measures Project Areas, because, Ogier Ponds CM, based on the suitability of habitat, special-status plants are unlikely to be present in these areas. For example, the Ogier Ponds CM Area and Phase 2 Coyote Percolation Dam Fish Passage Enhancements area are dominated by alluvial deposits, materials excavated from the ponds themselves, disturbed areas, and valley floor riparian and wetland habitats that are not known or expected to support special-status plants. Due to the absence of suitable habitat for special-status plants in those areas, it was determined that no such species would occur there.

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Table 3.5-4. Special-Status Plant Species Potentially Occurring in the Study Area

Common Name Scientific Name	Regulatory Status	Habitat and Blooming Period	Potential for Occurrence in Study Area
Big-scale balsamroot *Balsamorhiza macrolepis*	CRPR 1B.2	Chaparral, cismontane woodland, valley and foothill grassland sometimes in serpentinite/serpentine bunchgrass grassland, mixed serpentine chaparral, and oak woodland; March-June	**Seismic Retrofit Area: Likely Absent.** Undetected during extensive surveys covering most of the Seismic Retrofit Area; however, there is some potential for occurrence in the limited portions of the Seismic Retrofit Area that were not previously surveyed (**Figure 3.5-10**). Valley Water will conduct surveys for this species in previously unsurveyed portions of the Seismic Retrofit Area. **Conservation Measures Project Area: Absent.** No suitable habitat for big-scale balsamroot is present within the Conservation Measures Project Area. **Expanded Study Area: May be Present.** Although there are no known occurrences on Coyote Ridge or other areas that are most likely to be affected by deposition of nitrogen emitted by Project activities, the species occurs southeast of Anderson Reservoir, and it is possible that some individuals may occur in areas where Project-derived nitrogen emissions could be deposited.
Coyote ceanothus *Ceanothus ferrisiae*	FE, CRPR 1B.1, VHP	Chaparral, coastal scrub, and grassland on serpentinite (e.g., serpentine bunchgrass grassland and mixed serpentine chaparral); January-May	**Seismic Retrofit Area: Present.** A focused survey in 2013-2014 identified the distribution and abundance of Coyote ceanothus within the Seismic Retrofit Area, primarily on the right abutment and the north side of Anderson Dam, but with smaller numbers of individuals present on the southeast side as well (Valley Water 2014b). Of the individuals identified during that survey, approximately 853 individuals have since been lost as a result of Project-related geotechnical investigations, dam maintenance activities, and FOCP implementation. A supplemental survey in 2021 identified an additional 424 seedlings and saplings, consisting of 281 south of the dam and 143 north of the dam, that had become established below the reservoir rim since 2017 (the last time the reservoir filled to capacity) due to increased availability of substrate resulting from the drawn down condition of the reservoir (Valley Water 2021a ~~2021f~~). Surveys in January 2023 were conducted to cover limited areas of the Seismic Retrofit Area, as currently proposed, that were not previously surveyed; these surveys identified 61 individuals. Therefore, a total of 2,666 individuals are present in the Seismic Retrofit Area (**Figure 3.5-8**). **Conservation Measures Project Area: Absent.** No suitable habitat for Coyote ceanothus is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** Additional Coyote ceanothus are present, primarily north of the Seismic Retrofit Area on Coyote Ridge, in areas that could be affected by dust mobilization from the Project, spread of *Phytophthora*, and deposition of nitrogen emitted by Project activities.
Mt. Hamilton thistle *Cirsium fontinale* var. *campylon*	CRPR 1B.2, VHP	Seeps and streams in chaparral, cismontane woodland, or grassland on serpentinite; April–October	**Seismic Retrofit Area: May be Present.** Special-status plant surveys in 2013-2014 identified 375 individuals in and adjacent to the unlined portion of the spillway (Valley Water 2014a), and another survey by Valley Water in 2019 documented 645 individuals (Valley Water 2019f). Due to impacts from spillway repairs, Project-related geotechnical activities, scour due to reservoir spilling in 2017, and increased density of cattails and pampas grass, no Mt. Hamilton thistle individuals were detected here during a focused survey in 2021 (Valley Water 2021a ~~2021f~~). The 2021 surveys detected a new occurrence of 840 plants along a seep on a steep hillside approximately 0.25 miles east of the spillway (**Figure 3.5-9**). However, those individuals are outside the Project area. Furthermore, no suitable habitat for this species is present in the limited portions of the Seismic Retrofit Area that were not previously surveyed (**Figure 3.5-10**). Although no individuals are currently known to be present in the Seismic Retrofit Area, it is possible that this species still persists (e.g., in the seed bank) along the unlined portion of the spillway, and therefore it may be present. **Conservation Measures Project Area: Absent.** No suitable habitat for Mt. Hamilton thistle is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** Additional Mt. Hamilton thistles are present, primarily north of the Seismic Retrofit Area on Coyote Ridge, in areas that could be affected by deposition of nitrogen emitted by Project activities, and an occurrence along the edge of the reservoir northeast of the dam could be affected by dust mobilization.
San Francisco collinsia *Collinsia multicolor*	CRPR 1B.2	Closed-cone coniferous forest and coastal scrub, sometimes on serpentinite; March-May	**Seismic Retrofit Area: Likely Absent.** Although a population is present on an eroding serpentine slope along the shoreline of Anderson Reservoir, as described for the expanded study area below, this species has not been detected during extensive surveys within the Seismic Retrofit Area. However, there is some potential for occurrence in the limited portions of the Seismic Retrofit Area that were not previously surveyed (**Figure 3.5-10**). Valley Water will conduct surveys for this species in previously unsurveyed portions of the Seismic Retrofit Area. **Conservation Measures Project Area: Absent.** No suitable habitat for San Francisco collinsia is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** Valley Water has been monitoring the abundance and distribution of a San Francisco collinsia population on an eroding serpentine slope along the shoreline of Anderson Reservoir since it was discovered by a Valley Water

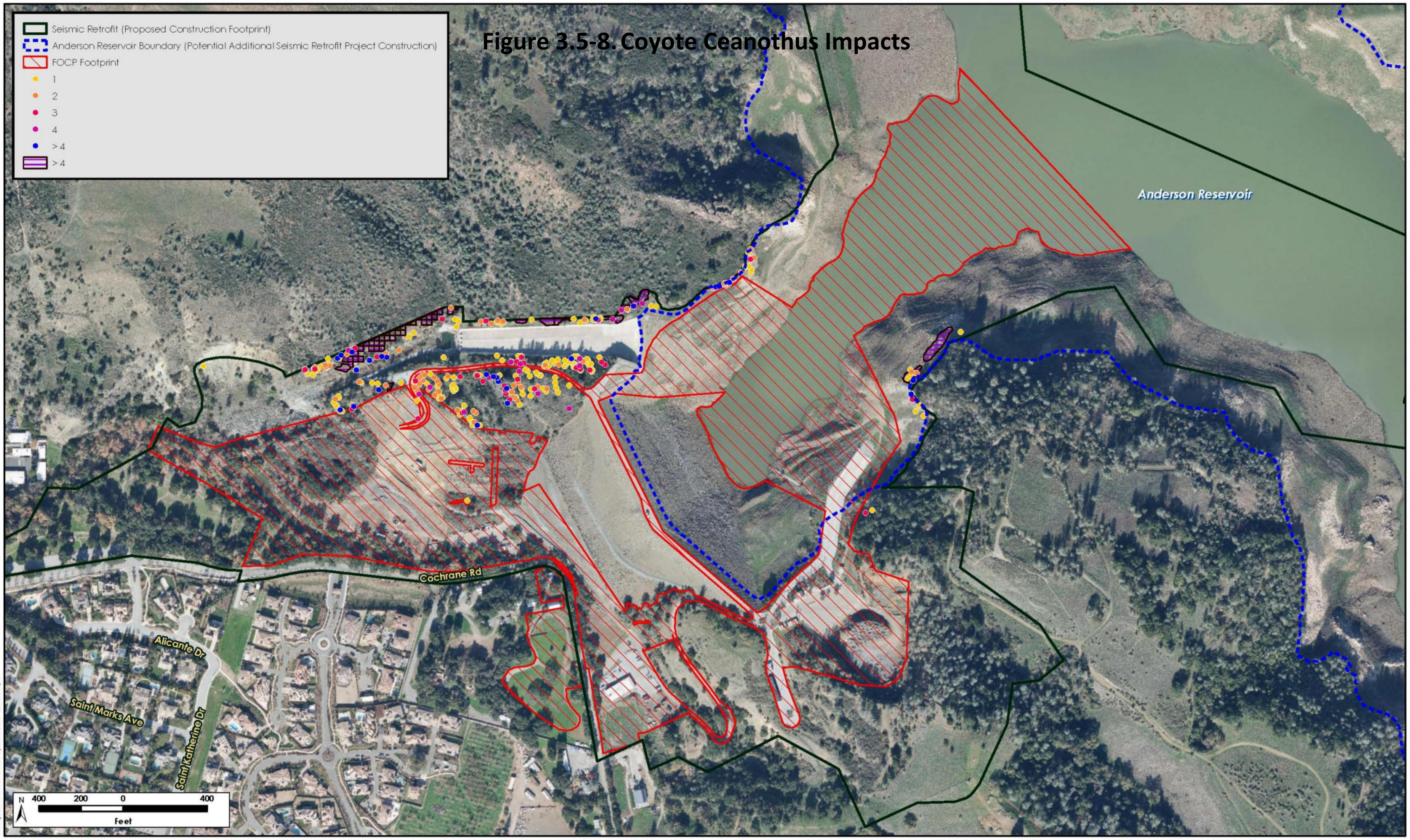
Common Name Scientific Name	Regulatory Status	Habitat and Blooming Period	Potential for Occurrence in Study Area
			botanist in 2009 ~~(Valley Water 2012d).~~ This occurrence is located along a 0.25-miles segment of the southwest shoreline approximately 0.2 to 0.4 miles northeast of the top of the boat ramp near the dam (**Figure 3.5-9**). Since the initial detection of 300 individuals in 2009, abundance has fluctuated from year to year. After the reservoir filled during heavy storms in February 2017, only 591 individuals were tallied that spring, although the population recovered to a high of 6,668 individuals in 2021. A total of 4,852 individuals were counted in 2022. This population has averaged 3,358 individuals, spread over an area of approximately 0.67 acres, since complete population surveys began in 2011. The majority of these individuals are present below the reservoir rim (e.g., in areas that are inundated when the reservoir is filled).
Santa Clara Valley dudleya *Dudleya abramsii* ssp. *setchellii* ~~*Setchellii*~~	FE, CRPR 1B.1, VHP	Rocky outcrops in cismontane woodland, chaparral, and grassland on serpentinite; April-October	**Seismic Retrofit Area: Absent.** Special-status plant surveys in 2013-2014 identified 144 individuals on rock outcrops on and around Silica Carbonate Hill, east of the spillway (Valley Water 2014a). The construction footprint for the Seismic Retrofit Area extends to the base of these outcrops but does not include any areas occupied by Santa Clara Valley dudleya. Furthermore, no suitable habitat for this species is present in the limited portions of the Seismic Retrofit Area that were not previously surveyed (**Figure 3.5-10**). Therefore, no individuals are currently present in the Seismic Retrofit Area, although they are present immediately adjacent to this area. **Conservation Measures Project Area: Absent.** No suitable habitat for Santa Clara Valley dudleya is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** The 144 individuals detected on rock outcrops on and around Silica Carbonate Hill, east of the spillway, during 2013-2014 surveys are immediately adjacent to the Seismic Retrofit Area (Valley Water 2014a). Additional Santa Clara Valley dudleya are present, primarily north of the Seismic Retrofit Area on Coyote Ridge, in areas that could be affected by deposition of nitrogen emitted by Project activities.
Smooth lessingia *Lessingia micradenia* var. *glabrata*	CRPR 1B.2, VHP	Grasslands or open, often recently disturbed, areas in chaparral, coastal scrub, and cismontane woodland on serpentinite; July-November	**Seismic Retrofit Area: Present.** Special-status plant surveys in 2013-2014 identified approximately 3,200 individuals in scattered locations within the surveyed area (Valley Water 2014a). Most individuals were on the north side of Silica Carbonate Hill, though smaller numbers were present just northeast of the spillway, on the right abutment, and on slopes above the boat ramp and the BHBA. Follow-up surveys in 2021 detected lessingia in these same areas, finding that populations had expanded and increased in abundance (Valley Water 2021a ~~2021f~~). Approximately 1,921 individuals are known to be present within the Seismic Retrofit Area, above the reservoir rim. Suitable habitat for this species is also present in the limited portions of the Seismic Retrofit Area that were not previously surveyed (**Figure 3.5-10**), and Valley Water will conduct surveys for this species in previously unsurveyed portions of the Seismic Retrofit Area. This species has also colonized serpentine-based substrate below the reservoir rim due to the drawn down condition of the reservoir. **Conservation Measures Project Area: Absent.** No suitable habitat for smooth lessingia is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** Additional smooth lessingia are present, primarily north of the Seismic Retrofit Area on Coyote Ridge, in areas that could be affected by dust mobilization from the Project, spread of *Phytophthora*, and deposition of nitrogen emitted by Project activities.
Hall's bush-mallow *Malacothamnus hallii*	CRPR 1B.2	Chaparral and coastal scrub, sometimes on serpentinite; May-September	**Seismic Retrofit Area: Absent.** A single individual was identified in the northern coastal scrub/Diablan sage scrub within the Project Area, along the paved road on the right abutment, during the 2006/2008 surveys for the DMP (Valley Water 2012a). During protocol-level surveys of the Seismic Retrofit Area in 2013-2014 (Valley Water 2014a) and follow-up surveys in 2017 and 2018 of additional areas added later, this single individual was the only one detected in the Seismic Retrofit Project Area. This individual was impacted by FOCP activities. Furthermore, no suitable habitat for this species is present in the limited portions of the Seismic Retrofit Area that were not previously surveyed (**Figure 3.5-10**). Therefore, no individuals are currently present in the Seismic Retrofit Area. **Conservation Measures Project Area: Absent.** No suitable habitat for Hall's bush-mallow is present within the Conservation Measures Project Area. **Expanded Study Area: Absent.** No suitable habitat for Hall's bush-mallow is present within portions of the study area outside the Project Area.
Woodland woollythreads *Monolopia gracilens*	CRPR 1B.2	Grasslands or open areas in chaparral, coastal scrub, cismontane woodland, and North Coast coniferous forest on serpentinite; March-July	**Seismic Retrofit Area: Present.** Special-status plant surveys in 2013-2014 detected a large population, totaling approximately 112,800 plants, in openings within mixed serpentine chaparral north and northeast of the spillway, with a few individuals present in foothill pine-oak woodland and northern coastal scrub/Diablan sage scrub in and adjacent to the unlined portion of the spillway and in the Chert Hill quarry (Valley Water 2014a). That large population had colonized open areas after a fire on Pigeon Point in 2003, upslope from the spillway, cleared extensive areas of woody vegetation. Succession has since resulted in the re-establishment and expansion of trees and shrubs, filling and shading the gaps that were occupied by woollythreads in 2013-2014, so that the 2021 surveys identified

Common Name Scientific Name	Regulatory Status	Habitat and Blooming Period	Potential for Occurrence in Study Area
			only 3,500 plants in the same areas (Valley Water 2021a ~~2021f~~). Approximately 1,142 individuals are known to be present within the Seismic Retrofit Area, all north or northeast of the lined and unlined portions of the spillway. Suitable habitat for this species is also present in the limited portions of the Seismic Retrofit Area that were not previously surveyed (**Figure 3.5-10**), and Valley Water will conduct surveys for this species in previously unsurveyed portions of the Seismic Retrofit Area. **Conservation Measures Project Area: Absent.** No suitable habitat for woodland woollythreads is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** Additional woodland woollythreads are present, primarily north of the Seismic Retrofit Area on Coyote Ridge, in areas that could be affected by dust mobilization from the Project, spread of *Phytophthora*, and deposition of nitrogen emitted by Project activities.
Most beautiful jewel-flower *Streptanthus albidus* ssp. *Peramoenus* ~~*peramoenus*~~	CRPR 1B.2, VHP	Grasslands or open areas in chaparral, coastal scrub, or cismontane woodland on serpentinite (e.g., serpentine bunchgrass grassland and mixed serpentine chaparral); April-September	**Seismic Retrofit Area: Present.** Special-status plant surveys in 2013-2014 detected 86 individuals, all in a limited area on the north side of the Chert Hill quarry (Valley Water 2014a). Follow-up surveys in 2021 detected 86 plants in the same area, as well as four individuals immediately north of the concrete-lined portion of the spillway (Valley Water 2021a ~~2021f~~). Approximately four individuals are known to be present within the Seismic Retrofit Area, all immediately north of the spillway. Suitable habitat for this species is also present in the limited portions of the Seismic Retrofit Area that were not previously surveyed (**Figure 3.5-10**), and Valley Water will conduct surveys for this species in previously unsurveyed portions of the Seismic Retrofit Area. **Conservation Measures Project Area: Absent.** No suitable habitat for most beautiful jewel-flower is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** Additional most beautiful jewel-flowers are present, primarily north of the Seismic Retrofit Area on Coyote Ridge, in areas that could be affected by dust mobilization from the Project, spread of *Phytophthora*, and deposition of nitrogen emitted by Project activities.
Metcalf Canyon jewel-flower *Streptanthus albidus* ssp. ~~*Albidus*~~ *albidus*	FE, CRPR 1B.1, VHP	Serpentine grasslands; April-July	**Seismic Retrofit Area: Likely Absent.** Undetected during extensive surveys; not expected to occur in the limited portions of the Seismic Retrofit Area that were not previously surveyed, as all known occurrences are far to the northwest of the Seismic Retrofit Area, which is therefore outside the species' range. Nevertheless, Valley Water will conduct surveys for this species in previously unsurveyed portions of the Seismic Retrofit Area. **Conservation Measures Project Area: Absent.** No suitable habitat for Metcalf Canyon jewel-flower is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** Present, primarily north of the Seismic Retrofit Area on Coyote Ridge, in areas that could be affected by deposition of nitrogen emitted by Project activities.
Tiburon paintbrush *Castilleja affinis* ssp. *neglecta* ~~*Neglecta*~~	FE, ST, CRPR 1B.2, VHP	Serpentine grasslands; April-June	**Seismic Retrofit Area: Likely Absent.** Undetected during extensive surveys; not expected to occur in the limited portions of the Seismic Retrofit Area that were not previously surveyed due to the absence of high-quality habitat. Nevertheless, Valley Water will conduct surveys for this species in previously unsurveyed portions of the Seismic Retrofit Area. **Conservation Measures Project Area: Absent.** No suitable habitat for Tiburon paintbrush is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** Two populations are present north of the Seismic Retrofit Area on Coyote Ridge, in areas that could be affected by deposition of nitrogen emitted by Project activities.
Loma Prieta hoita *Hoita strobilina*	CRPR 1B.1, VHP	Chaparral, cismontane woodland, and riparian woodland, usually on serpentinite; May-July	**Seismic Retrofit Area: Likely Absent.** Undetected during extensive surveys covering most of the Seismic Retrofit Area; however, there is some potential for occurrence in the limited portions of the Seismic Retrofit Area not previously surveyed. Valley Water will conduct surveys for this species in previously unsurveyed portions of the Seismic Retrofit Area. **Conservation Measures Project Area: Absent.** No suitable habitat for Loma Prieta hoita is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** Present, primarily north of the Seismic Retrofit Area on Coyote Ridge, in areas that could be affected by deposition of nitrogen emitted by Project activities.

Common Name **Scientific Name**	**Regulatory Status**	**Habitat and Blooming Period**	**Potential for Occurrence in Study Area**
Fragrant fritillary *Fritillaria liliacea*	CRPR 1B.2, VHP	Cismontane woodland, coastal prairie, coastal scrub, and grassland, often on serpentinite; February-April	**Seismic Retrofit Area: Likely Absent.** Undetected during extensive surveys covering most of the Seismic Retrofit Area; however, there is some potential for occurrence in the limited portions of the Seismic Retrofit Area that were not previously surveyed. Valley Water will conduct surveys for this species in previously unsurveyed portions of the Seismic Retrofit Area. **Conservation Measures Project Area: Absent.** No suitable habitat for fragrant fritillary is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** Present, primarily north of the Seismic Retrofit Area on Coyote Ridge but also directly east of the BHBA, in areas that could be affected by deposition of nitrogen emitted by Project activities.
Alkali milk vetch *Astragalus tener* var. *tener*	CRPR 1B.2	Playas, clay soils supporting valley and foothill grasslands, and alkaline, vernal pools; March-June	**Seismic Retrofit Area: Absent.** No suitable habitat, outside the species' range. **Conservation Measures Project Area: Absent.** No suitable habitat, outside the species' range. **Expanded Study Area: Low Likelihood of Presence.** Although likely absent, there is at least a low potential for this species to occur in tidal salt marshes along Coyote Slough that could be affected by increased frequency and magnitude of flows, and sediment mobilization, during Project construction.
Point Reyes bird's beak *Cordylanthus maritimus* ssp. *palustris Palustris*	CRPR 1B.2	Salt marshes, particularly at salt pan edges with occasional tidal inundation; June-October	**Seismic Retrofit Area: Absent.** No suitable habitat, outside the species' range. **Conservation Measures Project Area: Absent.** No suitable habitat, outside the species' range. **Expanded Study Area: Low Likelihood of Presence.** Although likely absent, there is at least a low potential for this species to occur in tidal salt marshes along Coyote Slough that could be affected by increased frequency and magnitude of flows, and sediment mobilization, during Project construction.

Source: Valley Water 2012a, 2014a, 2014b, 2021a ~~2021f~~

Key: FE = Federally Endangered; ST = State Threatened; VHP = VHP-Covered Species; CRPR = California Native Plant Society Rare Plant Rank; 1B = Plants that are rare, threatened, or endangered in California and elsewhere; 2B = Plants rare, threatened, or endangered in California but more common elsewhere; 0.1: Seriously endangered in California; 0.2: Fairly endangered in California



H. T. HARVEY & ASSOCIATES
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Figure 3.5-8. Coyote Ceanothus Impacts
Anderson Dam Seismic Retrofit Project EIR (3403-06)
April 2023

Figure 3.5-9. 3.5-8 Other Special Status Plants in and Adjacent to the Seismic Retrofit Project Area

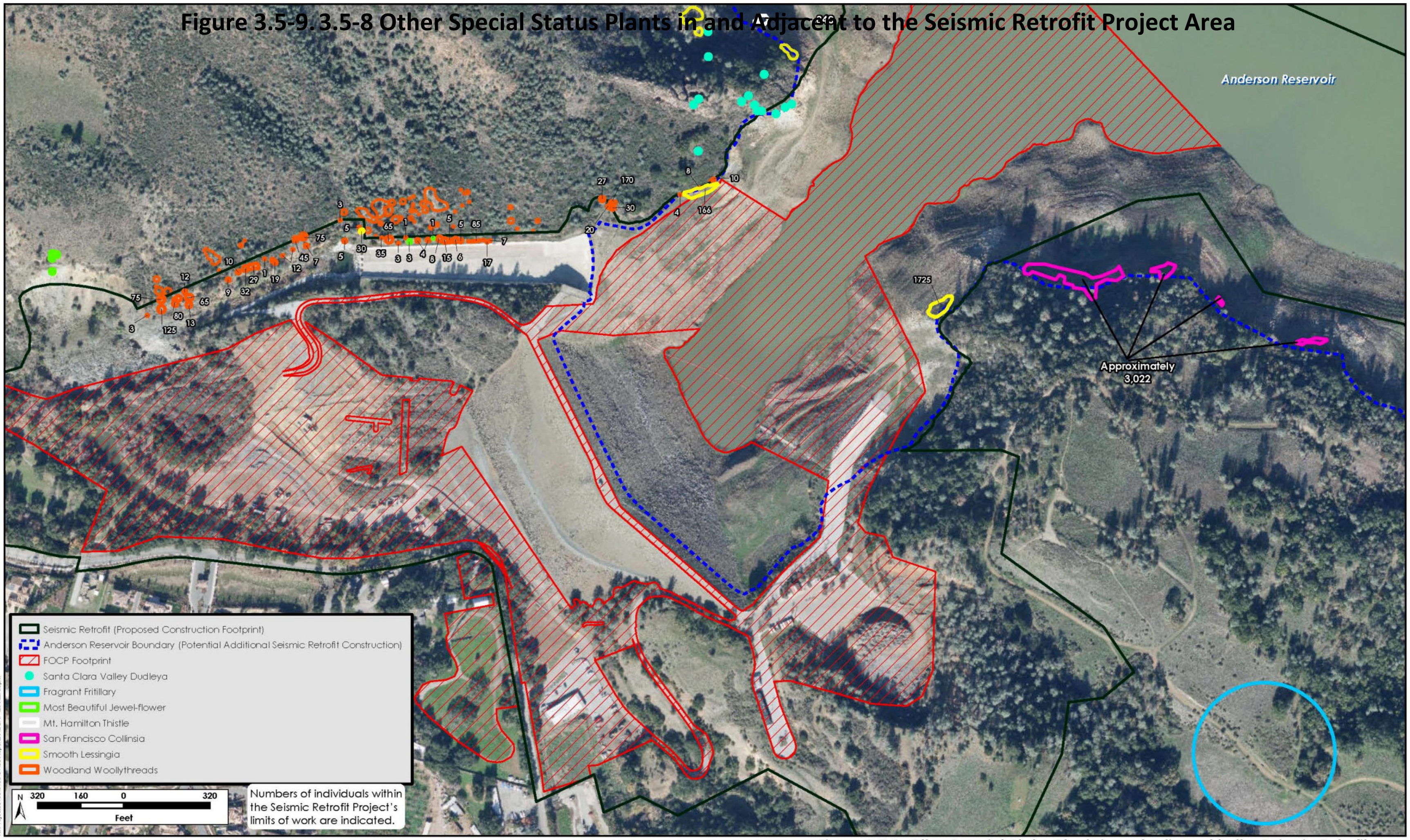

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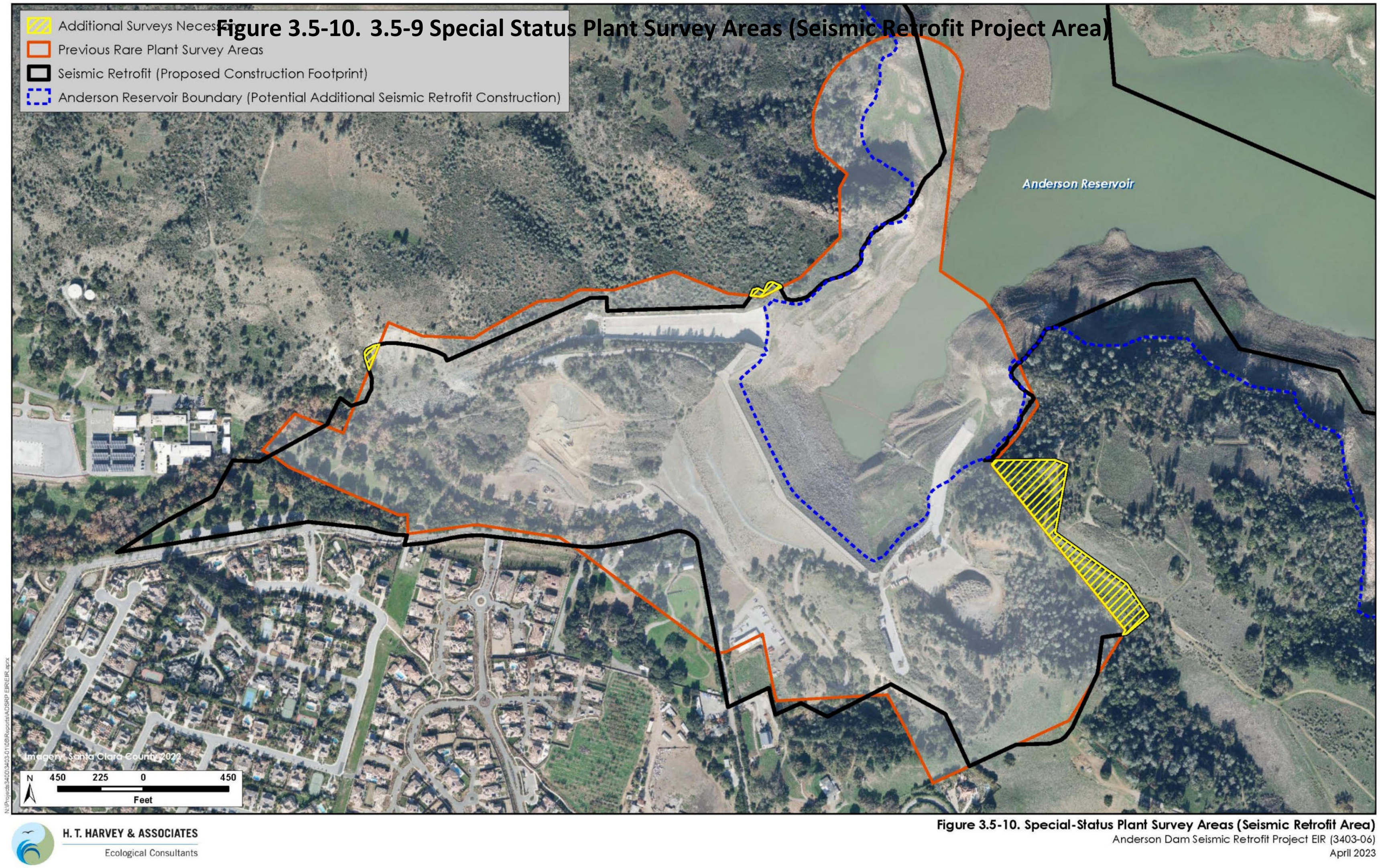
Figure 3.5-9. Other Special-Status Plants in and adjacent to the Seismic Retrofit Area
Anderson Dam Seismic Retrofit Project EIR (3403-06)
April 2023

Figure 3.5-10. 3.5-9 Special Status Plant Survey Areas (Seismic Retrofit Project Area)



In addition, the potential for special-status plant species to occur in the remaining portions of the study area, and that could therefore be affected by Project activities as described in *Habitat Conditions and Characteristic Species in Other Impact Areas*, was considered. Six of the special-status plant species known to occur in or immediately adjacent to the Seismic Retrofit Area—Coyote ceanothus, Mt. Hamilton thistle, Santa Clara Valley dudleya, smooth lessingia, woodland woollythreads, and most beautiful jewel-flower—also occur on Coyote Ridge or other areas where they could be affected by nitrogen emissions from the Project. Five additional serpentine-associated special-status plant species that are likely absent from the Project Area occur in areas where they could be affected by nitrogen emissions from the Project. Tiburon paintbrush, Metcalf Canyon jewelflower, Loma Prieta hoita, and fragrant fritillary are known to occur in serpentine-influenced plant communities on Coyote Ridge and, in the case of fragrant fritillary, just outside the Seismic Retrofit Area northeast of the BHBA, whereas big-scale balsamroot occurs southeast of Anderson Reservoir (CNDDB 2022).

No special-status plants are known or expected to be present in the portion of the study area along Coyote Creek from Anderson Dam downstream to baylands areas, or in riparian or stream habitats along Upper Penitencia Creek where fish relocation may occur. However, tidal wetlands that could be subject to increased flows or sediment deposition during Project construction or as a result of increased post-construction flows could support two special-status plant species: alkali milk vetch (*Astragalus tener* var. *tener*) and Point Reyes bird's beak (*Cordylanthus maritimus* ssp. *Palustris*). Although there are no recent records of these species in or near the far South Bay, they occur in the types of tidal marsh habitats that could be affected by Project activities. Another tidal marsh species, California seablite (*Suaeda californica*), occurs in San Francisco Bay only in a few well-known populations well north of the mouth of Coyote Slough and is therefore absent from the Project's study area. Another special-status plant, Congdon's tarplant (*Centromadia parryi* ssp. *Congdonii*), is known to occur in several locations in the South Bay, but in nontidal alkali grasslands and ruderal habitats that would not be impacted by Project-related increases in flows or sediment deposition. Special-status plants have not been recorded, and are not expected to occur, in wetland, aquatic, or riparian habitats in North Coyote Valley that could be affected by changes in groundwater levels during Project construction (H. T. Harvey & Associates 2019a ~~2019b~~).

Table 3.5-4 discusses all special-status plant species known or expected to occur in the study area where, based on the nature of Project activities and how they could impact each of those species. For example, of all the potentially occurring special-status plants in the study area, serpentine-associated plants are the species that are most susceptible to effects of nitrogen deposition. As a result, areas subject to deposition of emitted nitrogen were considered impact areas only for serpentine-associated plants.

Special-Status Wildlife

Special-status animals that may occur in the study area, including not only the Project Area but also other areas that could be impacted by Project activities (i.e., the expanded study area), are discussed in **Table 3.5-5**. For purposes of this analysis, special-status wildlife includes animal species that meet at least one of the following criteria:

- listed under ESA as threatened, endangered, proposed as threatened, proposed as endangered, or a candidate species for listing
- listed under CESA as threatened, endangered, or a candidate species for listing

- designated by CDFW as a California Species of Special Concern (SSC)
- designated in the Fish and Game Code as a fully protected species (birds at Section 3511, mammals at Section 4700, reptiles and amphibians at Section 5050, and fish at Section 5515)

All special-status animal species potentially occurring in the Seismic Retrofit Area, the Conservation Measures Project Area, and the expanded study area were considered. First, a list of 45 special-status animals known to occur within the general vicinity of the Seismic Retrofit Area and Conservation Measures Project Area was compiled using the materials described at the beginning of the Environmental Setting above (e.g., CNDDB records, the VHP, and documents prepared for the FOCP, DMP, and SMP). These species were then reviewed for their potential to occur in the Seismic Retrofit Area and the Conservation Measures Project Area. Analysis of the documented habitat requirements and occurrence records associated with all the species considered allowed consultant wildlife ecologists to reject 14 of these species as not having a reasonable potential to occur in these areas.

In addition to assessing the potential for special-status animals to occur in the Seismic Retrofit Area and/or the Conservation Measures Project Area, the potential for special-status wildlife species to occur in the expanded study area where they could be affected by Project activities as described in *Habitat Conditions and Characteristic Species in Other Impact Areas* was also considered. One serpentine-associated special-status animal species that is likely absent from (or could occur only sparingly in) the Seismic Retrofit Area, Bay checkerspot butterfly occurs in areas where it could be affected by nitrogen emissions from the Project. Several special-status animals that occur in the Project Area could occur in wetland, aquatic, or riparian habitats in North Coyote Valley that could be affected by changes in groundwater levels during Project construction, and several similarly occur along Upper Penitencia Creek where steelhead relocation may be necessary. A number of additional special-status animals are absent from the Seismic Retrofit Area and Conservation Measures Project Area but occur in baylands ~~3.5-43~~ areas that could be subject to increased flows or sediment deposition during Project construction or as a result of increased post-construction flows.

Table 3.5-5. Special-Status Animal Species Potentially Occurring in Study Area

Common Name Scientific Name	Regulatory Status	Habitat	Potential for Occurrence in Study Area
Federal or State Endangered, Threatened, or Candidate Species			
Bay checkerspot butterfly *Euphydryas editha bayensis*	FE, VHP	Native grasslands on serpentine soils. Larval host plants are *Plantago erecta* and/or *Castilleja* sp.	**Seismic Retrofit Area: Low Likelihood of Presence.** Unlikely to occur on Anderson Dam itself, but present on Coyote Ridge north of the dam. Known to occur in the vicinity of Kirby Canyon landfill along Coyote Ridge, approximately 2 miles northwest of the Seismic Retrofit Area; however, additional unidentified occurrences of the species may also extend south of Kirby Canyon toward the Seismic Retrofit Area along lands under private ownership that have not yet been surveyed for the species. Four small, isolated areas at the dam support populations of its larval host plant, foothill plantain, but are considered unsuitable due to their very limited extent. Designated critical habitat Unit 13 extends southward along Coyote Ridge to the northern edge of the dam, overlapping areas along the north side of the spillway; approximately 2.6 acres of designated critical habitat for the species is present in the Seismic Retrofit Area. In addition, the VHP maps the grassland southeast of the dam, on Santa Clara County Parks property, as a Bay checkerspot population, “occupancy unknown.” A survey for adults was conducted on April 19, 2014, in all areas of the Seismic Retrofit Area providing potential habitat for the species, but no individuals were detected, and the species has not been observed there during numerous other biological surveys. If the species occurs in the Seismic Retrofit Area, it does so infrequently and/or in low numbers. **Conservation Measures Project Area: Absent.** No suitable habitat for the Bay checkerspot butterfly is present within the Conservation Measures Project Area. **Expanded Study Area: Present.** Large populations are present, primarily north of the Seismic Retrofit Area on Coyote Ridge (but also to the southeast at Harvey Bear Ranch County Park), in areas that could be affected by deposition of nitrogen emitted by Project activities.
Monarch butterfly *Danaus plexippus*	FPT ~~FC~~	Larval host plants are typically milkweeds (*Asclepias* spp.); nectars on a variety of flowering plants	**Seismic Retrofit Area: Present.** Occurs widely as an uncommon migrant, nectaring on flowering plants. Narrow-leaf milkweed (*Asclepias fascicularis*) is present in scattered patches within the Seismic Retrofit Area, and monarchs could breed in low numbers. Close examination of approximately 480 clusters of milkweed plants along Coyote Creek between Anderson Dam and the Coyote Creek Golf Course area (including the Ogier Ponds) on 3 days in May and June 2022 detected only two monarch butterfly larvae; inspection of 100 plants along the rim of Anderson Reservoir on July 30, 2022, detected no monarch eggs, larvae, or pupae (S. Rottenborn, personal observation), and examination of another 300 milkweed plants along the reservoir rim in July and August 2024 revealed only one monarch larva. Thus, although monarch butterflies do breed in the Project vicinity, they do so in low numbers, breeding much less commonly than is indicated by the abundance of their host plant. No large wintering aggregations occur in Santa Clara County. **Conservation Measures Project Area: Present.** Occurs widely as an uncommon migrant, nectaring on flowering plants. Narrow-leaf milkweed is present in scattered patches at the Ogier Ponds; monarch butterfly has been detected breeding on milkweed at the downstream-most end of the Ogier Ponds complex and likely breeds in low numbers at this site. **Expanded Study Area: Present.** Occurs widely as an uncommon migrant, nectaring on flowering plants. Along Coyote Creek downstream from Anderson Dam, this species has been detected breeding on milkweed near Coyote Creek Golf Drive, and it likely breeds in low numbers where milkweed is present.
Crotch’s bumble bee *Bombus crotchii*	SC	Open grassland and scrub habitats	**Seismic Retrofit Area: Present.** Although the species was historically found throughout the southern two-thirds of California, population declines and range contractions have ~~made this species very scarce~~ reduced this species’ abundance in parts of the state. ~~region~~. Since 2019, there have been documented occurrences of more than 100 individuals from approximately 20 locations in Santa Clara County (Bumble Bee Watch 2024, iNaturalist 2022, S. Lockwood and S. Rottenborn, pers. obs.), indicating that the species is still extant, and fairly widespread, in the County ~~From 2019 to 2021, single individuals were recorded in five scattered locations in Santa Clara County, including Coyote Lake Harvey Bear Ranch, south of Anderson Reservoir (iNaturalist 2022).~~. Surveys for this species in July 2022 detected one individual foraging on bull thistle along the San Felipe Creek channel in the northwest arm of drawn-down Anderson Reservoir and at least three individuals south of the Project Area at the upper end of Coyote Reservoir, and small numbers have been recorded on Coyote Ridge west and northwest of the reservoir (Bumble Bee Watch 2024 ~~S. Rottenborn, personal observation~~). This species likely occurs in grassland and scrub habitat, including the bed of the drawn-down reservoir, in low numbers. **Conservation Measures Project Area: Moderate Likelihood of Presence.** Due to the low abundance of this species in the region, it likely does not occur commonly anywhere, but it could occur in low numbers in grassland at the Ogier Ponds. **Expanded Study Area: Moderate Likelihood of Presence.** Due to the low abundance of this species in the region, it likely does not occur commonly anywhere, but it could occur in low numbers near grassland along Coyote Creek downstream from Anderson Dam.

Common Name Scientific Name	Regulatory Status	Habitat	Potential for Occurrence in Study Area
California tiger salamander *Ambystoma californiense*	FT, ST, VHP	Breeds in vernal or temporary pools in annual grasslands or open woodlands; spends most time in subterranean refugia, such as small mammal burrows or deep rock crevices	**Seismic Retrofit Area: Present.** In 2001, one was observed on Anderson Dam ~~dam~~ (CNDDB 2022). In 2011, one was found during a routine pre-work biological inspection in a weep hole in the floor of the dam spillway (Valley Water 2012a). In March 2016, an individual was found in a drain near the top of the boat ramp. A large seasonal pond (Rosendin Pond) 0.3 miles southeast of the dam (approximately 500 feet southeast of the Seismic Retrofit Area boundary at Basalt Hill) is a known breeding pond (CNDDB 2022). This species may also breed in a small perennial pond approximately 90 feet south of the Seismic Retrofit Area, near the park entrance road off Cochrane Road. Individuals could move through the Seismic Retrofit Area or use mammal burrows and crevices as refugia. However, inspections of burrows on the dam face from 2010 to 2013 found no individuals (Valley Water 2010a, 2011b ~~2011a~~, 2012d ~~2012c~~, 2013). Thus, California tiger salamanders are known to occur in and near the dam and reservoir portions of the Seismic Retrofit Area, although they likely do so infrequently and in low numbers given the paucity of records near the dam. The “reservoir” land cover type is not considered suitable for this species (ICF 2012), though individuals may disperse into the bed of the dewatered reservoir. **Conservation Measures Project Area: Likely Absent.** The Ogier Ponds are unlikely to support a breeding population of California tiger salamanders due to the abundance of predatory bullfrogs, fish, and crayfish. Surveys conducted in 2019 in a group of ponds that are not in-line with Coyote Creek (and that therefore had the highest likelihood of supporting California tiger salamander) did not detect the species (Valley Water 2019b ~~2019e~~). For the same reasons, California tiger salamanders are unlikely to breed in the Parkway Lakes ponds or the Coyote Percolation Pond, near the location of the proposed Coyote Percolation Dam CM. There is a low potential for California tiger salamanders to disperse from breeding sites to the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach areas. **Expanded Study Area: Present.** California tiger salamanders have bred in ponds in North Coyote Valley south of Bailey Avenue and west of Santa Teresa Boulevard for at least several decades (H. T. Harvey & Associates 2019a ~~2019b~~, 2021, 2022), and additional suitable breeding habitat is present north of Bailey Avenue.
California red-legged frog *Rana draytonii*	FT, CSSC, VHP	Streams, freshwater pools, and ponds with emergent or overhanging vegetation	**Seismic Retrofit Area: Present.** California red-legged frogs do not breed in Anderson Reservoir, which is not considered suitable habitat for the species (ICF 2012), though red-legged frogs may disperse into the bed of the dewatered reservoir. Critical habitat Unit STC-1 is located immediately northeast of Anderson Reservoir (USFWS 2010). At Anderson Dam itself, California red-legged frogs have been observed in only one area—three adults were observed in cattail-lined pools within the unlined portion of the spillway, downstream from the concrete spillway, during monitoring associated with geotechnical investigations in June 2020; two of these individuals were relocated to Rosendin Pond to prevent injury during the geotechnical work (the third individual moved out of the work area on its own). The pools in the unlined spillway are unlikely to support a viable breeding population of red-legged frogs due to the abundance of nonnative bullfrogs and fish, which may prey on red-legged frog eggs or larvae, but the species could attempt breeding in the unlined spillway chute. The pools below the spillway waterfall and a small perennial pond approximately 90 feet south of the Seismic Retrofit Area could also support breeding attempts by California red-legged frogs. Suitable breeding habitat for red-legged frogs is present in Rosendin Pond, 0.3 miles southeast of the dam spillway and approximately 500 feet southeast of Basalt Hill, and the species likely breeds there (CNDDB 2022). California red-legged frogs could also use small mammal burrows and crevices present throughout the action area as refugia. However, because no individuals were found during burrow scoping surveys on the dam during four years of surveys (Valley Water 2010a, 2011b ~~2011a~~, 2012d ~~2012c~~, 2013), this species uses such upland refugia infrequently and in low numbers, if at all. **Conservation Measures Project Area: Present.** California red-legged frog adults and tadpoles were reported at an unspecified location in the Ogier Ponds in 2002 (CNDDB 2022). The Ogier Ponds provide ostensibly suitable habitat for breeding California red-legged frog, but bullfrogs (and fish in some ponds) are abundant, making the Ogier Ponds unlikely to support a viable California red-legged frog population. This species was not detected during baseline surveys, including both daytime and nighttime surveys, at the Ogier Ponds or elsewhere along Coyote Creek downstream of Anderson Dam in 2019 (Valley Water 2019b ~~2019e~~). Thus, California red-legged frogs are not expected to occur in Coyote Creek below Anderson Dam, including at the Ogier Ponds, Coyote Percolation Dam, Live Oak Restoration Reach, or North Channel Reach ~~Extension~~ area, except as rare dispersants. **Expanded Study Area: Present.** California red-legged frogs are known to occur in Upper Penitencia Creek where steelhead relocation may be necessary (CNDDB 2022), and that reach of creek is located within critical habitat Unit STC-1 (USFWS 2010). California red-legged frogs could occur along Coyote Creek downstream from Anderson Dam as infrequent dispersants, though the species is likely absent from more urban segments of the creek. Although the species has been recorded on either side of Coyote Valley, there are no records of the species on the valley floor apart from the 2002 record from the Ogier Ponds. For example, a number of surveys for the species have been conducted along Fisher Creek and in ponds in North Coyote Valley, yet the species has not been detected (H. T. Harvey & Associates 2000a, b, c ~~2000b, c,e~~, 2006a,b, 2007a,b, 2020, 2021, 2022).

Common Name Scientific Name	Regulatory Status	Habitat	Potential for Occurrence in Study Area
Foothill yellow-legged frog *Rana boylii*	FT ~~FC~~, SE, VHP	Partially shaded shallow streams and riffles with a rocky, usually cobbly, substrate. Occurs in a variety of habitats in coast ranges.	**Seismic Retrofit Area: Low Likelihood of Presence.** This species has been extirpated from valley-floor areas of Santa Clara County and is not known to be extant along the county's streams below major reservoirs (Valley Water 1999). It has been recorded in Otis Creek, a tributary to the reach of Coyote Creek between Coyote Dam and Anderson Reservoir (D. Bell, pers. Comm.). However, baseline surveys performed upstream of Anderson Reservoir in Coyote Creek did not detect any individuals of the species (Valley Water 2016). This reach, between the two reservoirs, is unlikely to support a viable breeding population of foothill yellow-legged frogs due to the effects of bullfrog presence both in Anderson Reservoir and in reaches of Coyote Creek upstream of the reservoir (Kupferberg 1996, Adams et al. 2017), as well as the effects of the upstream Coyote Creek Dam (Kupferberg et al. 2012). A survey for the species conducted in April, May, and June 2019 downstream from Anderson Dam, focusing on areas providing the most suitable conditions for the species, also did not detect any individuals (Valley Water 2019b ~~2019e~~). Although there is some potential for a foothill yellow-legged frog to disperse downstream into the dewatered bed of Anderson Reservoir, the lack of a breeding population very nearby and the unsuitable nature of the substrate in the Coyote Creek bed within the drawn-down reservoir (being sandy and silty rather than cobbly) minimize the potential for this species to occur anywhere in the Seismic Retrofit Area. **Conservation Measures Project Area: Absent.** This species has been extirpated from valley-floor areas of Santa Clara County and is not known to be extant along the County's streams below major reservoirs (Valley Water 1999), and a survey for the species conducted in April, May, and June 2019 downstream from Anderson Dam, focusing on areas providing the most suitable conditions for the species, also did not detect any individuals (Valley Water 2019b ~~2019e~~). **Expanded Study Area: Present.** Foothill yellow-legged frog has been recorded in Upper Penitencia Creek where steelhead relocation may be necessary (CNDDB 2022).
~~Western~~ Northwestern pond turtle *Actinemys marmorata ~~pallida~~*	FPTC, CSSC, VHP	Occurs in ponds, streams, and other wetland habitats in the Pacific slope drainages of California. Ponds or slack-water pools with suitable basking sites (such as logs) are an important habitat component for this species, and northwestern pond turtles do not occur commonly along high-gradient streams. Females lay eggs in upland habitats, in clay or silty soils in unshaded (often south-facing) areas. Nesting habitat is typically found within 600 feet of aquatic habitat.	**Seismic Retrofit Area: Present.** There is a 2001 CNDDB record of northwestern pond turtle from Anderson Reservoir (CNDDB 2022), and one was observed in a pond below the spillway waterfall in 2013 (S. Rottenborn, personal observation). However, no individuals have been observed in the reservoir during numerous surveys around the dam (e.g., preactivity surveys for geotechnical investigations performed for the Project) since 2013, and monthly surveys of the entire drawn-down reservoir April-July 2021 and March-July 2022 have detected no individuals. This species has been observed in Coyote Creek immediately downstream from Anderson Dam, though it is far outnumbered by nonnative red-eared sliders. **Conservation Measures Project Area: Present.** This species has been observed at scattered locations along Coyote Creek from Anderson Dam downstream to the Coyote Percolation Dam, including the Ogier Ponds, during focused surveys conducted in 2019 (Valley Water 2019b ~~2019e~~) and during monthly monitoring in spring and summer 2021 and 2022 for the FOCP. It could also be present in the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach areas. **Expanded Study Area: Present.** This species is present in Coyote Creek downstream from Anderson Dam, with observations downstream to the upper limits of tidal influence. It may also be present in Upper Penitencia Creek, where steelhead relocation may occur. Intensive surveys for this species in North Coyote Valley waterbodies have not detected it there.
California Ridgway's rail *Rallus obsoletus obsoletus*	FE, SE, SP	Tidal salt marsh dominated by cordgrass and pickleweed; occasionally occurs in brackish marshes as well	**Seismic Retrofit Area: Absent.** Suitable habitat is absent, and the Seismic Retrofit Area is outside the species' range. **Conservation Measures Project Area: Absent.** Suitable habitat is absent, and the Conservation Measures Project Area is outside the species' range. **Expanded Study Area: Present.** This species breeds in tidal brackish and salt marshes along Coyote Creek/Coyote Slough from the vicinity of Newby Island downstream to the mouth of Coyote Slough.
California black rail *Laterallus jamaicensis coturniculus*	ST, SP	Breeds in fresh, brackish, and tidal salt marsh near the edge of San Francisco Bay	**Seismic Retrofit Area: Absent.** Suitable habitat is absent, and the Seismic Retrofit Area is outside the species' range. **Conservation Measures Project Area: Absent.** Suitable habitat is absent, and the Conservation Measures Project Area is outside the species' range. **Expanded Study Area: Present.** This species breeds in tidal brackish and salt marshes along Coyote Creek/Coyote Slough from the vicinity of Newby Island downstream to the mouth of Coyote Slough.
California least tern *Sternula antillarum browni*	FE, SE, SP	Nests along the coast on bare or sparsely vegetated, flat substrates; in the South Bay, nests in salt pannes and on an old airport runway; forages for fish in open waters	**Seismic Retrofit Area: Absent.** Suitable habitat is absent, and the Seismic Retrofit Area is outside the species' range. **Conservation Measures Project Area: Absent.** Suitable habitat is absent, and the Conservation Measures Project Area is outside the species' range. **Expanded Study Area: Absent when impacts may occur.** There are no records of the species foraging in Coyote Slough; when this species is observed near Coyote Slough, it is seen foraging in managed ponds and over the more extensive open bay. Although least terns could forage on occasion in Coyote Slough, they likely do so infrequently and in low numbers. Least terns do not nest in Project impact areas, and do not roost in habitats that could be adversely affected by increased flows or sediment deposition that may occur during Project construction. The California least tern is absent from the region from October through March, and although the eBird database contains hundreds of records of

Common Name Scientific Name	Regulatory Status	Habitat	Potential for Occurrence in Study Area
			the species from Santa Clara County July into September, there are only four records from April through June (Cornell Lab of Ornithology 2022). Thus, during the wet season, when effects of increased flows, sediment mobilization, and increased post-construction releases from Anderson Reservoir could occur, least terns are absent from Project impact areas.
Bald eagle *Haliaeetus leucocephalus*	SE, SP	Occurs mainly along seacoasts, rivers, and lakes; nests in tall trees or in cliffs, occasionally on electrical towers; feeds mostly on fish and waterfowl	**Seismic Retrofit Area: Present.** One to two pairs have nested along the northwest arm of Anderson Reservoir since a single pair was first detected in 2010. Two pairs nested successfully in 2020, with nests approximately 0.8 and 1.8 miles northwest of the spillway; in 2021 and 2022, two pairs were present but only one nested successfully (Valley Water 2020e ~~2020a~~, 2021c ~~2021e~~, 2022a ~~2022b~~). Additional nonbreeding birds are present as well, primarily in winter. Bald eagles forage throughout the reservoir and adjacent grasslands, as well as nearby at the Kirby Canyon Landfill. **Conservation Measures Project Area: Present.** A pair of bald eagles nested, apparently unsuccessfully, near Pond 3 at the Ogier Ponds in 2019 (Valley Water 2022a ~~2022b~~). Although the species has not been known or suspected of nesting there since then, bald eagles occasionally forage at the Ogier Ponds, especially in winter. The species also occasionally forages in the Coyote Percolation Pond near the Coyote Percolation Dam CM. It is not expected to forage in the closed-canopy riparian habitat at the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach areas. **Expanded Study Area: Present.** Bald eagles have not nested in or near any parts of the study area outside the Project Area, though the species is occasionally recorded foraging in North Coyote Valley (apparently on waterfowl and California ground squirrels) (Cornell Lab of Ornithology 2022).
Swainson's hawk *Buteo swainsoni*	ST	Nests in trees surrounded by foraging habitat, which consists of extensive marsh, pasture, grassland, or agricultural land	**Seismic Retrofit Area: Absent as Breeder.** Swainson's hawk is currently known to occur in Santa Clara County primarily as a scarce transient during migration. It apparently nested in small numbers in the county historically, and there is an 1894 nest record from the Berryessa area (currently in eastern San José) (Bousman 2007b). Each year from 2013 to 2020, a pa~~ir of Sw~~ainson~~'s haw~~ks nest~~ed near~~ Coyote Creek in northern Coyote Valley, approximately 6 miles northwest of the Seismic Retrofit Area, providing the first county nesting record since the 1890s (Phillips et al. 2014). The only other modern record of nesting Swainson's hawk in Santa Clara County has been along State Route 152 southeast of Gilroy, from 2020 through 2022 (Klein et al. 2022). Although nesting Swainson's hawks may be returning to the region, there is no expectation that the species would nest within or adjacent to the Seismic Retrofit Area. **Conservation Measures Project Area: Absent as Breeder.** The pair that nested in Coyote Valley from 2013 to 2020 did so approximately 2 miles northwest of the Ogier Ponds and 2.8 miles southeast of the Coyote Percolation Dam. This s~~pecies cou~~ld occasionally forage in or near either area, but it does not nest within or adjacent to the Conservation Measures Project Area. It is not expected to forage in the closed-canopy riparian habitat at the North Channel Reach Extension and Live Oak Restoration Reach areas. **Expanded Study Area: Absent as Breeder.** Swainson's hawks could occur as infrequent migrants, but they do not breed in or near any parts of the study area outside the Project Area.
Burrowing owl *Athene cunicularia*	SC, CSSC, VHP	Prefers annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, burrowing owls are found in close association with California ground squirrels; owls use the abandoned burrows of ground squirrels for shelter and nesting. The nesting season as recognized by the CDFW extends from February 1 through August 31. After nesting is completed, adult owls may remain in their nesting burrows or in nearby burrows, or they may migrate; young birds disperse across the landscape from 0.1 to 35 miles from their natal burrows.	**Seismic Retrofit Area: Absent as Breeder.** No suitable nesting habitat is present in the Seismic Retrofit Area, and this species is not currently known to breed anywhere in the vicinity, as the species' South Bay breeding populations have declined and burrowing owls no longer breed (aside from recent Santa Clara Valley Habitat Agency reintroduction efforts) in the Morgan Hill area as they did through the 1990s. Burrowing owls are recorded on Coyote Ridge and in North Coyote Valley in small numbers during the nonbreeding season, and it is possible that an occasional migrant or wintering owl occurs in grassland or riprap around Anderson Dam or in the bed of the drawn-down reservoir. **Conservation Measures Project Area: Low Likelihood of Presence.** No suitable nesting habitat is present in the Conservation Measures Project Area, and this species has not been recorded in these areas. **Expanded Study Area: Low Likelihood of Presence.** The species' South Bay breeding populations have declined and burrowing owls no longer breed in the Morgan Hill or Coyote Valley areas (aside from recent Santa Clara Valley Habitat Agency reintroduction efforts) as they did through the 1990s. Burrowing owls are recorded in North Coyote Valley in small numbers during the nonbreeding season.

Common Name Scientific Name	Regulatory Status	Habitat	Potential for Occurrence in Study Area
Tricolored blackbird *Agelaius tricolor*	ST, VHP	Highly colonial nester that establishes dense breeding colonies in emergent vegetation, grain fields, fallow fields, extensive thickets of blackberry, ruderal vegetation such as mustard or thistle, and occasionally in early-successional riparian habitat. Nesting colonies usually are located near fresh water. Tricolored blackbirds are itinerant nesters, and because their nesting habitat is ephemeral, it is possible for this species to colonize or recolonize an area as suitable breeding habitat becomes available.	**Seismic Retrofit Area: Moderate Likelihood of Presence.** Surveys for tricolored blackbirds and their breeding habitat in the Seismic Retrofit Area have not detected the species, nor any high-quality nesting habitat for it. However, the bed of drawn down Anderson Reservoir has become colonized by fairly extensive stands of bull thistle along San Felipe Creek, upstream from the reservoir's deadpool, and it is possible that tricolored blackbirds could breed in these thistle stands. **Conservation Measures Project Area: Moderate Likelihood of Presence.** Tricolored blackbirds nested at the Ogier Ponds, in the pond immediately northwest of the Model Aircraft Skypark, each year from 1993 to 1998 (Cornell Lab of Ornithology 2022). Although the species is still observed at the Ogier Ponds on occasion, there has been no evidence of breeding since 1998. Nevertheless, suitable nesting habitat is present in emergent vegetation in freshwater marsh at the Ogier Ponds. Although no suitable nesting habitat is present within the footprint of proposed activities at the Coyote Percolation Dam, the wetland mitigation area to the north provides potential nesting habitat. That mitigation site does not provide high-quality nesting habitat, as woody riparian vegetation (e.g., willows) is more extensive than emergent vegetation and is too tall for use by tricolored blackbirds, and even when the site was dominated by emergent vegetation in its earlier years, nesting by tricolored blackbirds was not documented. However, given the extent of freshwater marsh emergent vegetation in that mitigation area, there is at least a low potential for tricolored blackbirds to nest there. This species would not nest or forage in the closed-canopy riparian habitat at the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach areas. **Expanded Study Area: Moderate Likelihood of Presence.** Tricolored blackbirds have nested in several areas along Coyote Creek and in North Coyote Valley, in habitats that could be impacted by changes in groundwater levels during Project construction. Tricolored blackbirds nested at the Coyote Ranch Pond, upstream from Metcalf Road, during several years in the 1980s and 1990s (CNDDB 2022) and in the IBM detention basin along Bailey Avenue in the 1990s. The species has not been documented breeding in North Coyote Valley or along Coyote Creek (aside from the Ogier Ponds) since then, but it is present, often in large numbers, in North Coyote Valley during the nonbreeding season. Potential breeding habitat is still present at Coyote Ranch and in North Coyote Valley, and there is some potential for the species to breed in these areas in the future.
Salt marsh harvest mouse *Reithrodontomys raviventris*	FE, SE, SP	Salt marsh habitat dominated by common pickleweed or alkali bulrush; recent studies have indicated that the species also uses brackish marshes, nontidal managed wetlands, and some adjacent upland habitats (Smith 2019).	**Seismic Retrofit Area: Absent.** Suitable habitat is absent, and the Seismic Retrofit Area is outside the species' range. **Conservation Measures Project Area: Absent.** Suitable habitat is absent, and the Conservation Measures Project Area is outside the species' range. **Expanded Study Area: Present.** This species is present in tidal and nontidal salt marsh, and in some tidal brackish marsh habitat, along Coyote Creek/Coyote Slough from the vicinity of the Coyote Creek Reach 1A waterbird pond to the mouth of Coyote Slough.
Mountain lion, Southern California/Central Coast Evolutionarily Significant Unit *Puma concolor*	SC	Has a large home range size and occurs in a variety of habitats. Natal dens are typically located in remote, rugged terrain far from human activity. May occasionally occur in areas near human development, especially during dispersal.	**Seismic Retrofit Area: High Likelihood of Presence.** Mountain lions are widespread in the Diablo Range, and they have been reported occasionally in the Holiday Lake Estates and Jackson Oaks neighborhoods southeast of Anderson Dam. This species is unlikely to have a primary (i.e., natal) den in the Seismic Retrofit Area due to the high level of human activity there, but mountain lions occur as occasional dispersants and foragers, and the territory of one or more individuals could overlap the Seismic Retrofit Area. **Conservation Measures Project Area: High Likelihood of Presence.** This species is unlikely to have a primary (i.e., natal) den in the Conservation Measures Project Area due to the high level of human activity there, but mountain lions could occur as occasional dispersants and foragers, particularly at the Ogier Ponds, the Live Oak Restoration Reach, and the North Channel Reach ~~Extension~~ Area, and possibly also at the Coyote Percolation Dam. **Expanded Study Area: Present.** Mountain lions are known to occur along Upper Penitencia Creek, where steelhead relocation may occur during Project construction, and they likely also occur as occasional dispersants and foragers in North Coyote Valley.
California Species of Special Concern			
Northern harrier *Circus hudsonius*	CSSC (nesting)	Nests in marshes and moist fields with tall vegetation and sufficient moisture to inhibit accessibility of nest sites to predators. Forages over open areas.	**Seismic Retrofit Area: Absent as Breeder.** No suitable nesting habitat is present in the Seismic Retrofit Area, though this species likely forages in grassland and within the bed of the drawn-down reservoir. **Conservation Measures Project Area: Absent as Breeder.** No suitable nesting habitat is present in the Conservation Measures Project Area, though this species forages in grassland and other open areas at the Ogier Ponds. **Expanded Study Area: Present.** Northern harriers breed in extensive marshes along Coyote Slough. They also forage widely in North Coyote Valley, and it is possible that the species could breed there in moist fields or wetlands.
~~Burrowing owl~~ ~~*Athene cunicularia*~~	~~CSSC~~	~~Prefers annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, burrowing owls are found in close association with California ground squirrels; owls use~~	~~**Seismic Retrofit Area: Absent as Breeder.** No suitable nesting habitat is present in the Seismic Retrofit Area, and this species is not currently known to breed anywhere in the vicinity, as the species' South Bay breeding populations have declined and burrowing owls no longer breed (aside from recent Santa Clara Valley Habitat Agency reintroduction efforts) in the Morgan Hill area as they did through the 1990s. Burrowing~~

Common Name Scientific Name	Regulatory Status	Habitat	Potential for Occurrence in Study Area
		~~the abandoned burrows of ground squirrels for shelter and nesting. The nesting season as recognized by the CDFW extends from February 1 through August 31. After nesting is completed, adult owls may remain in their nesting burrows or in nearby burrows, or they may migrate; young birds disperse across the landscape from 0.1 to 35 miles from their natal burrows.~~	~~owls are recorded on Coyote Ridge and in North Coyote Valley in small numbers during the nonbreeding season, and it is possible that an occasional migrant or wintering owl occurs in grassland or riprap around Anderson Dam or in the bed of the drawn-down reservoir.~~ ~~**Conservation Measures Project Area: Low Likelihood of Presence.** No suitable nesting habitat is present in the Conservation Measures Project Area, and this species has not been recorded in these areas.~~ ~~**Expanded Study Area: Low Likelihood of Presence.** The species' South Bay breeding populations have declined and burrowing owls no longer breed in the Morgan Hill or Coyote Valley areas (aside from recent Santa Clara Valley Habitat Agency reintroduction efforts) as they did through the 1990s. Burrowing owls are recorded in North Coyote Valley in small numbers during the nonbreeding season.~~
Bryant's savannah sparrow *Passerculus sandwichensis alaudinus*	CSSC	Breeds primarily in pickleweed dominant salt marsh and adjacent grassland and ruderal habitat around the edge of San Francisco Bay; very scarce and local breeder in extensive grasslands in the Santa Cruz Mountains	**Seismic Retrofit Area: Absent as Breeder.** This species is not known to breed in the Diablo Range or on the Coyote Valley floor (Rottenborn 2007), and therefore it does not breed in the Seismic Retrofit Area; nonbreeders may forage in the area outside the breeding season. **Conservation Measures Project Area: Absent as Breeder.** This species is not known to breed on the Coyote Valley floor (Rottenborn 2007), and therefore it does not breed in the Conservation Measures Project Area; nonbreeders may forage at the Ogier Ponds outside the breeding season. **Expanded Study Area: Present.** This species breeds in tidal and nontidal salt marsh, brackish marsh, and adjacent levees, grasslands, and ruderal habitat along lower Coyote Creek from the vicinity of the Coyote Creek Reach 1A waterbird pond to the mouth of Coyote Slough.
Alameda song sparrow *Melospiza melodia pusillula*	CSSC	Nests in salt marsh, primarily in marsh gumplant and cordgrass along channels	**Seismic Retrofit Area: Absent.** Suitable habitat is absent, and the Seismic Retrofit Area is outside this subspecies' range. **Conservation Measures Project Area: Absent.** Suitable habitat is absent, and the Conservation Measures Project Area is outside the species' range. **Expanded Study Area: Present.** This species breeds in tidal and nontidal salt marsh, brackish marsh, and immediately adjacent areas along lower Coyote Creek from the vicinity of Newby Island to the mouth of Coyote Slough (San Francisco Bay Bird Observatory 2012).
San Francisco common yellowthroat *Geothlypis trichas sinuosa*	CSSC	Nests in herbaceous vegetation, usually in wetlands or moist floodplains	**Seismic Retrofit Area: Absent.** The Seismic Retrofit Area is outside this subspecies' range. **Conservation Measures Project Area: Absent.** The Conservation Measures Project Area is outside the species' range. **Expanded Study Area: Present.** This species breeds in weedy riparian habitats (including overflow channels); tidal and nontidal freshwater, brackish, and salt marsh; and weedy ruderal habitats with dense vegetation along lower Coyote Creek, from the vicinity of Montague Expressway downstream to the mouth of Coyote Slough (San Francisco Bay Bird Observatory 2012).
Yellow warbler *Setophaga petechia*	CSSC (nesting)	Nests in riparian woodlands	**Seismic Retrofit Area: Present.** Several pairs of yellow warblers breed in mixed riparian woodland and forest within the Seismic Retrofit Area and forage in habitats as well. **Conservation Measures Project Area: Present.** Several pairs of yellow warblers breed in mixed riparian woodland and forest and willow riparian forest and scrub within the Conservation Measures Project Area at the Ogier Ponds, and a pair could breed in mixed riparian woodland and forest near the Coyote Percolation Dam, Live Oak Restoration Reach, and North Channel Reach ~~Extension~~ Area; these birds forage in adjacent habitats as well. **Expanded Study Area: Present.** This species breeds in low numbers in riparian habitats along Coyote Creek from Anderson Dam downstream nearly to the limits of tidal influence, particularly in areas that are not closely hemmed in by urban development. Several pairs likely nest in riparian habitat in North Coyote Valley as well.
Pallid bat *Antrozous pallidus*	CSSC	Forages over many habitats; roosts in caves, rock outcrops, buildings, and hollow trees	**Seismic Retrofit Area: Present.** Since 1998, H. T. Harvey & Associates bat biologist Dave Johnston has been periodically monitoring a maternity colony of pallid bats located in the Cochrane Road barn, near the base of Anderson Dam immediately adjacent to the Seismic Retrofit Area. This barn has supported up to 105 females, which use the roost year-round (including as a maternity roost in spring and summer). Given the presence of these females, an equivalent number of males are likely present in the vicinity, producing a population estimate of approximately 200 or more individuals associated with this roost since monitoring began. The most recent maternity-season surveys of the Cochrane Road barn, in July 2021 and June 2022, produced counts of 75 and 105 individuals, respectively, exiting the barn, while surveys conducted shortly after the maternity season, in September 2019 and September 2022, recorded 64 and 115 individuals, respectively (Valley Water 2019e ~~2019d,~~ 2021d, Dave Johnston, personal observation). Since 1998, seven other pallid bat colonies monitored in Santa Clara County have declined substantially; for example, in 2012, those other colonies collectively supported approximately 35 females, and in 2016, only one of those other colonies was active (supporting only three females). More recently, a colony of 10 to 15 individuals has been detected at the University of California's Blue Oak Ranch Reserve (D. Johnston, personal observation), but the colony in the Cochrane Road barn represents the largest and

Common Name Scientific Name	Regulatory Status	Habitat	Potential for Occurrence in Study Area
			most stable colony of the species known in Santa Clara County, and supports at least half of the known individuals in the county. Pallid bats may also roost in the Seismic Retrofit Area in trees and rock outcrops, and individuals could forage in any open habitat. **Conservation Measures Project Area: May be Present.** Pallid bats could forage in open habitats around the Ogier Ponds, and larger trees at the Ogier Ponds, Live Oak Restoration Reach, and North Channel Reach ~~Extension~~ Area could possibly support roosts. **Expanded Study Area: High Likelihood of Presence.** Pallid bats could roost in larger trees, particularly those with large cavities, along Coyote Creek downstream from Anderson Dam. This species is most likely to occur where large trees with cavities are present near extensive grassland or other open (rather than developed) areas.
Townsend's big-eared bat *Corynorhinus townsendii*	CSSC	Roosts in caves and mine tunnels, and occasionally in deep crevices in trees such as redwoods or in abandoned buildings, in a variety of habitats	**Seismic Retrofit Area: Absent as Breeder.** Townsend's big-eared bat is not known to occur in or very close to the Seismic Retrofit Area (e.g., it has not been recorded at the Cochrane Road barn where pallid bats roost), and aside from that barn, no high-quality roost sites are present in the area. Although this species may forage over the Seismic Retrofit Area infrequently and in low numbers, it does not roost there. **Conservation Measures Project Area: Absent as Breeder.** Townsend's big-eared bat is not known to occur in or very close to the Conservation Measures Project Area, and no high-quality roost sites are present in the area. Although this species may forage over the Conservation Measures Project Area infrequently and in low numbers, it does not roost there. **Expanded Study Area: Absent as Breeder.** Townsend's big-eared bats could occasionally forage over parts of the study area outside the Project Area, in small numbers, but they do not roost or occur frequently in impact areas within the remainder of the study area.
Western red bat *Lasiurus blossevillii*	CSSC	Roosts in foliage in forest or woodlands, especially in or near riparian habitat	**Seismic Retrofit Area: Absent as Breeder.** Individual western red bats occur near the Seismic Retrofit Area in low numbers as migrants and winter residents, but this species does not breed in the South Bay. Individual western red bats may roost in small numbers in the foliage of trees virtually anywhere, but they roost primarily in riparian areas. **Conservation Measures Project Area: Absent as Breeder.** Individual western red bats may roost in small numbers in the foliage of trees, primarily in riparian areas. **Expanded Study Area: Absent as Breeder.** Individual western red bats may roost in small numbers in the foliage of trees, primarily in riparian areas along Coyote Creek and in North Coyote Valley.
Salt marsh wandering shrew *Sorex vagrans halicoetes*	CSSC	Medium to high marsh 6 to 8 feet above sea level with abundant driftwood and common pickleweed	**Seismic Retrofit Area: Absent.** Suitable habitat is absent, and the Seismic Retrofit Area is outside the species' range. **Conservation Measures Project Area: Absent.** Suitable habitat is absent, and the Conservation Measures Project Area is outside the species' range. **Expanded Study Area: Likely Present.** This species is likely present in tidal and nontidal salt marsh along Coyote Creek/Coyote Slough from the vicinity of the Coyote Creek Reach 1A waterbird pond to the mouth of Coyote Slough.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	CSSC	Nests in a variety of habitats including riparian areas, oak woodlands, and scrub	**Seismic Retrofit Area: Present.** The San Francisco dusky-footed woodrat is known to occur throughout much of Santa Clara County, particularly in foothill/mountain areas and along creeks in less heavily urbanized portions of the valley floor (Valley Water 2010b). Surveys of Anderson Dam conducted by Valley Water in 2006 and 2009 detected one woodrat nest at the dam (Valley Water 2012a). Since then, small numbers of woodrat nests have been observed on and around Anderson Dam in coast live oak forest and woodland, mixed serpentine chaparral, northern coastal scrub/Diablan sage scrub, and other land cover types in the Seismic Retrofit Area during preactivity surveys for Project-related geotechnical activities and the FOCP. Most nests have been located in dense scrub, though some have been in trees, and woodrats were detected at rock outcrops on Basalt Hill during camera surveys for ringtails (Valley Water 2017). These surveys have confirmed that woodrat nest densities/numbers at the site are low, even in ostensibly high-quality habitat. **Conservation Measures Project Area: Present.** San Francisco dusky-footed woodrat nests are present at the Ogier Ponds in dense mixed riparian forest and woodland and willow riparian forest and scrub. Nest densities are low, but the species occurs fairly widely. Likely also present at the Live Oak Restoration Reach and North Channel Reach ~~Extension~~ area, and in scattered locations elsewhere along Coyote Creek in the Project area. **Expanded Study Area: Present.** San Francisco dusky-footed woodrat nests are present in riparian habitats along Coyote Creek downstream from Anderson Dam. Though the species is likely absent or present in very low densities in urban areas, some woodrats may be present downstream nearly to the limits of tidal influence (Valley Water 2010b).
American badger *Taxidea taxus*	CSSC	Burrows in grasslands and occasionally in infrequently disked agricultural areas	**Seismic Retrofit Area: Absent as Breeder.** American badgers are expected to disperse through the Seismic Retrofit Area in low numbers, and they likely forage there, but the extensive grasslands preferred by this species are absent from the area, and it would not den within the Seismic Retrofit Area.

Common Name Scientific Name	Regulatory Status	Habitat	Potential for Occurrence in Study Area
			Conservation Measures Project Area: Absent as Breeder. American badgers are expected to disperse through the Ogier Ponds area in low numbers, and they likely forage there, but this species has not been observed at the Ogier Ponds and is unlikely to den there. **Expanded Study Area: Present.** American badgers have been recorded in North Coyote Valley, primarily as roadkills or in adjacent foothills, though they likely disperse through and forage in valley-floor areas as well. They may use riparian habitats in North Coyote Valley and along Coyote Creek from Anderson Dam downstream to the Metcalf Road area for cover.
State Fully Protected Species			
Golden eagle *Aquila chrysaetos*	SP	Breeds on cliffs or in large trees (rarely on electrical towers), forages in open areas	**Seismic Retrofit Area: Present.** Multiple territories are present around Anderson Reservoir. Focused surveys of the area around Anderson Reservoir since 2019 have detected two nesting pairs east of the reservoir (1.7 miles north and 2.4 miles east of the spillway), two additional pairs south/southeast of the southern end of the reservoir, and an additional territory northwest of the reservoir (Valley Water 2020e ~~2020a~~, 2021c ~~2021e~~, 2022a ~~2022b~~). This species forages in grassland, scrub, and the bed of the drawn-down reservoir throughout the Seismic Retrofit Area. **Conservation Measures Project Area: Absent as Breeder.** Golden eagles are occasionally seen flying over the Ogier Ponds, and they could forage in open habitats around the ponds, though they are usually observed high overhead. The species does not nest near the Conservation Measures Project Area, and it would not forage in the closed-canopy riparian habitat at the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach areas. **Expanded Study Area: Present.** Golden Eagles are regularly seen foraging in North Coyote Valley, though not in areas that may be affected by changes in groundwater levels during Seismic Retrofit construction. This species could forage along Coyote Creek from Anderson Dam downstream to the Metcalf Road area, but it does not nest in any areas where it could be affected by Project activities.
White-tailed kite *Elanus leucurus*	SP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats	**Seismic Retrofit Area: Present.** White-tailed kites are present in small numbers around Anderson Dam, being seen most often just outside the Seismic Retrofit Area in the Rosendin portion of Coyote Lake County Park. This species could forage in grassland, scrub, and the bed of the drawn-down reservoir throughout the Seismic Retrofit Area, and small numbers may nest in trees in or near the Seismic Retrofit Area. **Conservation Measures Project Area: Present.** One or two pairs regularly nest around the Ogier Ponds, and the species forages in open habitats all around the pond complex. It is possible that a pair may nest in or near the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach areas. **Expanded Study Area: Present.** White-tailed kites breed and forage in a number of areas in North Coyote Valley and along Coyote Creek downstream from Anderson Dam.
Peregrine falcon *Falco peregrinus*	--* ~~SP~~	Nests on cliffs, tall buildings, and occasionally old nests of other birds on electrical towers, foragers over a variety of open habitats, often near water	**Seismic Retrofit Area: Absent as Breeder.** Although no nesting habitat is present in or near the Seismic Retrofit Area, nonbreeding peregrine falcons occur in the area as occasional foragers, typically around Anderson Reservoir. **Conservation Measures Project Area: Absent as Breeder.** Although no nesting habitat is present in or near the Conservation Measures Project Area, nonbreeding peregrine falcons forage occasionally at the Ogier Ponds and the Coyote Percolation Pond. This species would not forage in the closed-canopy riparian habitat at the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach areas. **Expanded Study Area: Absent as Breeder.** Although no nesting habitat is present, small numbers of nonbreeding peregrine falcons forage in North Coyote Valley and along Coyote Creek downstream from Anderson Dam, often on waterfowl.
Ringtail *Bassariscus astutus*	SP	Boulder fields, talus slopes, rocky outcrops, and woodlands	**Seismic Retrofit Area: Absent as Breeder.** Ringtails may disperse through the Seismic Retrofit Area infrequently and in low numbers, but the species is not expected to den within the Seismic Retrofit Area. Focused camera surveys for ringtails among rock outcrops on Basalt Hill did not detect any individuals (Valley Water 2017). **Conservation Measures Project Area: Absent as Breeder.** Ringtails may disperse through the Ogier Ponds, Live Oak Restoration Reach, and North Channel Reach ~~Extension~~ areas in low numbers, but this species has not been observed in or near these areas and likely does not den there. **Expanded Study Area: Absent as Breeder.** Ringtails have not been recorded in or near North Coyote Valley or along Coyote Creek downstream from Anderson Dam. If they occur in these areas, they likely occur as infrequent dispersants.

Sources: see citations in discussions of individual species

Key: FE = Federally Endangered; FT = Federally Threatened; FPT = Federally Proposed Threatened; FC = Federal Candidate; SE = State Endangered; ST = State Threatened; SC = State Candidate; SP = State Fully Protected; CNDDB = California Natural Diversity Database; CM = Conservation Measures

CSSC = California Species of Special Concern; FOCP = Federal Energy Regulatory Commission Order Compliance Project; USFWS = U.S. Fish and Wildlife Service; VHP = VHP-Covered Species

** In July 2023, State Bill 147 removed the Fully Protected designation for peregrine falcon*

Special-status animals considered for potential occurrence in the study area, but determined to be absent by ecologists for purposes of impact assessment because suitable habitat is absent and/or the study area is outside the species' range include western snowy plover (*Charadrius nivosus nivosus*; in the South Bay, this species breeds exclusively, and forages primarily, in managed ponds that will not be affected directly or indirectly by the Project), bank swallow (*Riparia riparia*; absent as a breeder, present only as a scarce migrant), California condor (*Gymnogyps californianus*; not known or expected to occur anywhere in the study area except perhaps during high-altitude flights), willow flycatcher (*Empidonax traillii*; absent as a breeder, present only as an uncommon migrant), least Bell's vireo (*Vireo bellii pusillus*; the species is not known to have bred, even historically, in the study area), San Joaquin kit fox (*Vulpes macrotis mutica*; the species is not known to have occurred, even historically, in the study area, and coast horned lizard (*Phrynosoma blainvillii*; no suitable habitat is present in the study area, and the species is not known or expected to occur there.

Several species are designated as California SSC only when breeding, but they occur in areas where they could be impacted by Project activities only as nonbreeders; these species, which include the Vaux's swift (*Chaetura vauxi*), long-eared owl (*Asio otus*), short-eared owl (*Asio flammeus*), olive-sided flycatcher (*Contopus cooperi*), loggerhead shrike (*Lanius ludovicianus*), grasshopper sparrow (*Ammodramus savannarum*), yellow-breasted chat (*Icteria virens*) are not included in **Table 3.5-5,** because they do not occur in the study area as special-status species.

All other special-status animals that are known to occur, or that could occur, in areas where they may be subject to Project impacts are discussed in **Table 3.5-5**.

3.5.1.5 Wildlife Movement and Habitat Connectivity

Habitat connectivity is vital to animals for maintaining connections between core habitat areas (i.e., larger intact habitat areas where species typically reside). Connectivity helps ensure that genetic diversity is maintained by allowing individuals to disperse and share genes between populations, thereby diminishing the probability of inbreeding depression, and helps to maintain populations, as individuals from larger or more productive populations can disperse to areas where populations are lower. This helps to ensure that populations are more widely dispersed rather than being confined to fewer, more limited areas where disease, large disturbances, such as extensive fires, or random events could cause extirpation (local extinction). Connectivity is especially important in landscapes fragmented by urban development and agricultural activities.

Vegetation communities along streams and rivers often function as environmental corridors; in the study area, Coyote Creek functions as a wildlife movement corridor (ICF 2012). In addition, other natural habitats (e.g., oak woodlands and scrub) and the shorelines of Anderson Reservoir function as pathways for terrestrial wildlife movement that allow animals to move along these areas. A variety of animals, including amphibians, reptiles, mammals, and birds moving in a northwest-southeast direction along the western edge of the Diablo Range foothills move along the edges of Anderson Reservoir. In addition, animals move in an east-west direction across Coyote Valley. The ability of animals to be able to move—either over generations, in the case of less mobile animals, or during long-distance dispersal events for birds, bats, and larger mammals—across Coyote Valley and intermix and breed with genetically unrelated members of the species is important to the maintenance of populations of many species in the Diablo Range and Santa Cruz Mountains. Coyote Valley represents the highest-quality linkage between these two mountain ranges, because the foothills of both ranges come so close together at North

Coyote Valley, and because the mostly undeveloped nature of North Coyote Valley allows wildlife movement with limited impediments.

3.5.2 Regulatory Setting

The preceding *Biological Resources—Fisheries Resources* ~~Aquatic Biological Resources~~ section describes federal, State, and local laws, regulations, and policies relevant to the evaluation of the Project's impacts on aquatic biological resources. Most of those laws, regulations, and policies apply to terrestrial biological resources as well, and those detailed descriptions are not repeated here. This section therefore lists the federal, State, and local laws, regulations, and policies relevant to the evaluation of the Project's impacts on terrestrial biological resources; cross-references the aquatic section as appropriate; provides detailed descriptions of those few laws, regulations, and policies relevant to terrestrial but not aquatic biological resources; and provides a brief summary of the applicability of each law, regulation, and policy to the Project's impacts on terrestrial biological resources.

3.5.2.1 Federal Laws, Regulations, and Policies

Clean Water Act

Section 404, Permits for Fill Placement in Waters of the United States and Wetlands

See Section 3.14, *Water Quality*, ~~See the Aquatic Biological Resources section~~ for a description.

Project applicability: The Project will discharge fill materials into waters of the U.S. for construction of the following Project components: Seismic Retrofit, Ogier Ponds CM, Coyote Percolation Dam CM, North Channel ~~Extension~~ Reach Maintenance and Live Oak Restoration Reach Maintenance ~~CM~~, and Sediment Augmentation Program.

Federal Endangered Species Act

See Section 3.4, *Biological Resources—Fisheries Resources*~~, the Aquatic Biological Resources section~~ for a description.

Project applicability: The Project is anticipated to result in the take of federally listed species and may also impact proposed and candidate species. Terrestrial species protected by ESA are regulated by the USFWS. ESA-listed or proposed species that are considered covered species under the VHP and that may be impacted by the Project are Tiburon paintbrush (*Castilleja affinis* ssp. *neglecta* ~~*Neglecta*~~), Coyote ceanothus (*Ceanothus ferrisiae*), Santa Clara Valley dudleya (*Dudleya abramsii* ssp. *setchellii* ~~*Setchellii*~~), Metcalf Canyon jewel-flower (*Streptanthus glandulosus* ssp. *albidus* ~~*Albidus*~~), Bay checkerspot butterfly (*Euphydryas editha* ~~*wains*~~ *bayensis*), California tiger salamander (*Ambystoma californiense*), California red-legged frog (*Rana draytonii*), and foothill yellow-legged frog (*Rana boylii*). The majority of Project impacts on these species are considered covered activities under the VHP, and incidental take approval for VHP-covered activities' effects on these species is provided via the VHP. Authorization of any incidental take of these species resulting from the limited subset of Project activities that are not covered by the VHP will be provided via Project-specific Section 7 consultation with ~~between~~ FERC/USACE and USFWS. The Project could also result in take of the California Ridgway's rail and salt marsh harvest mouse (*Reithrodontomys raviventris*), federally listed species that occur along lower Coyote Creek near San Francisco Bay. Because these two species are not VHP-covered species, approval of any incidental take of these species resulting from the Project will be provided via Project-specific Section 7 consultation between FERC/USACE and USFWS. The northwestern pond turtle, which is a VHP-covered species, and the monarch butterfly (*Danaus plexippus*), which is not covered by the VHP, are proposed for listing as threatened ~~are candidates for listing~~ under ESA. Valley Water anticipates impacts to these two ~~candidate~~ species as a result of the Project. Consultation between FERC/USACE and USFWS may address these species as well.

Fish and Wildlife Coordination Act

See Section 3.4, *Biological Resources—Fisheries Resources*~~, the Aquatic Biological Resources section~~ for a description.

Project applicability: Consultation between USFWS, CDFW, and other agencies regarding the Project has been occurring through ongoing interagency meetings and technical working group meetings and will continue as necessary, including FERC and USACE consultation with these agencies.

Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC Section 703–712) implements the provisions of treaties between the United States, Great Britain, Mexico, Japan, and Russia, and authorizes the U.S. Secretary of the Interior to protect and regulate take of migratory birds. USFWS administers the MBTA. It establishes seasons and bag limits for hunted species, and renders taking, possession, import, export, transport, sale, purchase, and barter of migratory birds, their occupied nests, and their eggs illegal except where authorized under the terms of a valid federal permit. Activities for which permits may be issued include scientific collecting; falconry and raptor propagation; "special purposes," which include rehabilitation, education, migratory game bird propagation, and miscellaneous other activities; control of depredating birds; taxidermy; and waterfowl sale and disposal. The MBTA protects whole birds, parts of birds, and bird eggs and nests, and it prohibits the possession of all nests of protected bird species whether they are active or inactive. An *active* nest is defined as having eggs or young, as described by the USFWS in its June 14, 2018, memorandum "Destruction and Relocation of Migratory Bird Nest Contents". Nest starts (nests that are under construction and do not yet contain eggs) and inactive nests are not protected from destruction.

More than 800 species of birds are protected under the MBTA. Specific definitions of *migratory bird* are discussed in each of the international treaties; in general, however, species protected under the MBTA are those that migrate to complete different stages of their life history or to take advantage of different habitat opportunities during different seasons.

Project applicability: With the exception of the California quail, which is in a family explicitly excluded from MBTA protection, all native birds in the study area are protected under the MBTA. The Project includes measures to avoid violation of the MBTA by detecting and avoiding impacts to active nests of protected birds.

Federal Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 USC Section 668-668d) makes it unlawful to import, export, take, sell, purchase, or barter any bald eagle or golden eagle, or their parts, products, nests, or eggs. Take includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbance. The Department of the Interior has interpreted BGEPA to authorize issuance of regulations to permit the taking of eagles for various purposes, provided the taking is compatible with the preservation of the bald eagle or the golden eagle.

Project applicability: Seismic Retrofit construction would impact nesting bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). Valley Water has been coordinating with USFWS regarding these impacts and will obtain a BGEPA incidental take permit from USFWS prior to engaging in any Project activities resulting in the take of eagles.

Executive Orders

The actions of federal agencies are guided by Presidential Executive Orders related to environmental protection, including the following:

- Executive Order (EO) 11990 (Wetlands): For projects proposing to affect wetlands, federal agencies must demonstrate that no practicable alternatives exist to avoid or further minimize impacts on wetlands and that all practicable avoidance, mitigation, and/or preservation measures have been incorporated into the project to minimize impacts on wetlands. Federal agencies are required to provide the public opportunity to review proposals for impacts to wetlands.
- EO 11988 (Floodplain Management): For projects that may be in a floodplain, federal agencies are required to evaluate the effects of the action on the floodplain and identify practicable alternatives or measures to avoid impacts associated with the occupancy and modification of the floodplain and to avoid incompatible development in the floodplain.
- EO 13112 (Invasive Species): Federal agencies are required to prevent the introduction of invasive species and not authorize actions that could cause or promote the introduction or spread of invasive species. Federal agencies must identify feasible measures to minimize the risk of harm caused by invasive species.
- EO 13186 (Migratory Birds): Federal agencies are required to evaluate the effects of their actions on migratory birds and to minimize the take of migratory birds through development of procedures for evaluating such take and conservation efforts in coordination with the USFWS.

Project applicability: Project activities would affect wetlands, floodplains, and migratory birds, and may introduce or spread invasive species. FERC and USACE would comply with the Eos applicable to them. Valley Water has been coordinating with federal agencies (i.e., FERC, USFWS, NMFS, and USEPA) during Project planning regarding these issues, and the Project incorporates AMMs related to these issues.

3.5.2.2 State Laws, Regulations, and Policies

Porter-Cologne Water Quality Control Act

See Section 3.14, *Water Quality,* ~~the Aquatic Biological Resources section~~ for a description. Note that AB 2875 of 2024 established a state policy to ensure no net loss, and long-term gains, in the quantity, quality, and permanence of wetlands acreage.

Project applicability: The Project would impact waters of the State during construction of the following Project components: Seismic Retrofit, Ogier Ponds CM, Coyote Percolation Dam CM, North Channel ~~Extension, the~~ Reach and Live Oak Restoration Reach Maintenance ~~CM,~~ and Sediment Augmentation Program. Therefore, Valley Water would obtain a Section 401 Water Quality Certification for the Project from the State Water Board prior to engaging in Project activities affecting waters of the State.

California Endangered Species Act

See Section 3.4, *Biological Resources—Fisheries Resources*~~, the Aquatic Biological Resources section~~ for a description.

Project applicability: The Project would result in the take of State-listed species. Terrestrial species protected by CESA and regulated by CDFW include the VHP-covered California tiger salamander and foothill yellow-legged frog. The majority of Project impacts on these species are considered covered activities under the VHP, and incidental take approval for VHP-covered activities' effects on these species is provided via the VHP. Approval of any incidental take of these species resulting from the limited subset of Project activities that are not covered by the VHP may be sought via Project-specific CESA take authorization.

Several other CESA-listed species may also be impacted by the Project, but take of these species, as defined by CESA, will be avoided. For example, no take of Tiburon paintbrush would result from the Project, and the Project would incorporate measures to avoid take (as defined by CESA) of bald eagle, tricolored blackbird (*Agelaius tricolor*), and Swainson's hawk (*Buteo swainsoni*). The Project could result in impacts on the California Ridgway's rail, California black rail, and salt marsh harvest mouse, CESA-listed species that occur in habitats along lower Coyote Creek near San Francisco Bay. However, because these species are listed as "fully protected" under the Fish and Game Code, take of these species per CESA would be avoided.

The Southern California/Central Coast Evolutionarily Significant Unit of mountain lion (*Puma concolor*) is a candidate for listing under CESA, and this species occurs in the study area, but no take of this species will result from the Project. Crotch's bumble bee (*Bombus crotchii*) is a candidate for listing under CESA. As long as legally protected or unless and until Crotch's bumble bee is added to the VHP as a covered species (at which point any incidental take of the species resulting from the Project would be provided via the VHP), Valley Water will implement the FOCP *Crotch's Bumble Bee Avoidance Plan* (Valley Water 2024a) to avoid take of the species. Measures will also be implemented to avoid take of the state candidate burrowing owl.~~, and it is possible that take of this species could result from the Project. If it is listed under CESA, Valley Water would obtain an Incidental Take Permit authorizing such take.~~

California Native Plant Protection Act

The California Native Plant Protection Act (NPPA) of 1977 (Fish and Game Code Section 1900 to 1913) directed the Fish and Game Commission to use their authority to designate plants as rare or endangered to "preserve, protect, and enhance" these species. Under Section 1901, a species is *endangered* when its prospects for survival and reproduction are in immediate jeopardy from one or more causes. A species is *rare* when, although not threatened with immediate extinction, it exists in such small numbers throughout its range that it could become endangered if its present environment worsens.~~ T).~~ The CDFW maintains a list of federal and State-listed Endangered, Threatened, and Rare Plants of California (see https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109390&inline). Take of rare plants can only be authorized under Title 14 CCR Section 786.9. Take of endangered plants can only be authorized under the provisions of CESA. Various activities are exempt from CNPPA, although take of rare and/or endangered plants as a result of these activities may require other authorization from CDFW under the Fish and Game Code.

Project applicability: The Project would not result in take of any plant species protected by the NPPA.

Fish and Game Code Section 1600 et seq.

See Section 3.4, *Biological Resources—Fisheries Resources*~~, the Aquatic Biological Resources section~~ for a description.

Project applicability: Several Project components would result in impacts to the bed and banks of streams and lakes regulated by CDFW under Fish and Game Code Section 1600 et seq. Valley Water will apply for and obtain a LSAA before impacting CDFW-regulated resources.

Fish and Game Code – Fully Protected Species

California statutes afford fully protected status to a number of specifically identified birds, mammals, reptiles, and amphibians. These species cannot be taken~~, even with an incidental take permit,~~ unless authorized by a NCCP or unless CDFW issues an Incidental Take Permit in accordance with Senate Bill 147 of 2023; that bill authorizes CDFW to issue Incidental Take Permits for implementation of certain types of projects, including maintenance, repair, or improvement projects to critical regional or local water agency infrastructure. See Fish and Game Code Sections 3505, 3511, 4700, 5050, and 5515.

Project applicability: Fully protected species that may be impacted by the Project are bald eagle, golden eagle, California Ridgway's rail, California black rail, salt marsh harvest mouse, white-tailed kite, ~~peregrine falcon (*Falco peregrinus*),~~ and ringtail (*Bassariscus astutus*). The Project incorporates measures to avoid take of these species as defined by the Fish and Game Code. Although the Project meets the criteria for obtaining an Incidental Take Permit for fully protected species per Senate Bill 147, no Incidental Take Permit for fully protected species is expected to be necessary given the implementation of take avoidance measures.

Fish and Game Code Sections 3503, 3513, and 3800

Fish and Game Code sections 3503, 3513, and 3800 (and other sections and subsections) protect native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered take by the CDFW. Raptors (e.g., eagles, hawks, and owls) and their nests are specifically protected in California under Code Sections 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

Project applicability: All native birds in the study area, and some nonnative birds, are protected by these Fish and Game Code sections. The Project includes measures to avoid violation of these Fish and Game Code sections by detecting and avoiding impacts to active nests of protected birds, including indirect impacts that cause nest abandonment and/or loss of reproductive effort.

Fish and Game Code Section 4150

Bats and other nongame mammals are protected by Fish and Game Code Section 4150, which states that all nongame mammals or parts thereof may not be taken or possessed except as provided otherwise in the code or in accordance with regulations adopted by the commission. Activities resulting in mortality of nongame mammals (e.g., destruction of an occupied nonbreeding bat roost, resulting in the death of bats), or disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), may be considered take by the CDFW.

Project applicability: All bats occurring in the study area are protected by Fish and Game Code Section 4150. The Project includes measures to avoid violation of Fish and Game Code Section 4150 by detecting and avoiding injury or mortality to, or disturbance of a maternity colony of, bats.

Natural Community Conservation Planning Act

See Section 3.4, *Biological Resources—Fisheries Resources*~~, the Aquatic Biological Resources section~~ for a description.

Project applicability: The vast majority of Project activities are considered covered activities under the VHP, which is a joint HCP/NCCP. Valley Water would obtain VHP coverage of eligible activities and comply with all applicable VHP conditions.

3.5.2.3 Local Laws, Regulations, and Policies

Santa Clara Valley Habitat Plan

See Section 3.4, *Biological Resources—Fisheries Resources*~~, the Aquatic Biological Resources section~~ for a description.

Project applicability: The vast majority of Project activities are considered covered activities under the VHP. Valley Water would obtain VHP coverage of eligible activities and comply with all applicable VHP conditions.

Safe, Clean Water, and Natural Flood Protection Program (Measure B—the Safe, Clean Water and Natural Flood Protection Program)

The Safe, Clean Water, and Natural Flood Protection Program is designed with five priorities, including: (1) ensure a safe, reliable water supply; (2) reduce toxins, hazards, and contaminants; (3) protect the water supply from earthquakes and natural disasters; (4) restore wildlife habitat and provide open space; and (5) provide flood protection. Valley Water prepares an annual report providing a progress update for each of these program priorities, along with fiscal year accomplishments. This program benefits terrestrial resources through restoration activities, monitoring, and preserving natural lands.

Water Resources Protection Ordinance of the Santa Clara Valley Water District (as amended by Ordinance 081)

The Water Resource Protection Ordinance (as amended by Ordinance 081) was adopted by Valley Water to help implement the Guidelines and Standards for Land Use near Streams (Santa Clara Valley Water Resources Protection Collaborative 2006). The ordinance is intended to protect the water resources managed by Valley Water and provides a set of model guidelines and standards for land use along stream corridors, and it regulates access to and use of Valley Water's facilities and easements. The ordinance specifies the project review and permitting process for projects located within 50 feet of a creek or waterway, or within 50 feet of a Valley Water-owned property or easement. The Water Resources Protection Manual provides guidance for complying with the ordinance. This ordinance protects aquatic habitat and adjacent terrestrial resources and guides land use activities to reduce impacts to aquatic habitats and adjacent terrestrial resources.

Santa Clara County Tree Ordinance

County Code tree ordinance (County Code Division C16) protects protected trees, as defined, on any private or public property in designated areas of the county and which measure over 37.7 inches in circumference (12 inches or more in diameter) measured 4.5 feet above the ground, or which exceed 20 feet in height. Removal of protected trees requires an administrative permit from the County. The permit requires mitigation for removed trees by replacement planting on or offsite at a mitigation ratio determined by the County Planning Department. The County tree ordinance is applicable only to unincorporated areas of the county; within the limits of an incorporated city, it is superseded by that City's tree ordinance, if one exists.

<u>Project applicability</u>: Valley Water is exempt from compliance with the County tree ordinance under either Government Code Sections 53091(d) or (e) (which state that County or City building and zoning ordinances do not apply to the construction of facilities for water storage or transmission), or for nonbuilding and zoning ordinances, under *Hall v. Taft* (1956) 47 Cal. 2d 177,189 (which holds that water districts are exempt from municipal police power regulation). Therefore, Valley Water's removal of ordinance-sized trees would not conflict with the County tree ordinance. Nevertheless, recognizing the importance of protected trees to the County, Valley Water is voluntarily proposing a mitigation measure calling for the planting of replacement trees.

City of Morgan Hill Tree Ordinance

The City of Morgan Hill tree ordinance (Morgan Hill Municipal Code Chapter 12.32) requires a tree removal permit for removal of any tree on any city or private property with a circumference greater than 40 inches or more for nonindigenous species and 18 inches or more for indigenous species measured at 4.5 feet vertically above the ground or immediately below the lowest branch, whichever is lower, and having the inherent capacity of naturally producing one main axis continuing to grow more vigorously than the lateral axes. A tree removal permit is required for removal of trees of any size within a public right-of-way.

To obtain a tree removal permit, the applicant must submit: (1) a site plan, including location, type, and size of trees to be removed; (2) a disposal plan for felled wood (the City prefers composting or mulching over burning land filling); and (3) a letter of justification of tree removal, including a description of the condition of the tree(s), an explanation of why removal of the tree is requested, photographs showing the condition of the tree(s), and any other information pertinent to the request. The applicant also must agree to post a Public Notice for Tree Removal Permit.

Project applicability: The City of Morgan Hill tree ordinance does not apply to Project Area trees that may be removed as part of Project construction, since all trees within Morgan Hill city limits that would be impacted by the Project are located on public property owned by Valley Water. Therefore, Valley Water's removal of ordinance-sized trees would not conflict with the City's tree ordinance.

City of San José Tree Ordinance

The City of San José tree ordinance (San José Municipal Code Chapter 13.32) requires a live tree removal permit for removal of all live trees on private property over 56 inches in circumference, measured at a height of 24 inches above natural grade slope.

To obtain a live tree removal permit, the applicant must submit: (1) a plot plan, including information on the type, size, location and condition of trees to be removed and the location of required replacement trees; (2) photographs which show the entire tree(s); (3) evidence explaining why the tree(s) should be removed; and (4) indication of whether the tree(s) to be removed being used for nesting by birds or other animal species. The applicant also may be required to submit a Certified Arborist's Report. As part of the tree removal permitting process, a public hearing may be held. Public hearing notices are prepared by the Department of Planning, Building and Code Enforcement and mailed to all property owners and residents (adjacent for single-family residences and 300 feet for all others).

Project applicability: The City of San José tree ordinance does not apply to Project Area trees that may be removed as part of Project construction, since all trees within San José city limits are located on public property. Therefore, Valley Water's removal of ordinance-sized trees would not conflict with the City's tree ordinance.

Santa Clara County General Plan

See Section 3.4, *Biological Resources—Fisheries Resources*~~, the Aquatic Biological Resources section~~ for a description.

Project applicability: The County's General Plan goals, policies, and actions have been considered during Project planning as appropriate.

City of Morgan Hill General Plan

See Section 3.4, *Biological Resources—Fisheries Resources*~~, the Aquatic Biological Resources section~~ for a description.

Project applicability: The City of Morgan Hill General Plan goals, policies, and actions have been considered during Project planning as appropriate.

City of San José General Plan

See Section 3.4, *Biological Resources—Fisheries Resources*~~, the Aquatic Biological Resources section~~ for a description.

Project applicability: The City of San José General Plan goals, policies, and actions have been considered during Project planning as appropriate.

3.5.3 Methodology and Approach to Impact Analysis

The following impact analysis evaluates impacts on biological resources that would occur as a result of the following activities:

- Seismic Retrofit Construction Impacts Analysis
- Conservation Measures Construction Impacts Analysis
- Construction Monitoring Impacts Analysis
- Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Monitoring Impacts Analysis, including Post-Construction ADSRP and FAHCE Adaptive Management Impacts Analysis

For each of these four aspects of the Project, impacts were assessed for the Seismic Retrofit Area, the Conservation Measures Project Area, and additional portions of the study area where biological resources could be impacted as described in *Habitat Conditions and Characteristic Species in Other Impact Areas* (i.e., the expanded study area). The analysis of impacts on biological resources is based on the results of the field surveys, habitat assessments, and desktop analyses conducted for biological resources and on the baseline conditions with respect to presence/absence, locations of occurrence, and abundance/extent of biological resources, as well as the life history traits of plants and animals that influence how they may be impacted by Project activities.

Impacts on biological resources were first evaluated to qualitatively describe how Project activities could adversely affect biological resources, and where applicable to quantify impacts in terms of number of individuals of certain species, or the extent of regulated habitat or special-status species habitat that could be impacted. Impacts were assessed relative to baseline conditions. For the purpose of the analysis of Seismic Retrofit and Conservation Measures Project construction impacts on terrestrial biological resources, baseline conditions are the existing conditions present at the time of EIR preparation as modified by FOCP implementation (the Existing Conditions Baseline). The effects of post-construction operations were analyzed relative to both the pre-FOCP baseline (Pre-FERC Order Baseline) and operations that would have occurred in 2035 if Valley Water were to continue operating Anderson Dam as it has done historically rather than with implementation of FAHCE measures as the Project proposes (Future Baseline).

The impact evaluation also considered whether impacts to land cover types would be "temporary" or "permanent." The VHP defines a temporary impact as "direct impacts that alter land cover for less than one year and that allow the disturbed area to recover to pre-Project or ecologically improved conditions within one year (e.g., prescribed burning, construction staging areas) of completing construction." All impacts that alter land cover for more than 1 year or that take more than 1 year, following construction, for recovery to pre-Project or improved conditions are considered by the VHP to be permanent impacts. Because the majority of Project impacts on biological resources are considered covered activities by the VHP, the VHP's definitions of temporary vs. permanent impacts are followed in this section for VHP compliance (where they apply to a land cover type). As a result, the majority of direct, construction-related impacts on land cover types are considered permanent impacts, because the duration of construction activities exceeds the 1-year duration allowed for impacts to be considered temporary. In reality, though, much of the Project Area will be restored to pre-Project or ecologically improved conditions following completion of Project construction; for example, the portions of Anderson Reservoir where construction activities would occur would be restored to their function as a reservoir following construction. As a result, these impacts are not truly long-term impacts, even though they are considered permanent for purposes of VHP compliance and consistency. Project impacts on plants and animals, rather than land cover types, are not considered permanent, for the purposes of this analysis, if the impacts are not long-term (e.g., if they occur only during construction) and they do not result in the loss of a plant or animal; for example, disturbance of animals by noise, equipment, and personnel during construction is not considered a permanent impact even if it lasts throughout the construction period.

The Project is described in the VHP as a covered activity, and the majority of Project activities are covered by the VHP. However, some Project activities are not covered, because they are explicitly excluded from VHP coverage or because they exceed thresholds that the VHP set for coverage. In addition, some impacts of the Project affect species that occur only in areas that are outside the VHP permit area. Project impacts that are not covered by the VHP are as follows:

- Dewatering of Anderson Reservoir for longer than 3.5 years—the Project would require dewatering for up to 4.5 years, so from fall of Year 5 until the reservoir refills during the wet season following Year 6 (approximately 1 year), effects on VHP-covered species of the reservoir's dewatered condition are not covered by the VHP. Activities that would be occurring within the dewatered reservoir in Year 6 include hauling of material from the Packwood Gravel Borrow Pit (PGBP) and Stockpile Area K, placement of small amounts of material in the Reservoir Disposal Area, and restoration of access roads. The reservoir would also be maintained in a dewatered condition for this additional year.
- Relocation of steelhead—Valley Water proposes a number of Conservation Measures to maintain suitable conditions for steelhead in the CWMZ throughout Project construction. However, if water levels become too low or water temperatures too high, so that steelhead relocation is necessary during Project construction, fish would be moved to a more suitable location, which may include lower Coyote Creek near its confluence with Upper Penitencia Creek or Upper Penitencia Creek within Alum Rock Park. Impacts on terrestrial biological resources that may occur during such relocation are not covered by the VHP.

- Differences in dam releases between those covered by the VHP and those that may occur during Project construction ~~and post-construction operations~~—as discussed on page 2-60 and in **Table 2-4** of the VHP, the VHP covers Anderson Dam releases during dewatering for Seismic Retrofit construction up to 550 cfs, the capacity of the current dam outlet, for dewatering during the period November 1 to April 30 and up to 50 cfs for dewatering during the period May 1 to October 31. The VHP describes these maximum releases as being associated with draining the reservoir to dewater it for construction. The VHP indicates that if dewatering flows will exceed those in **Table 2-4** of the VHP, those flows would not be covered by the VHP.

Valley Water intends to adhere to the VHP-covered release requirements when draining Anderson Reservoir for dewatering each year, at the start of the construction season (i.e., around April 15). However, wet season flows through Anderson Dam may be much higher than those discussed in the VHP, as Valley Water needs to avoid having Anderson Reservoir fill during Project construction. Prior to the completion of the Stage 2 Diversion System, flows through the existing 42-inch outlet valve plus the Anderson Dam Tunnel (constructed by the FOCP) could be as high as 2,500 cfs. After the spring of Year 2, the Stage 2 Diversion System would provide additional flow capacity from the reservoir through the diversion system to function as an emergency spillway since the dam embankment would be lowered and the existing spillway would be offline. For the Stage 2 Diversion System, flows could range from 1 cfs to 65 cfs during the dry season, and the combined capacity of all outlets could allow for releases of up to 6,000 cfs during the wet season. The VHP did not explicitly discuss the possibility that flows may exceed those in VHP **Table 2-4** during the construction period, outside actual dewatering events. Therefore, the impacts of such flows on terrestrial biological resources may not be covered by the VHP.

The VHP does not cover impacts to species associated with San Francisco Bay, so any effects of the Project on species associated with baylands habitats would not be covered by the VHP.

Regarding post-construction operational impacts, the VHP intended to cover the FAHCE Program (referred to as the Three Creeks HCP in the VHP), though in 2012 when the VHP was prepared, details of the FAHCE Program were still being developed. Pages 2-55 and 2-56 of the VHP state:

The Three Creeks Conservation Program is still under development by Valley Water; thus, while this Plan provides coverage for covered species that are affected by the activities described below, the discussions of these activities are at a programmatic level. Once the Three Creek HCP Conservation Program has been adopted the range of activities and impacts will be better understood. Therefore, for specific project impacts that cannot be evaluated, coverage under this Plan would be conditioned upon additional review and approval by the Wildlife Agencies (see Section 8.7.3). The covered activities are described to encompass as much of the activities in the Three Creeks HCP Conservation Program as is currently expected to occur.

The description of the Three Creeks HCP in the VHP (page 2-56) includes geomorphic rehabilitation, gravel enhancement, reservoir and recharge reoperation, a supplemental flow program, and a monitoring program. The supplemental flow program described in the VHP (pages 2-82) includes activities such as summer cold water releases, winter base flow releases, pulse flows, and supplemental flows (including water from alternative water sources) that are consistent with those included in the Project. Therefore, the Project's post-construction FAHCE operations are considered VHP-covered activities.

The distinction between whether an activity is or is not covered by the VHP is relevant because the VHP's conservation program was developed so that covered projects complying with VHP conditions would be offsetting their impacts—or their contribution to cumulative impacts—on VHP-covered species and habitats through VHP compliance. Therefore, VHP compliance is considered an integral part of the Project, rather than a mitigation measure, and for many impacts on terrestrial biological resources, no additional mitigation is necessary due to VHP compliance. Impacts that are not covered by the VHP were evaluated to determine whether impacts are significant, and if so whether mitigation measures are necessary to reduce any such impacts to less-than-significant levels.

After qualitative and, where applicable, quantitative analysis of an impact was performed, the impact was then evaluated with the application of Valley Water BMPs (Valley Water 2014c) and any applicable VHP conditions with which the Project would comply, including consideration of the Conservation Measures that would be implemented as a result of Valley Water's payment of VHP impact fees (e.g., population or habitat restoration, acquisition, preservation, and management). For each Project impact on biological resources, **Table 3.5-6** summarizes Valley Water BMPs to be implemented; **Table 3.5-7** summarizes applicable VHP conditions; and **Table 3.5-8** summarizes specific, applicable AMMs related to VHP Conditions 3 (*Maintain Hydrologic Conditions and Protect Water Quality*), 4 (*Stream Avoidance and Minimization for In-Stream Projects*), and 5 (*Avoidance and Minimization Measures for In-Stream Operations and Maintenance*). A determination was then made regarding whether the impact was significant (and thus requires mitigation). For impacts that would remain significant even with implementation of BMPs and compliance with applicable VHP conditions, feasible mitigation measures were identified, and the significance of the impacts was re-evaluated to determine if mitigation measures would reduce impacts to a less-than-significant level.

The following sections provide an overview of the ways in which each of the four Project components evaluated—Seismic Retrofit Construction, construction and implementation of the Conservation Measures, construction monitoring, post-construction operations, maintenance, and FAHCE adaptive management)—could impact terrestrial biological resources. These discussions are provided here to streamline the sections analyzing impacts on individual biological resources (e.g., by minimizing repetition).

3.5.3.1 Seismic Retrofit Construction and Construction Phase Drawdown

Seismic retrofit construction would necessitate considerable modification of existing land cover types at Anderson Dam and in staging, stockpiling, and access areas. This impact assessment assumes that the entire area shown as being within the Seismic Retrofit Area (Proposed Construction Footprint) on **Figure 3.5-2** would be impacted during Project construction. In addition, it is possible that construction activities may need to take place anywhere within the reservoir bed, in the area indicated on **Figure 3.5-2,** as "Anderson Reservoir Boundary (Potential Additional Seismic Retrofit Construction)." Although most of the Seismic Retrofit Area would eventually be restored to pre-Project or ecologically improved conditions after completion of the 7-year construction Project, and truly permanent impacts would therefore be limited, impacts persisting for more than 1 year to all land cover types, except urban-suburban, are considered permanent in accordance with VHP conventions.

Within the Seismic Retrofit Area, it was assumed that virtually all vegetation (including all special-status plants and vegetated habitats/communities) would be removed or substantially disturbed, and conditions for most plants and animals within that area will be lost or degraded. Construction activities would therefore result in the loss of plants and animals within the Seismic Retrofit Area. It was assumed that habitat quality would be very low to negligible within any portions of the Seismic Retrofit Area undergoing active disturbance during the 7-year duration of construction.

Table 3.5-6. Summary of Valley Water BMPs to Be Implemented for Each Project Impact on Terrestrial Biological Resources

	Terrestrial Biological Resources Impact														
BMP	**TERR-1a**	**TERR-1b**	**TERR-1c**	**TERR-1d**	**TERR-1e**	**TERR-1f**	**TERR-1g**	**TERR-1h**	**TERR-1i**	**TERR-1j**	**TERR-2**	**TERR-3**	**TERR-4**	**TERR-5**	**TERR-6**
AQ-1 Dust Control	x	x									x	x			x
BI-2 Protect Steelhead			x	x						x	x	x			x
BI-3 Temporary Fill Removal	x	x	x	x							x	x	x		x
BI-4 Minimize Pesticide Effects	x	x	x	x	x	x	x	x	x	x	x	x	x		x
BI-5 Nesting Migratory Birds					x	x						X			x
BI-6 Nesting Migratory Birds Pending Construction					x							X			x
BI-8 Local Plant Species Use	x	x	x	x	x	x	x	x	x		x	x			x
BI-9 Restore Channel Bottom			x	x							x	x			x
BI-10 Avoid Animal Entrapment			x	x					x			X	x		x
BI-11 Minimize Predator Attraction		x	x	x		x	x	x	x			X	x		x
~~HM-7 Vehicle Cleaning~~	x	x	x	x							x	x			x
HM-8 Vehicle Fuel and Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x		x
HM-9 Hazardous Materials Management	x	x	x	x	x	x	x	x	x	x	x	x	x		x
HM-10 Spill Prevention	x	x	x	x	x	x	x	x	x	x	x	x	x		x
HM-12 Fire Prevention	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
WQ-1 Work from Top Bank			x	x						x	x	x			x
WQ-2 Vehicle Use Instream			x	x						x	x	x			x
WQ-3 Pumps and Generator Use			x	x						x	x	x			x
WQ-4 Staging and Stockpiling	x	x	x	x	x	x	x	x	x	x	x	x	x		x
WQ-5 Construction Entrance/Exit	x	x	x	x							x	x			x
WQ-6 Concrete Use Near Water			x	x						x	x	x			x

	Terrestrial Biological Resources Impact														
BMP	**TERR-1a**	**TERR-1b**	**TERR-1c**	**TERR-1d**	**TERR-1e**	**TERR-1f**	**TERR-1g**	**TERR-1h**	**TERR-1i**	**TERR-1j**	**TERR-2**	**TERR-3**	**TERR-4**	**TERR-5**	**TERR-6**
WQ-9 Native Seeding	x	x	x	x	x	x	x	x	x		x	x	x	x	x
WQ-11 Clean Work Site	x	x	x	x	x	x	x	x	x	x	x	x	x		x
WQ-15 Prevent Water Pollution	x	x	x	x	x	x	x	x	x	x	x	x	x		x
WQ-16 Prevent Stormwater Pollution	x	x	x	x	x	x	x	x	x	x	x	x	x		x

Source: Valley Water 2014c

Key: BMP = best management practices

Table 3.5-7. Summary of Santa Clara Valley Habitat Plan Conditions Applicable to Each Project Impact on Terrestrial Biological Resources

	Terrestrial Biological Resources Impact														
Santa Clara Valley Habitat Plan Condition	**TERR-1a**	**TERR-1b**	**TERR-1c**	**TERR-1d**	**TERR-1e**	**TERR-1f**	**TERR-1g**	**TERR-1h**	**TERR-1i**	**TERR-1j**	**TERR-2**	**TERR-3**	**TERR-4**	**TERR-5**	**TERR-6**
Condition 1: Avoid Direct Impacts on Legally Protected Plant and Wildlife Species					x	x	x					X			x
Condition 3: Maintain Hydrologic Conditions and Protect Water Quality			x	x	x	x		x	x	x	x	x	x		x
Condition 4: Avoidance and Minimization for In-stream Projects	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Condition 5: Avoidance and Minimization for In-stream Operations and Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Condition 7: Rural Development Design and Construction Requirements	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Condition 11: Stream and Riparian Setbacks		x	x	x	x	x	x	x	x	x	x	x	x		x
Condition 12: Wetland and Pond Avoidance and Minimization			x	x							x	x			x
Condition 13: Serpentine and Associated Species Avoidance and Minimization	x	x							x		x		x		x
Condition 17: Tricolored Blackbird						x						X			x
Condition 19: Plant Salvage When Impacts Are Unavoidable	x										x	X			x
Condition 20: Avoid and Minimize Impact to Covered Plant Occurrences	x										x	X			x

Source: ICF 2012

Table 3.5-8. Summary of Santa Clara Valley Habitat Plan-Required Aquatic Avoidance and Minimization Measures Related to Conditions 3, 4, and 5 That Are Applicable to Each Project Impact on Biological Resources

ID	Avoidance and Minimization Measure	Terrestrial Biological Resources Impact														
		TERR-1a	TERR-1b	TERR-1c	TERR-1d	TERR-1e	TERR-1f	TERR-1g	TERR-1h	TERR-1i	TERR-1j	TERR-2	TERR-3	TERR-4	TERR-5	TERR-6
General																
1	Minimize potential impacts on covered species most likely to be affected by changes in hydrology and water quality.			x	x	x					x	x	x	x		x
2	Reduce stream pollution by removing pollutants from surface runoff before the polluted surface runoff reaches local streams.			x	x	x					x	x	x	x		x
3	Maintain the current hydrograph and, to the extent possible, restore the hydrograph to more closely resemble predevelopment conditions.			x	x						x	x	x	x		x
6	Activities in the active (i.e., flowing) channel shall be avoided, or AMMs in this table shall be applied.			x	x	x					x	x	x	x		x
7	Personnel shall prevent the accidental release of chemicals, fuels, lubricants, and nonstorm drainage water into channels.			x	x	x					x	x	x			x
8	Spill prevention kits shall always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).	x	x	x	x	x	x	x	x	x	x	x	x			x

ID	Avoidance and Minimization Measure	Terrestrial Biological Resources Impact														
		TERR-1a	TERR-1b	TERR-1c	TERR-1d	TERR-1e	TERR-1f	TERR-1g	TERR-1h	TERR-1i	TERR-1j	TERR-2	TERR-3	TERR-4	TERR-5	TERR-6
11	Vehicles shall be washed at approved areas. No washing of vehicles shall occur at job sites.	x	x	x	x							x	x			x
12	No equipment servicing shall be done in the stream channel or immediate floodplain unless equipment cannot be readily relocated.			x	x	x					x	x	x			x
13	Personnel shall use the appropriate equipment for the job that minimizes disturbance to the stream bottom.			x	x	x					x	x	x	x		x
14	If high groundwater is present in a work area, pump it out of the work site carefully to remove sediment prior to the water re-entering a creek.			x	x							x	x			x
15	Implement native aquatic vertebrate relocation plan when ecologically appropriate as determined by a qualified biologist.			x	x											x
17	Install cofferdams both upstream and downstream not more than 100 feet from the extent of the work areas.			x	x							x	x	x		x
18	Small in-channel berms that deflect water to one side of the channel may be constructed of channel material in channels with low flows.			x	x							x	x			x
20	Diversions shall maintain ambient stream flows below the diversion, with no reduction or degradation.			x	x							x	x			x

ID	Avoidance and Minimization Measure	Terrestrial Biological Resources Impact														
		TERR-1a	TERR-1b	TERR-1c	TERR-1d	TERR-1e	TERR-1f	TERR-1g	TERR-1h	TERR-1i	TERR-1j	TERR-2	TERR-3	TERR-4	TERR-5	TERR-6
21	If stream bed design changes are not part of the project, the stream bed shall be returned to as close to pre-project condition as appropriate.			x	x							x	x	x		x
22	Remove all temporary diversion structures and the supportive material no more than 48 hours after work is completed.			x	x							x	x	x		x
23	Temporary fills, such as for access ramps, diversion structures, or cofferdams, shall be completely removed upon finishing the work.			x	x							x	x	x		x
24	To prevent increases in temperature and decreases in dissolved oxygen, properly size bypass pipes or use a low-flow channel.			x	x							x	x			x
25	Diversions shall maintain fish passage under specified project conditions.			x	x									x		x
26	Any sediment removed from a project site shall be stored and transported in a manner that minimizes water quality impacts.			x	x	x						x	x	x		x
29	Existing native vegetation shall be retained by removing as much vegetation as necessary to accommodate the trail clearing width.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

ID	Avoidance and Minimization Measure	Terrestrial Biological Resources Impact														
		TERR-1a	TERR-1b	TERR-1c	TERR-1d	TERR-1e	TERR-1f	TERR-1g	TERR-1h	TERR-1i	TERR-1j	TERR-2	TERR-3	TERR-4	TERR-5	TERR-6
30	Vegetation control and removal in channels, on stream banks, and along levees and maintenance roads shall be limited.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
31	When conducting vegetation management, retain as much understory brush and as many trees as feasible.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
32	The top of the bank shall be protected by leaving vegetation in place to the maximum extent possible.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
33	Regional Board objectives for temperature change in receiving waters shall not be exceeded.			x	x											x
Project Design																
34	Use the minimum amount of impermeable surface (building footprint, paved driveway, etc.) practicable.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
35	Use pervious materials, such as gravel or turf pavers, in place of asphalt or concrete to the extent practicable.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
36	Use flow control structures such as swales, retention/detention areas, and/or cisterns to maintain the existing (pre-project) peak runoff.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

ID	Avoidance and Minimization Measure	Terrestrial Biological Resources Impact														
		TERR-1a	TERR-1b	TERR-1c	TERR-1d	TERR-1e	TERR-1f	TERR-1g	TERR-1h	TERR-1i	TERR-1j	TERR-2	TERR-3	TERR-4	TERR-5	TERR-6
39	Minimize alterations to existing contours and slopes, including grading the minimum area necessary.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
40	Maintain native shrubs, trees, and groundcover whenever possible and revegetate disturbed areas with local native or noninvasive plants.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
42	Use flow-control structures, permeable pavement, cisterns, and other methods to ensure no change in peak runoff.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
43	Assess site conditions to determine if designs such as bioengineered bank treatments with live vegetation can be successfully used.			x	x							x	x			x
44	Maintain natural stream characteristics, such as riffle-pool sequences, riparian canopy, sinuosity, floodplain, and a natural channel bed.			x	x							x	x	x		x
45	Incorporate free-span bridges that allow for upland habitat under bridges.			x	x					x		x	x	x		x
49	The project or activity must be designed to avoid the removal of riparian vegetation, if feasible.		x	x	x		x	x	x	x	x	x	x	x	x	x
51	All projects shall be conducted in conformance with applicable County and/or city drainage policies.			X	x							x	x			x

ID	Avoidance and Minimization Measure	Terrestrial Biological Resources Impact														
		TERR-1a	TERR-1b	TERR-1c	TERR-1d	TERR-1e	TERR-1f	TERR-1g	TERR-1h	TERR-1i	TERR-1j	TERR-2	TERR-3	TERR-4	TERR-5	TERR-6
52	Adhere to the siting criteria described for the borrow site covered activity (see Chapter 2 for details).	X	x	x	x	x	x	x	x	x		x	x	x	x	x
53	When possible, maintain a vegetated buffer strip between staging or excavation areas and receiving waters.	X	x	x	x		x	x	x	x	x	x	x	x	x	x
54	Outside of the construction footprint, maintain deep pools within stream reaches as refugia for fish and wildlife.			X	x											x
56	Bank stabilization site design shall consider hydraulic effects immediately upstream and downstream of the work area.			X	x							x	x			x
58	Use existing access routes/levee roads to minimize impacts of new construction in special-status species habitats and riparian zones.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
61	Minimize ground disturbance to the smallest area feasible.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
62	Use existing roads for access and disturbed area for staging as site constraints allow.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
63	Prepare and implement sediment erosion control plans.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x

ID	Avoidance and Minimization Measure	Terrestrial Biological Resources Impact														
		TERR-1a	TERR-1b	TERR-1c	TERR-1d	TERR-1e	TERR-1f	TERR-1g	TERR-1h	TERR-1i	TERR-1j	TERR-2	TERR-3	TERR-4	TERR-5	TERR-6
64	No winter grading shall occur unless approved by City Engineer and specific erosion control measures are incorporated.			X	x							x	x	x		x
65	Control exposed soil by stabilizing slopes (e.g., with erosion control blankets) and protecting channels.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
66	Control sediment runoff using sandbag barriers or straw wattles.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
67	No stockpiling or placement of erodible materials shall occur in waterways or along areas of natural stormwater flow.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
68	Stabilize stockpiled soil with geotextile or plastic covers.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
69	Maintain construction activities within a defined project area to reduce the amount of disturbed area.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
70	Clear/prepare land which shall be actively under construction in the near term.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
71	Preserve existing vegetation to the extent possible.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
72	Equipment storage, fueling, and staging areas shall be sited on disturbed areas or nonsensitive habitat outside a stream channel.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
73	Avoid wet season construction.			X	x						x	x	x			x

ID	Avoidance and Minimization Measure	Terrestrial Biological Resources Impact														
		TERR-1a	**TERR-1b**	**TERR-1c**	**TERR-1d**	**TERR-1e**	**TERR-1f**	**TERR-1g**	**TERR-1h**	**TERR-1i**	**TERR-1j**	**TERR-2**	**TERR-3**	**TERR-4**	**TERR-5**	**TERR-6**
74	Stabilize site ingress/egress locations.	X	x	x	x	x	x	x	x	x	x	x	x	x		x
75	Dispose of all construction waste in designated areas and prevent stormwater from flowing onto or off these areas.	X	x	x	x	x	x	x	x	x	x	x	x	x		x
76	Prevent spills and clean up spilled materials.	X	x	x	x	x	x	x	x	x	x	x	x	x		x
77	Sweep nearby streets at least once a day.	X	x	x	x						x	x	x			x
78	In-stream projects occurring while the stream is flowing must use appropriate measures to protect water quality and native aquatic species.			X	x						x	x	x	x		x
80	All personnel working in or adjacent to the stream setback shall be trained by a qualified biologist in AMMs.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
83	Sediments shall be stored and transported in a manner that minimizes water quality impacts.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
84	Appropriate erosion control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) shall be used onsite.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
86	Topsoil removed during soil excavation shall be preserved and used as topsoil during revegetation, when necessary.	X	x									x	x			x

ID	Avoidance and Minimization Measure	Terrestrial Biological Resources Impact														
		TERR-1a	TERR-1b	TERR-1c	TERR-1d	TERR-1e	TERR-1f	TERR-1g	TERR-1h	TERR-1i	TERR-1j	TERR-2	TERR-3	TERR-4	TERR-5	TERR-6
87	Vehicles operated within and adjacent to streams shall be checked and maintained daily to prevent leaks.			X	x	x					x	x	x			x
88	Vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
89	The potential for traffic impacts on terrestrial animal species shall be minimized by adopting traffic speed limits.			X	x					x			X	x		x
90	All trash shall be removed from the site daily to avoid attracting potential predators to the site.			X	x	x	x	x	x	x			X	x		x
91	To prevent the spread of exotic species and reduce the loss of natives, aquatic species shall be netted; natives shall be released, exotics removed.			X	x											x
92	To minimize the spread of pathogens, all staff working in aquatic systems shall adhere to equipment decontamination guidelines.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
93	When accessing upland areas adjacent to riparian areas or streams, access routes on slopes > 20% shall generally be avoided.			X	x							x	x			x
94	Personnel shall use existing access ramps and roads if available.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x

ID	Avoidance and Minimization Measure	Terrestrial Biological Resources Impact														
		TERR-1a	TERR-1b	TERR-1c	TERR-1d	TERR-1e	TERR-1f	TERR-1g	TERR-1h	TERR-1i	TERR-1j	TERR-2	TERR-3	TERR-4	TERR-5	TERR-6
95	To minimize entrapment of animals, the project biologist or job foreman shall survey the work area at the end of daily activities to identify and remediate conditions that might trap animals.			X	x					x			X	x		x
97	Erosion control measures shall be in place at all times during construction.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
98	When needed, use in-stream grade control structures to control channel scour, sediment routing, and headwall cutting.			X	x								x	x		x
Post-Construction																
99	Conduct street cleaning on a regular basis.	X	x	x	x						x	x	x			x
100	Potential contaminating materials shall be stored in covered storage areas or secondary containment impervious to leaks and spills	x	x	x	x	x	x	x	x	x	x	x	x			x
101	Runoff pathways shall be free of trash containers or trash storage areas. Trash storage areas shall be screened or walled.			X	x	x	x	x	x	x			X			x
102	Immediately after project completion and before close of seasonal work window, stabilize all exposed soil.	X	x	x	x	x	x	x	x	x	x	x	x			x

ID	Avoidance and Minimization Measure	Terrestrial Biological Resources Impact														
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103	All disturbed soils shall be revegetated with native plants and/or grasses or sterile nonnative species.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
104	Measures shall be used onsite to prevent erosion along streams (e.g., from road cuts or other grading).	X	x	x	x	x	x	x	x	x	x	x	x			x
110	If debris blockages threaten bank stability and may increase sedimentation of downstream reaches, debris shall be removed.			X	x						x	x	x			x
111	If bank failure occurs due to debris blockages, bank repairs shall use compacted soil and reseeding with native/sterile nonnative plants.	X	x	x	x	x	x	x	x	x	x	x	x	x	x	x
112	Pumps and generators shall be maintained and operated in a manner that minimizes impacts to water quality and aquatic species.			X	x							x	x			x

Source: ICF 2012

Notes:

*These measures are paraphrased from **Table 6-2** of the VHP (as revised via a minor modification dated March 17, 2016, which removed redundant measures) and are required for VHP Conditions 3, 4, and 5. This table indicates which specific AMMs pertain to each identified biological resources impact attributed to implementation of the Project.*

A blank cell indicates that the measure is not applicable to that specific biological resources impact. VHP AMMs that are not applicable to any impact mechanism attributed to implementation of the Project are not included in this table.

Key: AMM = Avoidance and Minimization Measure

In addition, some impacts would occur during construction in portions of the study area outside the immediate footprint of the Seismic Retrofit Area. Mobilization of dust would affect vegetation (including special-status plants, plants used by special-status animals, and plants comprising sensitive natural communities) immediately adjacent to or downwind from areas of earth-moving or equipment/vehicle activity. Dust may coat vegetative and floral surfaces, interfering with normal gas exchange, photosynthesis, or pollination. Drainage patterns may be altered so that areas downslope from construction areas may be subject to reduced or increased runoff; this could result in erosion, or creation of conditions too dry or too wet for certain plant species. Ground disturbance followed by periods of inactivity could improve conditions for colonization by invasive plants. Movement of earth, vegetation, water (e.g., runoff and water used for dust suppression and other construction activities), equipment, vehicles, and personnel could spread invasive plant propagules and pathogens, such as *Phytophthora*. *Phytophthora* could impair the health of plants, spreading through root systems. These invasive plants and pathogens could reduce habitat quality for special-status plants, or directly affect their health, in areas immediately outside the construction footprint.

During Seismic Retrofit construction, Anderson Reservoir would be largely dewatered, so less water would be available for release into Coyote Creek during construction than under Pre-FERC Order and Existing Conditions ~~during FOCP Construction Phase~~ Baseline conditions (i.e., existing conditions as modified by the FOCP). Valley Water would use a combination of bypassed inflow into Anderson Reservoir and imported water released through the CDL and Cross Valley Pipeline Extension to help maintain adequate water in Coyote Creek for fish (in the CWMZ) and groundwater recharge throughout the creek. In this way, Valley Water intends to maintain adequate creek flow to avoid substantial degradation of sensitive habitats due to inadequate water availability related to the Project. This combination of water sources would minimize flow-related impacts on aquatic animals, creek flow for the wetland and riparian habitats along Coyote Creek downstream from the Seismic Retrofit Area, and groundwater levels that support aquatic, wetland, and riparian habitats in North Coyote Valley. Modeling performed by Valley Water predicted that there would be a reduction in groundwater recharge and storage during Seismic Retrofit construction relative to the Pre-FERC Order baseline (when ~~interim seismic~~ restrictions limited reservoir capacity to 51,200 acre-feet but no FERC reservoir drawdown order was in effect); however, with make-up sources of water provided during ongoing construction. Groundwater storage is still predicted to be above Valley Water's 2021 Groundwater Management Plan storage target (Valley Water 2023a). Nevertheless, the impact analyses considered whether degradation of these water-dependent habitats could occur if inadequate water is available during construction, thus resulting in loss or degradation of regulated and sensitive habitats, and reduced habitat extent/quality for special-status species that rely on such habitats. The imported water used to augment creek flows may contain nonnative predatory fish and pathogens that could then affect plants and animals in Coyote Creek. However, imported water is already in use in Coyote Creek, and thus the impact analyses assume that no new nonnative animals or pathogens would be introduced from imported water for the Project.

Changes to the dam's outlets and compliance with FERC's order to leave dam outlets open until completion of ADSRP construction to maintain deadpool may also result in increases in wet weather flows downstream from the dam during construction (Valley Water 2022c ~~2022d~~) relative to Pre-FERC Order Baseline and Existing Conditions Baseline conditions, which for construction-period flows are represented by existing conditions at the time of EIR preparation modified by FOCP implementation. The pre-FOCP Anderson Dam outlet valve has a maximum flow capacity of 500 cfs. The ADTP—a component of the FOCP—would install the Stage 1

Diversion Outlet, which is capable of releases from Anderson Reservoir up to 2,000 cfs (in addition to the existing 500 cfs outlet). Thus, Pre-FERC Order Baseline Conditions allows for releases from the dam of 500 cfs, and Existing Conditions Baseline conditions for Seismic Retrofit construction allow for releases from the dam of up to 2,500 cfs. After the spring of Year 2, the Stage 2 Diversion System would provide additional flow capacity from the reservoir through the diversion system to function as an emergency spillway since the dam embankment would be lowered and the existing spillway would be offline. For the Stage 2 Diversion System, flows could range from 1 cfs to 65 cfs during the dry season, and the combined capacity of all outlets would allow releases of up to 6,000 cfs during the wet season. These flows are described in detail in the *Biological Resources—Fisheries Resources* section of the EIR.

The magnitude of flow, and frequency of flows of a certain magnitude, would depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (2022c ~~2022d~~) predicts higher flows during construction because outlets would be left wide open, so that Anderson Reservoir is not detaining water. At their maximum, such flows could be as high as approximately 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The higher the flow, the lower the probability and frequency of that flow occurring in any given year, so that very high flows, greater than the 10-year or 20-year events, are unlikely during the project construction period, though possible. The 10-year event has a 10 percent likelihood of occurring in any given year, and the 20-year event has a 5 percent likelihood of occurring in any given year.

Higher release rates during the construction period could result in erosion, deposition of sediment (from the reservoir bed and from material eroded from the Coyote Creek bank downstream from Anderson Dam), and scour of riparian vegetation along the creek channel. However, the magnitude of such flows during the construction period would more closely resemble a non-dam (or pre-dam) hydrologic situation more than the existing dam-in-place Pre-FERC Order Baseline or Existing Conditions Baseline condition does, and therefore represent conditions under which the plant and animal communities in and along Coyote Creek downstream from Anderson Dam had experienced historically prior to the dam's construction.

Although large flow events could modify riparian vegetation in the short term, they can also create floodplain inundation and open habitat along the channel edge conducive to germination of riparian vegetation. The dominant riparian trees along Coyote Creek, such as cottonwoods, willows, and sycamores, can become established only in areas that provide bare sediment, with no existing canopy providing shade, close enough to the water table to allow for these species to become established and grow roots that can tap into groundwater. In the absence of high flows and mobilization of sediment there are no suitable areas for riparian tree germination. Existing trees can continue to grow and mature, but the result is a mature, senescent riparian forest that lacks substantive regeneration. It takes the scour of vegetation (to reduce shading) or the creation of new bars or low shelves of bare sediment to create the conditions suitable for cottonwoods and willows to germinate, so that the riparian corridor has trees of a variety of ages. This uneven-aged stand structure creates diverse habitat conditions that helps to support high riparian animal diversity. These effects of higher flows were observed when Anderson Reservoir spilled in February 2017. Riparian trees and shrubs in some areas along Coyote Creek downstream were lost due to scour, but those areas were immediately colonized by cottonwood and willow seedlings, and within a few years, there were dense thickets of riparian shrubs and young trees that provided different microhabitat conditions from the more mature trees farther from the channel, enhancing animal diversity in those areas.

Flooding, scour, and sediment mobilization are also important for the regeneration of California sycamore and sycamore alluvial woodland, a scarce and declining plant community in the region. Although sycamores can thrive with limited summer water and intermittent flows, they become established only under certain conditions. A recent study of the conditions associated with distribution, health, and regeneration of sycamores along upper Coyote Creek and Pacheco Creek determined that sycamores need flood events large enough to either move cobbles or to remove finer sediment overlaying cobbles on floodplain terraces, and to remove any shading overhead, as most of the younger sycamores observed in this study were in areas dominated by herbaceous vegetation and/or in cobbly substrates (San Francisco Estuary Institute-Aquatic Science Center and H. T. Harvey & Associates 2017). High flows that carry seeds, deliver sediment, and inundate floodplains play a key role in sycamore regeneration.

The creek has been largely "starved" of sediment due to the presence of the dam and the accumulation of sediment behind the dam. The insufficient sediment input and the infrequency of high flow events due to the dam's presence have limited natural stream erosion and sedimentation processes and have limited the regeneration of species such as cottonwoods and willows that rely on bare sediment along stream channels for germination. As a result, following potential initial loss of wetland and riparian habitat due to increased construction-period wet season flows, erosion, and sedimentation, flows during the construction period may improve the regeneration of riparian vegetation over the long term and help sustain high-quality habitat conditions.

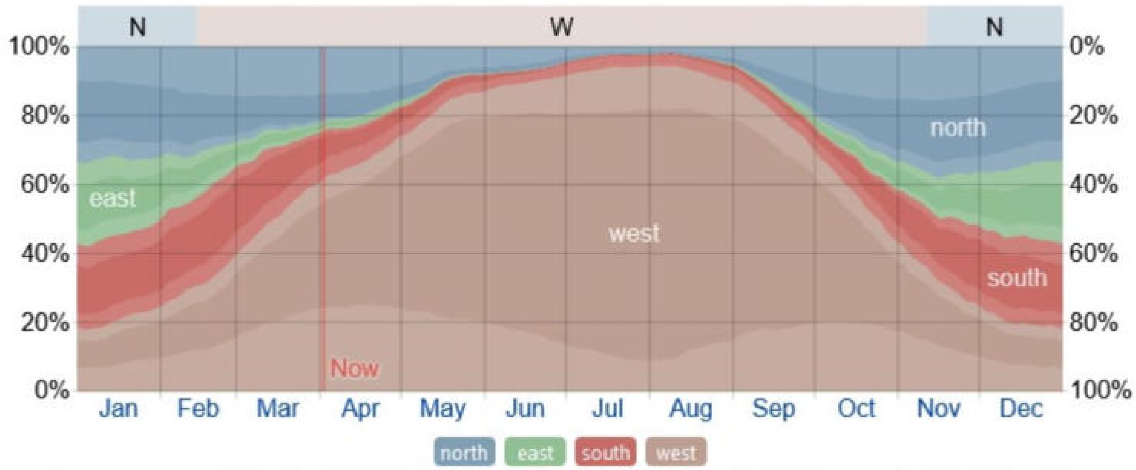
Animals present in and along Coyote Creek downstream from Anderson Dam could be displaced by flows that are higher than Pre-FERC Order Baseline and Existing Conditions Baseline winter flows; as discussed previously, flows during storm events could increase during construction. Because wet season high-flow events will ramp up naturally, individuals close enough to the creek to be affected by high flows are expected to be able to emerge and move to higher ground in response to rising water levels. Such displaced individuals may be subject to increased injury or mortality due to predation attempts.

Considerable sediment has accumulated in the bed of Anderson Reservoir since construction of the dam. When this sediment is covered by water, as under normal conditions when the reservoir is filled, it is not easily eroded. However, when the reservoir has been dewatered, these sediments will be more subject to erosion from rainfall runoff and from the reservoir's tributaries. Because the reservoir's outlets will be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed, considerable sediment is predicted to be mobilized downstream from the dam during the Project. This increase in sediment mobilization will result from both the exposure of sediments under certain flows and the higher flow rates through the dam during construction. Modeling concluded that the maximum sediment mobilization will occur if back-to-back 2-year rainfall events (i.e., events that have a 50 percent likelihood of occurring in any given year), or a single 5-year event (20 percent likelihood of occurring in any given year), were to occur when relatively little water was present in the reservoir (URS ~~AECOM~~ 2021). During those events, flows would be high enough to erode large amounts of sediment from the reservoir (approximately 167,000 tons per event) but not so high as to inundate the reservoir to a higher water level than the bed sediment, which would reduce their erosivity. Sediment transport will result in changes to habitat conditions in and along the

Coyote Creek channel all the way downstream to tidal areas, including deposition of sediment in tidal habitats. However, given that the creek has limited sediment due to the dam and the accumulation of sediment behind the dam, the small amounts of sediment input and the infrequency of high flow events due to the dam's presence have limited natural stream erosion and sedimentation processes and have limited the regeneration of species, such as cottonwoods and willows that rely on bare sediment along stream channels for germination. Mobilization of sediment to Coyote Creek downstream from Anderson Dam will benefit riparian plant species. In addition, such sediment will facilitate accretion of tidal marshes along the lowest tidal reach of Coyote Creek. Such marshes need sediment inputs to be able to maintain suitable elevations for vegetation in the face of sea level rise, and restoration of managed ponds to tidal habitats (e.g., by the South Bay Salt Pond Restoration Project) depends on accretion of sediment in restored tidal habitats to achieve the appropriate elevations for the colonization of marsh vegetation.

Seismic retrofit construction would involve considerable activity of equipment and vehicles that emit nitrogen compounds as a by-product of fuel combustion. Nitrogen deposited on nutrient-poor soils, such as those derived from serpentinite, essentially fertilizes those soils, allowing nonnative grasses and forbs that would not otherwise be able to colonize (at least robustly) those serpentine soils to become established. As a result, nitrogen deposition can remove the competitive advantage that native, special-status, serpentine-associated plants have over nonnative species that are not adapted to dry, shallow, nutrient-poor serpentine soils. The effects of nitrogen deposition occur primarily downwind of the emission source, as wind carries nitrogen from the source to the area where it is deposited (Weiss 1999). In the Anderson Dam area, winds during the primary construction season (April through October) are predominantly from the west or northwest (WeatherSpark 2022; ~~**Figure 3.5-10**~~ **Figure 3.5-11**). Therefore, most of the nitrogen emitted during Project construction activities would be carried toward the east or southeast. Serpentine-associated plants, animals, and communities downwind from construction activities could be affected by deposition of nitrogen emitted by Seismic Retrofit activities, in combination with nitrogen emissions from other regional sources. Assessment of impacts from Project construction-related nitrogen emissions on serpentine communities and species (or more accurately, the Project's contribution to cumulative impacts of nitrogen emissions) therefore take into account the locations of those serpentine resources relative to the Seismic Retrofit Area. Nitrogen deposition resulting from Seismic Retrofit construction is unlikely to have a substantial impact on plants or communities not associated with serpentine, and this impact is thus not assessed for non-serpentine-related species and communities.

Figure 3.5-11. ~~3.5-10~~ Summary of Prevailing Winds in the Morgan Hill Area by Month.



The percentage of hours in which the mean wind direction is from each of the four cardinal wind directions, excluding hours in which the mean wind speed is less than ***1.0 mph****. The lightly tinted areas at the boundaries are the percentage of hours spent in the implied intermediate directions (northeast, southeast, southwest, and northwest).*

Source: WeatherSpark (2022)

The 2020 FERC Order required Valley Water to maintain the Anderson Reservoir surface water no higher than elev. 565 feet effective at the time of the FERC order in February 2020 and draw down the reservoir surface water to elev. deadpool beginning no later than October 1, 2020. It has been suggested by some local residents that this drawdown of Anderson Reservoir facilitated the expansion of feral pigs into residential areas west of the reservoir. In addition to damaging lawns, landscaping, and golf courses, feral pigs can have ecological impacts on sensitive resources by rooting through sensitive habitats, such as wetlands and consuming special-status plants and even special-status animals, possibly including the California red-legged frog, San Francisco dusky-footed woodrat, and others.

There is no evidence that the distribution of feral pigs was affected substantially by the FERC-ordered drawdown, or that dewatering or other effects of the Seismic Retrofit would further facilitate expansion of feral pigs. As discussed under *Invasive Species* above, County Parks has been managing pigs on its lands since 1994 (https://parks.sccgov.org/feral-pigs); this species' populations have been increasing throughout the region over the past several decades, and feral pigs are occurring in more areas, more regularly, and in greater abundance throughout the South Bay as a result, irrespective of the drawdown of Anderson Reservoir. As a result, feral pigs have caused damage to private property and residential neighborhoods throughout the region, including neighborhoods in Almaden Valley, Coyote Valley, Evergreen, Guadalupe Mines, Metcalf, Santa Teresa, and Silver Creek districts of San José in addition to neighborhoods near Anderson Reservoir. Relative to the Pre-FERC Order Baseline and Existing Conditions Baseline, further dewatering of the reservoir during Project construction could possibly make it easier for individual pigs to move from the east side of the reservoir to the west side. However, large numbers of pigs are already present in areas all around the reservoir, and along Coyote Creek downstream from the dam. Because most feral pigs are averse to humans and human activity, the level of activity of construction personnel, vehicles, equipment, and noise in the Seismic Retrofit Area could even encourage pigs to move away from the Seismic Retrofit Area during construction and discourage dispersing pigs from lingering in the Project vicinity. Therefore, the

Seismic Retrofit would not result in a substantial increase in feral pig activity or numbers in or near the Project Area, or in facilitation of pig dispersal into new areas where they are not already present under Existing Conditions Baseline conditions. For this reason, potential impacts of the Project related to feral pig distribution are not discussed further in the EIR impact analyses.

3.5.3.2 Conservation Measures Project Construction and Construction Phase Operation

Most of the Project's Conservation Measures are intended to implement FAHCE Phase 1 nonflow measures and therefore are focused on benefiting steelhead and other fish. These measures would have both adverse and beneficial effects on the terrestrial biological resources addressed in this chapter.

Conservation Measures include normal operation of Coyote Reservoir. Because there would be no change to the operation of Coyote Reservoir, and therefore releases of water into the reach of Coyote Creek between Coyote Dam and the upper end of Anderson Reservoir would continue, no impacts on biological resources, relative to the Pre-FERC Order or Existing Conditions Baseline, would occur in Coyote Reservoir or in the reach of Coyote Creek between reservoirs. Other construction phase FOCP and/or Project Conservation Measures include the bypass of Anderson Reservoir inflow into the Coyote Creek channel downstream from Anderson Dam, supplementation of creek flow within the FCWMZ with imported water (up to 10 cfs of which may be passed through chillers as necessary) released at the upper end of the CWMZ through the CDL, and supplementation of creek flow downstream from the Ogier Ponds through the Cross Valley Pipeline Extension. These releases would help more reaches of Coyote Creek stay wetted, enable recharge of the Coyote Valley and South San José areas throughout the construction period, and support the maintenance of aquatic habitats for wildlife and riparian vegetation. Although imported water may contain nonnative predatory fish and pathogens, imported water is already in use in Coyote Creek, and thus no new nonnative animals or pathogens would be introduced from imported water through the Project.

The Ogier Ponds CM would restore creek flows to approximately 6,500 linear feet of the pre-1997 creek channel along the southwest side of the pond complex and separate the Ogier Ponds from Coyote Creek. This Conservation Measure would result in substantial modifications of existing land cover types within a portion of the Ogier Ponds complex, including fill of existing open water and wetland habitats and removal of wetland and riparian vegetation. As a result, several plant and animal species would be subject to adverse effects during construction. However, this Conservation Measure would also restore and create extensive wetland, aquatic, and riparian habitat, and would provide long-term benefits to many sensitive habitats and animal species.

~~The Anderson Dam Outlet North Channel Extension component involves the extension of the North Channel of Coyote Creek to more effectively connect it to the South Channel, elimination of existing pools that could result in fish stranding, establishment of a sediment injection point for the placement of 500 cy of sediment to enhance fish habitat downstream, and native habitat revegetation. As described for Ogier Ponds activities above, the North Channel Extension and Habitat Enhancements would modify existing land cover types, thus impacting existing aquatic and riparian habitats/vegetation and animal species that use those habitats, during construction, but this measure would create riparian habitat and longer-term benefits to aquatic~~

~~and riparian plant and animal species. The Conservation Measures also include implementation of additional sediment augmentation to enhance spawning gravel in Coyote Creek for steelhead, and to improve fish rearing habitat. This measure could result in minor, temporary impacts on aquatic species such as western pond turtles, but the longer-term, net effect would be an increase in instream habitat diversity, and likely an increase in aquatic invertebrate populations, thus increasing prey for a variety of aquatic and terrestrial animals.~~

The Phase 2 Coyote Percolation Dam CM involves improvements to the dam to enhance fish passage. This measure would impact existing aquatic and riparian habitats/vegetation and animal species that use those habitats during construction, and, while it will benefit fish species, it is unlikely to provide a substantive benefit to terrestrial species or communities in the long-term.

During and after completion of Project construction, Valley Water would continue to maintain the wetland bench, restoration plantings, and flow capacity within the North Channel Reach, as well as the instream habitat enhancements in the Live Oak Restoration Reach, that were implemented as part of the FOCP and FOCP's HMMP. Maintenance would include regular monitoring to ensure the integrity of these reaches, clearing of the channel if flows are compromised, and maintenance of instream habitat structures. This maintenance could result in minor, temporary impacts on aquatic species such as northwestern pond turtles and California red-legged frogs, but the net effect would be the maintenance of the stream, wetland, and riparian restoration performed by the FOCP, thus helping to maintain high-quality habitat.

Implementation of the ~~Live Oak Restoration Reach and~~ Sediment Augmentation Program CM~~s~~ will involve initial placement of 500 cy of coarse sediment and gravel within the Live Oak Restoration Reach, and replenishment every five years of up to 500 cy ~~of couarse sediment and gravel within Coyote Creek in~~ within the Live Oak Restoration Reach and/or ~~near and within~~ the new channel created by the Ogier Ponds creek/pond restoration CM. ~~These~~ This CM~~s~~ will enhance steelhead spawning and rearing habitat, as well as the geomorphic conditions and channel substrate within the Coyote Creek CWMZ. ~~These CMs~~ This CM will benefit the terrestrial habitat and species as described above by periodically introducing sediment into reaches of Coyote Creek deprived of sediment by the ongoing existence of Anderson Dam.

Finally, the Conservation Measures include payment of VHP impact fees, which will be used by the VHA to implement the overall VHP conservation program. The conservation program includes the acquisition, preservation, and management of extensive habitat areas; creation and restoration of wetlands, ponds, and sensitive habitats; and other specific conservation activities focused on enhancement and management of sensitive habitats and VHP-covered species. Payment of VHP impact fees and compliance with other VHP conditions would provide adequate mitigation for the impacts of VHP-covered activities on VHP-covered species. In addition, payment of VHP impact fees would contribute to the conservation of many non-VHP-covered species that occur within the VHP permit area through habitat protection and management.

3.5.3.3 Construction Monitoring

The construction monitoring component of the Project includes measures to monitor the effects of the Project on the environment and reduce those effects through avoidance and minimization of impacts. Construction monitoring includes monitoring of stream flow and water quality; suspended sediment; sediment deposition; and steelhead habitat quality, conditions, migration, migration flows, spawning, and juvenile rearing in Coyote Creek downstream from Anderson Dam. These measures would involve small numbers of people visiting sites throughout the Seismic Retrofit and Conservation Measures Project Areas. Those workers, including their vehicles and equipment, may result in minor, localized, and temporary disturbance of aquatic, wetland, and riparian habitats; vegetation; and special-status species, such as the northwestern pond turtle during monitoring. However, such monitoring would help minimize impacts on biological resources during construction by identifying adverse effects requiring remediation.

Steelhead may need to be moved to Coyote Creek near its confluence with Upper Penitencia Creek and/or the reach of Upper Penitencia Creek in Alum Rock Park. Relocation of steelhead to lower Coyote Creek would not impact non-fish special-status species, as that urban segment of creek does not support such species aside from low densities of northwestern pond turtles. However, Upper Penitencia Creek supports California red-legged frogs and foothill yellow-legged frogs, and relocation of fish could result in increased competition for prey and possibly mobilization of amphibian pathogens or the invasive New Zealand mud snail (*Potamopyrgus antipodarum*), which can reach such high densities as to adversely affect stream productivity and food webs for native species. During dewatering activities, aquatic species (which may include fish, northwestern pond turtles, and native amphibians) would be relocated as necessary to minimize loss of individuals.

Groundwater monitoring would help determine whether flow augmentation using Coyote and Anderson Reservoir bypassed flows and imported water is adequate to maintain groundwater levels, minimizing adverse effects of changes in groundwater levels on aquatic, wetland, and riparian habitats (and associated species) along Coyote Creek downstream from Anderson Dam and in North Coyote Valley. In addition, continued implementation of the Wetland and Riparian Habitat Dryback Monitoring Plan (Valley Water 2020f ~~2020j~~) throughout Seismic Retrofit construction would help identify any adverse effects that creek dryback may be having on these habitats. If any adverse dryback conditions are noted, Valley Water would augment creek flow if feasible, and Valley Water would pay impact fees to compensate for any loss of wetland or riparian habitat that can be attributed to reduced creek flows due to Seismic Retrofit construction.

Implementation of the Invasive Species Monitoring and Control Plan prepared for the FOCP (Valley Water 2020g ~~2020f~~) would continue throughout Project construction. Continued implementation of this plan would result in a net reduction in invasive animals relative to Existing Conditions Baseline conditions, thus reducing the adverse effects of invasives on native reptiles and amphibians. Similarly, Valley Water would develop and implement management and monitoring plans for *Phytophthora*, building upon the *Phytophthora* Pathogen Management Plan and the Post-Project *Phytophthora* Monitoring Plan prepared for the FOCP (Valley Water 2020h, 2021e ~~2021c~~) and lessons learned during the FOCP. This would help protect sensitive plant species and communities from the adverse effects of *Phytophthora* by minimizing the spread of this pathogen.

During Project construction, Valley Water would also continue to implement the plan for monitoring northwestern pond turtles that was developed for the FOCP (Valley Water 2020d ~~2020i~~). Monitoring of northwestern pond turtles along Coyote Creek from Anderson Dam downstream to the Coyote Percolation Pond/Parkway Lakes area, and at the Ogier Ponds, would help determine whether Project construction is causing a substantial decline in this species' abundance. Continued implementation of the Milkweed Survey Plan ~~milkweed monitoring plan~~

prepared for the FOCP (Valley Water 2020i ~~2020g~~), unless and until the monarch butterfly is added to the VHP as a covered species, would also minimize direct impacts on monarch butterflies and their larval host plants. Valley Water would also continue to conduct surveys for several other terrestrial animal species that occur during the FOCP. Such surveys include annual surveys for nesting bald eagles and golden eagles, and annual monitoring surveys at a pallid bat roost near Anderson Dam. In addition, implementation of the FOCP Crotch's Bumble Bee Avoidance Plan (Valley Water 2024a) would continue during Project construction, unless and until the Crotch's bumble bee is added to the VHP as a covered species or is no longer legally protected.

3.5.3.4 Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Seismic Retrofit

Post-construction operations and monitoring for the Seismic Retrofit are related primarily to maintenance of Anderson Dam, implementation of flows for the benefit of steelhead, and monitoring of the effectiveness of those flows for steelhead conservation. These Project components include operation of Anderson Dam using the FAHCE operational rule curves to guide the timing and magnitude of flows released from Anderson Dam, storage of imported water in Anderson Reservoir, implementation of new outlet works that allow for releases of cooler water to Coyote Creek, and the Cross Valley Pipeline Extension ~~CVPE~~ outlet south of Ogier Ponds for additional imported water releases.

Due to elimination of DSOD and FERC elevation restrictions on water storage in Anderson Reservoir, water levels in the reservoir will be maintained at higher elevations than Pre-FERC Order Baseline conditions. Because the reservoir will refill following Seismic Retrofit construction, plants such as San Francisco collinsia and Coyote ceanothus seedlings that have expanded into the drawn-down reservoir, as well as other vegetation, will be inundated when Anderson Reservoir refills following Seismic Retrofit completion. Terrestrial animals that have been using the bed of the reservoir under drawdown conditions will be displaced. However, the maximum elevation of water levels will be the same as those prior to DSOD restrictions, and therefore, habitat conditions within the reservoir will simply return to those that were in place for decades prior to enforcement of those restrictions.

The FAHCE rule curves are intended to provide suitable spawning and rearing habitat within the Coyote Creek watershed, providing adequate passage for adult steelhead and salmon to reach suitable spawning and rearing habitat, and for the out-migration of juveniles. The FAHCE rule curves provide winter base flows, pulse flows, and summer base flows to support each life stage, and provide a framework for ramping flows and reservoir operations under low-flow conditions. Winter base flows would be adequate to provide between 5 cfs and 26 cfs of winter base flow at the Madrone stream gage November 1 – April 30 depending on the level of combined storage within Anderson and Coyote Reservoirs, which is primarily determined by local precipitation conditions; spring pulse flows would entail up to two releases of 50 cfs for a period of 5 consecutive days, carried out between February 1 – April 30; and summer base flows would target maintaining a water temperature not to exceed a daily average of 64.4°F (18°C) in the CWMZ, and, after completion of the Ogier Ponds CM, in as much of the FCWMZ as possible. Flows would be ramped up and down to allow aquatic animals to adapt to changing flows.

Post-construction flows based on FAHCE releases were analyzed in comparison to the Pre-FERC Order Baseline, representing the way Valley Water has historically managed Anderson Dam releases, and the WEAP-modeled Future Baseline conditions, representing how Valley Water would likely manage Anderson Dam releases in the absence of FAHCE but accounting for future water demand and imported water availability (Valley Water 2022c ~~2022d~~). In general, FAHCE flows entail slightly lower flow in winter and summer, due to retention of water in the reservoir for spring pulse flows, than conditions under the Pre-FERC Order and Future Baselines, punctuated by the spring pulse flows described above. However, the effects of such changes may differ in different parts of Coyote Creek. As indicated in Figure P-CO.1 of Appendix F (Biological Resources – Fisheries Technical Appendix), FAHCE operations would likely result in lower creek flows than the Pre-FERC Order Baseline and Future Baseline from May through November and lower flow than the Pre-FERC Order Baseline (but similar conditions to the Future Baseline) from late February through April, in the downstream portion of the CWMZ. However, in the upstream portion of the CWMZ, FAHCE operations are expected to produce higher flows from May through October than under the Pre-FERC Order and Future Baselines (see Figure P-CO.2 of Appendix F). Overall, the frequencies of flows of a given magnitude are predicted to be slightly lower under the FAHCE rule curves than the Pre-FERC Order Baseline. FAHCE flows are predicted to be slightly greater than Future Baseline flows. How such changes in flow, relative to the baseline conditions, affect terrestrial biological resources varies by species and habitat. Maintaining cooler temperatures in the CWMZ, relative to baseline conditions, could reduce habitat suitability for northwestern pond turtles and cause them to spend more time basking.

Releases to Coyote Creek during normal dry season operations of Anderson Reservoir would range from 2 to 90 cfs through the bypass pipeline, which would flow to the South Channel of Coyote Creek. During normal wet season operations, the LLOW could release up to 1,540 cfs when the reservoir is full in order to follow the flood risk reduction rule curve. The HLOW would not be operated during normal operating conditions. Instead, it would be used in the event of an emergency to make controlled emergency releases up to 5,300 cfs. As noted above, the differences between post-construction and either Pre-FERC Order or Future Baseline flows would not be so different from historical operations as to result in substantive impacts on terrestrial biological resources.

From October through April, post-construction water temperatures in the CWMZ would not differ from the Pre-FERC Order or Future Baseline (see Figure P-CO.3 and Figure P-CO.4 in Appendix F). In summer, post-construction base flows would target maintaining a water temperature not to exceed a daily average of 64.4°F (18°C) in the CWMZ and, after completion of the Ogier Ponds CM, in as much of the FCWMZ as possible, which would differ from the Pre-FERC Order and Future Baselines. As depicted in Figure P-CO.3 and Figure P-CO.4 in Appendix F, the difference between FAHCE water temperatures and baseline temperatures varies considerably among locations within the CWMZ, and in some locations, differences can be as great as 5-10°F. In most locations, however, the difference would be only 2-4°F.

In addition, Valley Water would maintain all Project-constructed features and facilities to ensure their proper function. Maintenance activities will primarily impact land cover types and areas that have already been subject to Project construction-related impacts, and that are considered permanently impacted for VHP compliance purposes, so additional impacts on biological resources from maintenance would be minimal. Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Maintenance of

Anderson Dam facilities was previously evaluated in the Final DMP Program EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). The DMP includes BMPs and mitigation measures to reduce biological resources impacts. For biological resources impacts, the Project's post-construction maintenance activities would not differ substantially from those impacts identified in the DMP EIR. Furthermore, previously identified DMP impacts would not be exacerbated with implementation of the Project.

Conservation Measures

The Conservation Measures focus on improving fish habitat (e.g., Maintenance Activities at the North Channel Reach and Live Oak Restoration Reach and Sediment Augmentation Program gravel augmentation, ~~North Channel Extension,~~ separation of Coyote Creek from Ogier Ponds, fish passage enhancement at the Phase 2 Coyote Percolation Pond). Operations and maintenance of these fish habitat improvements would have minor adverse effects but net benefits on terrestrial biological resources. For the ~~North Channel Extension and~~ Ogier Ponds CM, operations and maintenance would include vegetation management, vegetation restoration, and inspection and repair of the channel, berms, weirs, habitat enhancement, and erosion protection. Maintenance of the North Channel ~~Extension~~, Live Oak Restoration Reach, and ~~the~~ Ogier Ponds Conservation Measure will be covered under the SMP and SMP EIR. Maintenance of ~~for~~ the North Channel Reach ~~Extension and Habitat Enhancement component~~ would further include removal of debris or vegetation from the channel, and possibly dewatering and grading of the channel, if necessary, so that the channel maintains positive drainage (to avoid fish stranding). Maintenance of gravel augmentation would include inspection and placement of additional gravel/sediment in those amounts necessary to replenish 500 cy within Coyote Creek in the Live Oak Restoration or Ogier Ponds reaches.

At the Phase 2 Coyote Percolation Dam CM, maintenance would include periodic removal of sediment, vegetation management, repair of rock slope protection, and replacement of any in-channel bio-engineered habitat enhancements, as needed. Valley Water would maintain the Phase 2 Coyote Percolation Dam ~~r~~per Valley Water's existing DMP. Maintenance of the percolation dam was previously evaluated in the Final DMP Program EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). The DMP includes BMPs and mitigation measures to reduce biological resources impacts. For biological resources impacts, the percolation dam post-construction maintenance activities would not differ substantially from those impacts identified in the DMP EIR. Furthermore, previously identified DMP impacts would not be exacerbated with implementation of the Project.

In general, Conservation Measure components maintenance activities would result in the same types of impacts as described previously for construction activities. However, the magnitude of those impacts would be much lower for maintenance, as repairs and maintenance would be required infrequently and in more limited, localized areas than the initial construction. Furthermore, these activities would be necessary to allow these facilities to continue to operate effectively as described for post-construction operations of Seismic Retrofit and CM components, thereby benefiting aquatic and amphibious species using these facilities.

As discussed for Seismic Retrofit Construction above, there is no expectation that operation or maintenance of Conservation Measures following Project completion will facilitate dispersal of feral pigs into areas where they are not currently present, or in increases in populations of pigs.

Project and FAHCE Adaptive Management

The FAHCE AMP, outlined in Section 6.2 of the FHRP in accordance with the FAHCE *Settlement Agreement* (2003), would guide adaptive management of all post-construction operations and all non-flow fish barrier remediation and habitat restoration Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. Based on the FAHCE AMP, a project-specific Project and FAHCE AMP (see Appendix D for details) has been developed in accordance with the framework described in the FAHCE Settlement Agreement and FAHCE Program. Implementation of the Project and FAHCE AMP is designed to satisfy the measurable objectives defined in the FAHCE Settlement Agreement, the FAHCE FHRP, and Appendix D, and to assure the long-term management and effectiveness of ADSRP CMs to benefit steelhead and Chinook salmon.

The Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. The AMP monitoring program is designed to track progress toward achieving the measurable objectives in Coyote Creek. These key elements would be tracked and implemented for all Conservation Measures and all FAHCE measures through the AMP.

The Project and FAHCE AMP consists primarily of monitoring and the determination of what incremental modifications of Project activities need to be made to achieve measurable objectives for fish species. Considerations for adaptive management decision making include inter-annual and seasonal variation in hydrologic conditions, other constraints and limiting factors affecting achievement of the overall management objectives, monitoring results of the actual habitat enhancement measures already implemented, opportunities for improving habitat for other fish, wildlife, and plant species, and more generally, the ecological conditions of the watersheds. Data and analysis from compliance, validation, effectiveness, and long-term trend monitoring, evaluated using measurable objectives, would help determine whether refinements need to be made to post-construction operations reservoir releases, fish passage projects or habitat restoration projects carried out as part of the Project to incrementally improve instream fisheries habitat conditions.

Impacts of monitoring activities on terrestrial biological resources would be minor, and similar to the impacts of construction monitoring. Small numbers of people would be visiting sites throughout the Seismic Retrofit and Conservation Measures Project Areas. Those workers, including their vehicles and equipment, may result in minor, localized, and temporary disturbance to aquatic, wetland, and riparian habitats; vegetation; and special-status species, such as the northwestern pond turtle during monitoring.

Adaptive management measures may refine Anderson Dam flow releases and implemented habitat restoration and fish barrier remediation Conservation Measures when they are not functioning as intended or not meeting measurable FAHCE objectives. Refinements would likely have impacts similar to those discussed for Conservation Measure construction and post-construction operations of Anderson Dam. These are considered here at a programmatic level, because the detailed characteristics, timing, and/or locations of adaptive measures are not known at the time of EIR preparation. Project-specific CEQA review would be undertaken in the future, as necessary, when specific adaptive measures are proposed and necessary details are available.

As described in **Table 2-1** *Project Components*, implementation of a Geomorphic Flows Plan would occur as part of future adaptive management under the Project and FAHCE AMP and will require additional CEQA assessment andregulatory approvals. In general, the geomorphic flows would include infrequent high flows sufficient to scour sediment, erode banks, scour vegetation, and result in channel migration in localized areas, which would maintain and increase both aquatic and riparian habitat complexity, reduce non-native invasive species, and increase benthic macroinvertebrate production, benefitting a variety of mammals, birds, reptiles, amphibians, and invertebrates.

3.5.3.5 Thresholds of Significance

Based on guidance from *CEQA Guidelines* Appendix G, implementation of the Project would have significant impacts on terrestrial biological resources if it were to:

> **TERR-1:** Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS
>
> **TERR-2:** Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS
>
> **TERR-3:** 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
>
> **TERR-4:** 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
>
> **TERR-5:** Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
>
> **TERR-6:** Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP

Specifically, the significance criteria used for the analysis of impacts on terrestrial biological resources are:

- Substantial adverse effects on the following categories of terrestrial biological resources:
  - special-status plants
  - special-status invertebrates
  - special-status amphibians
  - northwestern pond turtle
  - bald eagle and golden eagle
  - breeding special-status birds
  - nonbreeding special-status birds
  - pallid bat

  - other special-status mammals
  - special-status species associated with San Francisco Bay
  - riparian habitats or other sensitive natural communities
  - federally regulated or State-regulated wetlands or other jurisdictional waters
- Substantial interference with wildlife movement or use of native wildlife nursery sites
- Any conflict with local policies or ordinances protecting biological resources
- Any conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP

3.5.4 Impact Analysis

***Impact TERR-1: A substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS Service* (Significant and Unavoidable)**

The following impact analysis describes the Project's impacts on special-status species. The analysis is organized by species or groups of species and is based on the information in **Table 3.5-4** and **Table 3.5-5**. Species that are not listed in those tables as occurring in the study area are not analyzed below as they would not be impacted by the Project.

***Impact TERR-1a: Special-Status Plants* (Less than Significant with Mitigation)**

Seismic Retrofit Construction

Surveys have identified four special-status plant species present in the proposed construction footprint of the Seismic Retrofit Area (see **Figure 3.5-2**) under Existing Conditions Baseline conditions: Coyote ceanothus, smooth lessingia, woodland woollythreads, and most beautiful jewel-flower (Valley Water 2012a, 2014a, 2014b, 2021a ~~2021f~~; **Figure 3.5-8** and **Figure 3.5-9**). Mt. Hamilton thistle could possibly occur in the unlined portion of the spillway, though the most recent (2021) survey did not detect the species there. Both Mt. Hamilton thistle and San Francisco collinsia occur in the portion of the reservoir bed where no construction is currently proposed, but where construction activity could possibly occur (see **Figure 3.5-2)**. Two other special-status plants, Santa Clara Valley dudleya and fragrant fritillary, occur close to, but outside, the Seismic Retrofit Area (**Figure 3.5-9**). In addition, portions of the Seismic Retrofit Area have not been surveyed for special-status plants (**Figure 3.5-10**). As a result, there is some potential for smooth lessingia, woodland woollythreads, most beautiful jewel-flower, San Francisco collinsia, and fragrant fritillary, as well as big-scale balsamroot and Loma Prieta hoita (the latter two species are not known from the immediate Project vicinity, but potential habitat is present in the unsurveyed areas), to occur in these unsurveyed areas. Two additional species, Metcalf Canyon jewel-flower and Tiburon paintbrush, are not expected to occur in these unsurveyed areas, but botanists would look for these species during surveys of the unsurveyed areas.

Two additional special-status plants, alkali milk vetch and Point Reyes bird's beak, could occur in tidal marshes of the study area along lower Coyote Creek/Coyote Slough that may be subject to increased flow frequency and magnitude, and sediment deposition, during Seismic Retrofit construction; these two species are addressed with other baylands species in Impact TERR-1j.

Table 3.5-9 indicates the number of individuals of each special-status plant species known to be present in the Seismic Retrofit Area, provided separately for the currently proposed construction footprint and the additional areas in the reservoir bed that could possibly be impacted by construction. For Coyote ceanothus, comprehensive surveys of the entire Seismic Retrofit Area have been conducted, and thus the number indicated in **Table 3.5-9** indicates the number of individuals that would be directly impacted by (i.e., lost to) Project construction. For the other three species listed in **Table 3.5-9**, the number provided in the table represents the minimum number of individuals that may be impacted, as these species, as well as San Francisco collinsia, fragrant fritillary, big-scale balsamroot, and Loma Prieta hoita, could occur in the unsurveyed areas. However, given the limited extent of the unsurveyed areas, the number of individuals of any of these species present in those areas (if any) would be low.

Table 3.5-9. Direct Impacts on Special-Status Plants from Project Construction.

Species	Number of Individuals	
	Currently Proposed Project Footprint	**Potential Additional Project Construction Area**
Coyote ceanothus	2,666	
Smooth lessingia	1,921	
Woodland woollythreads	1,142	
Most beautiful jewel-flower	4	
Mt. Hamilton thistle		840
San Francisco collinsia		3,022

Source: Valley Water 2012a, 2014a, 2014b, <u>2021a</u> ~~2021f~~

Construction activities such as grading, excavation, and placement of new structures and soil stockpiles could impact these special-status plants. Project activities may affect these plants through direct disturbance of vegetation; disturbance, modification, or destruction of habitat and damage to underground root structures. In addition, equipment use, vehicular traffic, and worker foot traffic may result in the injury, mortality, altered growth, or reduced seed set of individual plants. Creation of access routes and staging areas may result in the mechanical or physical removal of vegetation and modification of the seed bank due to grading.

In serpentine habitats, the conservation of topsoil and seed banks after grading would not be able to restore such habitats to similar conditions, because topsoil would become homogenized, mixing the seeds and soils of previously specialized habitat types with more common California annual grassland. Such topsoil and seed banks, if placed in areas that previously supported serpentine habitats, would be unlikely to support the same poor nutrient conditions or the characteristically high proportion of native forbs following grading and restoration.

Movement of earth, vegetation, water (e.g., runoff), equipment, vehicles, and personnel could spread invasive plant propagules and pathogens such as *Phytophthora*. Invasive plants could reduce habitat quality for special-status plants, or directly affect their health, in areas immediately outside the footprint of the Seismic Retrofit Area. *Phytophthora* could impair the health of plants, spreading through root systems and resulting in the loss of individuals. The potential for *Phytophthora* to be spread by Seismic Retrofit construction activities will be reduced via implementation of a Project-specific *Phytophthora* Pathogen Management and Monitoring Plan prepared for the Project prior to the start of work and approved by Valley Water. This plan will be based on those developed for the FOCP (Valley Water 2020h, 2021e ~~2021c~~) and the results of FOCP implementation and *Phytophthora* monitoring, including lessons learned from the FOCP project implementation.

Although all direct impacts on special-status plants are considered permanent, and because the individuals present in the Seismic Retrofit Area could all be lost, it is likely that conditions in some construction areas, such as areas used for construction access north of the spillway, would provide suitable conditions for natural recolonization by some of these species following completion of construction. As a result, some natural recovery of impacted populations would likely occur.

In addition, after Seismic Retrofit construction completion, refilling of Anderson Reservoir to the design capacity would result in the loss of individuals of some species that have colonized areas within the rim of the drawn-down reservoir. For example, Coyote ceanothus, San Francisco collinsia, and smooth lessingia have colonized some areas that are below the current drawn-down level of the reservoir, and those individuals would be lost when the reservoir refills.

The Project would not result in an increase in the reservoir's capacity. Rather, after Seismic Retrofit completion, refilling of the reservoir would simply restore the reservoir and its shoreline to the condition that was present prior to DSOD drawdown requirements. As a result, impacts of the Project on the San Francisco collinsia population resulting from refilling of the reservoir (as opposed to direct impacts during construction, if construction occurs outside the currently proposed construction footprint) would likely reflect a return to pre-2012 conditions. There is natural interannual variability in the size of the collinsia population; therefore, the long-term average size of the population and its extent, from 2011 (when Valley Water began comprehensively mapping and surveying the occurrence) through 2022, would best represent the Existing Conditions Baseline. Based on Valley Water observations and mapping of the population, approximately 90 percent (0.6 acres) of the area that has been occupied by collinsia since 2011 would be inundated when the reservoir is refilled to its maximum design capacity. Wind fetch along the shoreline and resultant erosion of the reservoir bank could have an additional impact on the population, although some moderate slope disturbance may have beneficial effects on the species by uncovering additional seedbank and or/creating new areas for colonization. This impact analysis assumes that approximately 90 percent of the known population (0.6 acres of occupied habitat supporting 3,022 individuals averaged from 2011 to 2022) would be impacted.

Project construction may also impact other special-status plant species outside the construction footprint. Santa Clara Valley dudleya occurs on steep rock outcrops just north of the Seismic Retrofit Area; fragrant fritillary occurs just east of the BHBA; and Mt. Hamilton thistle occurs along the edge of the reservoir northeast of the spillway. These plants are not located in areas where they would be subject to direct, physical impacts, nor would they be affected by gravity-driven mobilization of runoff or sediment. However, dust that could be generated by construction activities may coat vegetative and floral surfaces, interfering with normal gas exchange, photosynthesis, or pollination. Dust mobilization may therefore affect these plants, and *Phytophthora* within dust particles may impact them as well.

Nitrogen emitted by construction vehicles and equipment may impact serpentine-associated special-status plants by fertilizing the soils and allowing nonnative grasses and forbs that would not otherwise be able to colonize (at least robustly) those serpentine soils to become established. Nitrogen emitted from the Seismic Retrofit Area may therefore impact any serpentine-associated special-status plants growing in areas where nitrogen emitted by construction activities is deposited. Such species include Coyote ceanothus, Mt. Hamilton thistle, San Francisco collinsia, smooth lessingia, woodland woollythreads, most beautiful jewel-flower, Santa Clara Valley dudleya, and fragrant fritillary occurring close to or downwind from the construction area. Other serpentine-associated special-status plants, such as Tiburon paintbrush, Metcalf Canyon jewel-flower, and Loma Prieta hoita, may be adversely affected by deposition of nitrogen emitted by construction activities as well. However, known occurrences of those three species are located to the north and northwest of the Seismic Retrofit Area, and prevailing winds during the construction season are primarily from the west and northwest (WeatherSpark 2022). Therefore, the amount of Project construction-related nitrogen deposition on occurrences and habitat of the Tiburon paintbrush, Metcalf Canyon jewel-flower, and Loma Prieta hoita will be low.

Aside from alkali milk vetch and Point Reyes bird's beak, which are addressed with other baylands species in Impact TERR-1j, no special-status plants occur along Coyote Creek downstream from Anderson Dam. Therefore, any increases in flows that occur during Seismic Retrofit construction would have no impact on special-status plants.

In summary, Seismic Retrofit construction would directly impact Coyote ceanothus, smooth lessingia, woodland woollythreads, and most beautiful jewel-flower within the currently proposed construction areas; may impact San Francisco collinsia and Mt. Hamilton thistle directly, especially if construction occurs in portions of the reservoir bed where these species are known to occurs; and may impact Santa Clara Valley dudleya and fragrant fritillary outside the construction areas through the mobilization of dust and *Phytophthora* during construction. Because limited areas of suitable habitat within the construction area have not been surveyed, it is possible that additional individuals of smooth lessingia, woodland woollythreads, most beautiful jewel-flower, San Francisco collinsia, and fragrant fritillary, and possibly big-scale balsamroot and Loma Prieta hoita, may be impacted as well if they are present in the unsurveyed areas.

Conservation Measures Construction

Special-status plants will benefit from Valley Water's payment of VHP impact fees, which contribute to the VHP's conservation program that benefits VHP-covered (and many nonVHP-covered) special-status plants.

Special-status plants are absent from areas directly affected by the proposed Conservation Measures, and therefore no direct impacts of Conservation Measures on special-status plants would occur. However, implementation of Conservation Measures could impact serpentine-associated special-status plants by contributing to the cumulative effects of nitrogen deposition on serpentine habitats supporting these species. In particular, activities associated with the Ogier Ponds CM would involve considerable earth moving. The Ogier Ponds are located immediately west of Coyote Ridge, which supports populations of Tiburon paintbrush, Coyote ceanothus, Mt. Hamilton thistle, smooth lessingia, woodland woollythreads, most beautiful jewel-flower, Metcalf Canyon jewel-flower, Santa Clara Valley dudleya, Loma Prieta hoita, and fragrant fritillary. Nitrogen emitted from earth-moving equipment and vehicles associated with work at the Ogier Ponds could be deposited on occurrences of, and suitable habitat for, those plants by the westerly winds that prevail during the majority of the construction season. Lesser amounts of nitrogen emitted during activities associated with the Coyote Percolation Dam CM ~~and North Channel Extension~~ would also be carried to Coyote Ridge.

Of the plants listed above, occurrences of Loma Prieta hoita, Metcalf Canyon jewel-flower, and fragrant fritillary would be impacted least by nitrogen emissions associated with proposed Conservation Measures, as most or all known occurrences are located northeast or north of the Ogier Ponds, where winds during the construction season would infrequently carry nitrogen emitted from Ogier Ponds activities.

Construction Monitoring Impacts Analysis

Most construction monitoring measures would occur in areas where special-status plants are absent, and therefore have no impact on special-status plants. The only construction monitoring-related activity that could have a substantive effect on special-status plants is the development and implementation of management and monitoring plans for *Phytophthora*. Given the extensive movement of equipment, vehicles, soil, dust, water, and personnel during Project implementation near highly sensitive serpentine plant communities (particularly those immediately north and northeast of the dam), mobilization of *Phytophthora* could result in long-term adverse effects on serpentine communities. Implementation of measures to avoid contaminating serpentine communities with *Phytophthora* are very important, and construction monitoring activities will therefore minimize the potential for other Project components to result in adverse effects on special-status plants.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Aside from the possible occurrence of special-status plants in tidal marsh along lower Coyote Creek/Coyote Slough, addressed in Impact TERR-1j below, no special-status plants are present along Coyote Creek downstream from Anderson Dam, and therefore, post-construction operations related to flows and releases from the dam and the Cross Valley Pipeline Extension, as well as operation <u>and maintenance</u> of the Ogier Ponds CM ~~and~~ Coyote Percolation Dam CM, <u>and the North Channel Reach and Live Oak Restoration Reach</u> would not impact special-status plants.

Maintenance of Anderson Dam facilities would occur in areas that were already impacted by Seismic Retrofit construction and therefore would not result in any new impacts on special-status plants. However, there is some potential for *Phytophthora* to be mobilized by operations and maintenance activities at Anderson Dam, potentially leading to infection of adjacent occurrences of special-status plants outside the Seismic Retrofit Area.

Maintenance of all Conservation Measures, including sediment augmentation, Ogier Ponds and Coyote Percolation Dam habitat restoration improvements, the Live Oak Restoration Reach, and <u>the</u> North Channel <u>Reach</u> ~~Extension~~, would not occur in areas occupied by, or providing suitable habitat for, special-status plants. Maintenance equipment and vehicles could contribute to cumulative impacts on serpentine-associated, special-status plants through their nitrogen emissions, but otherwise, maintenance of Conservation Measures will not impact special-status plants. Adaptive management activities will affect areas downstream from Anderson Dam that do not support special-status plants and will thus not impact such species.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts on special-status plants. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Implementation of BMP AQ-1 will reduce the potential for construction activities to mobilize dust onto special-status plants outside the Project footprint, thus reducing the effects of dust and the potential for *Phytophthora* to be mobilized to special-status plants within that dust. BMPs BI-8 and WQ-9 will avoid competition between invasive plants and special-status plants by requiring local plant species in revegetation. BMPs ~~HM-7,~~ HM-8, HM-9, HM-10, WQ-15, and WQ-16 will minimize the potential for hazardous materials and other pollutants to impact special-status plants, and HM-12 would reduce the potential for fire to affect such plants. BMPs BI-3, WQ-4, WQ-5, and WQ-11 will involve removing temporary fill, establishing appropriate staging and stockpiling areas and construction access areas, and keeping the work site clean, minimizing impacts on special-status plants and avoiding the spread of *Phytophthora* and weeds. BMP BI-4 will minimize impacts of pesticides on nontarget species, such as special-status plants.

Implementation of VHP Conditions 4 and 5 would reduce the potential for and magnitude of impacts on special-status plants through numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact plants, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on special-status plants. VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants. Conditions 13, 19, and 20 specifically address serpentine-associated special-status plants by requiring surveys to determine where such plants occur, avoidance and minimization of covered species where feasible, and plant salvage when impacts are unavoidable (at the discretion of the SCVHA).

Maintenance of Anderson Dam facilities would occur as part of the DMP and would employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources, such as special-status plants. **DMP Mitigation Measure Vegetation-1** requires periodic botanical surveys, which would identify the locations of special-status plants, thus facilitating their avoidance when maintenance activities are performed (although as noted above, it is unlikely that new plant occurrences will occur within the Seismic Retrofit's impact areas). DMP BMPs BI-10 and BI-11 include measures to minimize impacts to vegetation whenever clearing or trimming is necessary and minimize root impacts. BMP BI-12 entails avoidance of special-status plant species and sensitive natural communities, such as serpentine communities, which support most of the special-status plants in and adjacent to the Seismic Retrofit Area. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes to avoid impacts from invasive plant species. However, the DMP mitigation measures do not include measures to minimize the potential for introduction or spread of *Phytophthora*, and therefore, there is some potential for *Phytophthora* to be mobilized by operations and maintenance activities at Anderson Dam, potentially leading to infection of adjacent occurrences of special-status plants outside the Seismic Retrofit Area.

Of the 12 special-status plants that could be impacted by the Project, nine—the Coyote ceanothus, Santa Clara Valley dudleya, most beautiful jewel-flower, Metcalf Canyon jewel-flower, Mt. Hamilton thistle, smooth lessingia, Tiburon paintbrush, fragrant fritillary, and Loma Prieta hoita—are VHP-covered species. The SCVHA is considering adding woodland woollythreads as a VHP-covered species during the upcoming VHP amendment. General and serpentine impact fees paid by Valley Water for Project impacts would be used by the SCVHA to offset adverse impacts to the nine VHP-covered plant species (with two caveats discussed below), and to woodland woollythreads if it is added as a VHP-covered species, through the preservation, restoration, and management of populations of, and suitable habitat for, these species.

In addition to payment of fees for preservation, restoration, and management of the VHP-covered plant species, Valley Water is complying with VHP conditions related to Project impacts on Coyote ceanothus through two additional measures. In compliance with a VHP requirement for Valley Water to protect or create a new population of this species within 5 years of Project impacts, an occurrence of Coyote ceanothus on the Baird and Davidson properties, on the west side of Coyote Valley, was recently acquired and protected. The VHP also states that within the 50-year permit term, five populations must be created or protected. To meet the VHP's long-term requirements, Valley Water has begun establishing a new population of Coyote ceanothus on property it owns on Coyote Ridge, north of Anderson Dam. Planting of seedlings and direct seeding in the test plots on Coyote Ridge has been occurring annually since 2015, and these plants are being monitored to determine the success of the site to support a new, functional population of Coyote ceanothus. Based on the results of this initial planting, Valley Water has prepared an occurrence creation plan that summarizes all the research and field efforts (Valley Water 2018b), and this plan is being used to guide a subsequent full-scale planting effort currently underway, with the goal of establishing a viable Coyote ceanothus population on Valley Water's Coyote Ridge property. Plants are being grown via seed collected from the Anderson Dam population in a nursery and planted in accordance with the occurrence creation plan, as modified based on lessons learned from the initial planting effort. Success criteria include whether the population is reproducing and self-sustaining (based on reproduction and survival rates) over time, with minimal active site management. Specific management activities for the long-term health of the population would be described in a subsequent long-term management plan.

The two caveats regarding VHP coverage of impacts on VHP-covered special-status plant species are:

- First, although Tiburon paintbrush is a VHP-covered species, the VHP only covers impacts on this species from management of VHP preserves, and neither of the two populations on Coyote Ridge that could be affected by Project-related nitrogen emissions are located in VHP preserves. Therefore, payment of VHP fees would not necessarily result in conservation of Tiburon paintbrush. Due to the extreme rarity of Tiburon paintbrush, the low number of populations known, and the potential for substantial adverse impacts to this species could occur, this impact would be significant in the absence of mitigation measures. Implementation of **Mitigation Measure TERR-1a(1)** would reduce Project impacts on Tiburon paintbrush to less-than-significant levels by managing invasive plants at two ~~Valley Water's~~ Coyote Ridge populations of Tiburon paintbrush, thereby preventing substantial adverse effects by preventing the Project's nitrogen emissions from benefitting populations of invasive plants that would compete with Tiburon paintbrush at these two ~~Valley Water's~~ populations.

- Second, one non-VHP-covered Project activity could affect special-status plants—maintenance of Anderson Reservoir in a dewatered condition for 1 additional year, beyond the 3.5 years of dewatering authorized by the VHP. During activities in the dewatered bed of the reservoir from late fall/early winter of Year 5 through the fall of Year 6, dust mobilization could adversely affect the health of Coyote ceanothus, Santa Clara Valley dudleya, smooth lessingia, San Francisco collinsia, and Mt. Hamilton thistle in immediately adjacent areas. However, the likelihood and magnitude of any such adverse effects are low. The haul road along the edge of the southern arm of the reservoir would pass near some mature Coyote ceanothus, San Francisco collinsia, and smooth lessingia growing on the edge of the reservoir northeast of the existing boat ramp. However, the haul road that would traverse the edge of the northern arm of the dewatered reservoir, adjacent to the only occurrences of Mt. Hamilton thistle and Santa Clara Valley dudleya near the Seismic Retrofit Area, and near the highest densities of Coyote ceanothus and smooth lessingia located outside of the Project Area, would not be used after Year 5. Therefore, haul routes used in Year 6 would not be located near Mt. Hamilton thistle or Santa Clara Valley dudleya, or near the highest concentrations of ceanothus or dudleya. Implementation of Valley Water's BMPs, including Valley Water BMP AQ-1, will reduce mobilization of dust from Year 6 project activities onto special-status plants by implementing appropriate dust control measures and minimizing vehicular activities immediately adjacent to these plants.

With implementation of BMPs and compliance with VHP conditions and AMMs, there would be no substantial adverse effects on Metcalf Canyon jewel-flower. This species may be affected by deposition of nitrogen emitted by Project activities (particularly those emitted by the Ogier Ponds CM and Coyote Percolation Dam CM construction), but it is not known or expected to occur in areas near Anderson Dam or any of the Conservation Measures where operations and maintenance could adversely affect this species through the introduction or spread of *Phytophthora*. Therefore, impacts on Metcalf Canyon jewel-flower would be less than significant.

Implementation of BMPs and compliance with VHP conditions and AMMs (including payment of fees, establishment of a new Coyote ceanothus population, and completion of special-status plant surveys in the Seismic Retrofit Area by surveying the limited, previously unsurveyed areas) would reduce adverse effects on the VHP-covered Coyote ceanothus, Santa Clara Valley dudleya, most beautiful jewel-flower, Mt. Hamilton thistle, smooth lessingia, and fragrant fritillary, and on the VHP-covered Loma Prieta hoita if it occurs in the unsurveyed areas of the Seismic Retrofit Area; these measures would also reduce impacts on woodland woollythreads, and big-scale balsamroot if it occurs in the unsurveyed areas of the Seismic Retrofit Area. Although woodland woollythreads is not currently a VHP-covered species, the SCVHA is considering adding it as a VHP-covered species during the VHP amendment currently being prepared. Whether this species is explicitly VHP-covered or not, this species and big-scale balsamroot would benefit from the VHP's conservation program. The VHP's vast conservation program would conserve lands that support populations of these species due to its breadth, both geographically and in terms of the diversity of habitat types to be conserved. Therefore, Valley Water's payment of VHP impact fees for the Project would likely contribute to a conservation program that would compensate for any impacts that the Project might have on woodland woollythreads and big-scale balsamroot.

The only remaining significant impact on Coyote ceanothus, Santa Clara Valley dudleya, most beautiful jewel-flower, Mt. Hamilton thistle, smooth lessingia, fragrant fritillary, woodland woollythreads, and, if they occur in the unsurveyed areas of the Seismic Retrofit Area, Loma Prieta hoita and big-scale balsamroot, that would require mitigation is the potential for post-construction operations and maintenance at Anderson Dam to result in substantial adverse effects from the introduction or spread of *Phytophthora*. These plant species occur at or close to Anderson Dam, and such adverse effects could occur, because the AMMs and mitigation measures employed by the DMP do not include measures to minimize *Phytophthora*-related impacts. This would be a substantial adverse effect, and therefore a significant impact. Implementation of **Mitigation Measure TERR-1a(2)** would reduce Project impacts on these species to less-than-significant levels by implementing AMMs during post-construction maintenance at Anderson Dam to reduce the potential for introduction or spread of *Phytophthora*, thereby preventing substantial adverse effects.

San Francisco collinsia is not a VHP-covered species. The Anderson Reservoir rim population of San Francisco collinsia is: (1) recorded by CNDDB as one of four records within the county (CNDDB 2022), (2) the only population in the county with an excellent occurrence rank, and (3) the only county occurrence that has been observed within the last decade, and possibly the only extant occurrence in the county. In recent years, Valley Water has not been able to locate the other documented county populations. The Anderson Reservoir population also represents the most inland population of the species and the only known population in the Diablo Range, emphasizing its ecological importance. San Francisco collinsia is a very rare species, with 35 extant populations known from six California counties (CNPS 2022). Due to the species' rarity and the Anderson Reservoir population's ecological significance as the most inland population of the species and the known population in the Diablo Range, substantial adverse impacts to the Anderson Reservoir population resulting from construction activities~~,~~ and subsequent refilling of the reservoir after Project completion would be a significant impact.

If San Francisco collinsia populations are present within lands added to the VHP Reserve System, and management of those lands helps to enhance and maintain those populations, then Valley Water's payment of VHP impact fees and the resulting contribution of those fees to reserve acquisition and management would compensate for at least some Project impacts on San Francisco collinsia. However, because San Francisco collinsia is so rare and has such a local distribution, it is uncertain that this species would be present in the VHP Reserve System. Therefore, impacts on this species may not be adequately reduced through VHP compliance, and impacts on this species would be significant, because there could be substantial adverse effects. Valley Water would implement **Mitigation Measures TERR-1a(3)** and **TERR-1a(4)** to reduce impacts on San Francisco collinsia to less-than-significant levels by surveying for this species in the previously unsurveyed portions of the Seismic Retrofit Area (to help quantify impacts on the species) and establishing a mitigation population commensurate with the population size and acreage impacted by the Project, thereby preventing substantial adverse effects.

With implementation of **Mitigation Measures TERR-1a(1), TERR-1a(2), TERR-1a(3),** and **TERR-1a(4)**, Project impacts on special-status plants would not be substantial and therefore would be **less than significant**.

Mitigation Measures

TERR-1a(1) Invasive Plant Management at ~~Valley Water's~~ Coyote Ridge Tiburon Paintbrush Populations

Valley Water will offset impacts from Project-related nitrogen deposition on Tiburon paintbrush by ~~performing~~ providing for invasive plant management in and around the two Tiburon paintbrush populations currently known to occur on Coyote Ridge, including the "Paintbrush Hill" population ~~located~~ on Valley Water's Coyote Ridge property and the "Paintbrush Canyon" population on land owned by Waste Management, Inc. Nitrogen deposited on nutrient-poor serpentine soils facilitates the ability of nonnative grasses and forbs to compete with serpentine endemic plants such as Tiburon paintbrush, so invasive plant management would directly address and reduce the impacts of nitrogen deposition. During each year of construction for the Ogier Ponds CM, as well as the year following completion of that CM, Valley Water will perform manual weeding of plants considered to be of moderate or high invasiveness by Cal-IPC (2022) on the Paintbrush Hill population and perform manual weeding or fund weeding at the Paintbrush Canyon population. ~~Such weeding will be performed at least twice during each growing season in which invasive plant management occurs.~~ Weeding may be performed by hand or using hand-held motorized tools (e.g., line trimmers) as long as no impacts to individual Tiburon paintbrush plants would occur. Special care will ~~would~~ be taken to avoid trampling individual Tiburon paintbrush plants, which are quite fragile.

TERR-1a(2) Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of Phytophthora

Valley Water will ~~would~~ develop and implement AMMs to reduce the potential for introduction and spread of *Phytophthora* during post-construction maintenance at Anderson Dam, because the DMP (under which post-construction maintenance would occur) does not include AMMs for this purpose. AMMs will ~~would~~ also be implemented during maintenance of Conservation Measures facilities to reduce the potential for introduction and spread of *Phytophthora* during post-construction maintenance to affect sensitive communities. The AMMs will ~~would~~ include a description of areas that are contaminated with *Phytophthora*; sensitive habitats that are not contaminated with *Phytophthora*; procedures for decontamination of tools, equipment, vehicles, and maintenance personnel clothing and footwear prior to accessing those sensitive habitats; procedures for ensuring that water for irrigation or dust suppression, soil, mulch, plant material, and other materials are free from *Phytophthora* if used in, near, or upslope from sensitive habitats that are not contaminated with *Phytophthora*; decontamination procedures for vehicles, equipment, tools, footwear, and personnel clothing after working in areas contaminated by *Phytophthora*; and other procedures deemed necessary. Details of the BMPs will ~~would~~ be developed following Project completion, as they will ~~would~~ be informed by the results of *Phytophthora* monitoring during, and following completion of, Project construction.

TERR-1a(3) Special-Status Plant Survey in the Previously Unsurveyed Portions of the Seismic Retrofit Area

Valley Water will conduct a survey for special-status plants in the limited portions of the Seismic Retrofit Area that provide potential special-status plant habitat but have not yet been surveyed (see **Figure 3.5-10**). The survey will be conducted according to VHP standards and protocols, by a VHP-approved botanist, and will be floristic in nature so that all potentially occurring special-status plants are detected if present. Multiple site visits will ~~would~~ be necessary to detect all the potentially occurring species by targeting their flowering periods. If any San Francisco collinsia are detected, impacts will be mitigated by adding those detected individuals to the population that will be created by **Mitigation Measure TERR-1a(4)**. If other special-status plants are detected, impacts would be reduced with implementation of **Mitigation Measure TERR-1a(2)**.

TERR-1a(4) ~~Seed Collection and Creation of a New Population of~~ San Francisco Collinsia Conservation Measures

Valley Water will ~~would~~ compensate for impacts on San Francisco collinsia by performing weed management in the existing population during Seismic Retrofit construction; collecting seed from San Francisco collinsia plants at Anderson Reservoir; storing some of the seed in an accredited seed bank; and prepping, seeding, managing, and monitoring suitable habitat at one or more sites outside the Project Area to create one or more new populations of the species. The mitigation will be commensurate with the impacts, targeting at least 0.6 acres of occupied habitat supporting at least 3,022 individuals, based on the average population size and extent between 2011 and 2022, plus any individuals that might be detected in the previously unsurveyed portions of the Seismic Retrofit Area during the survey described in **Mitigation Measure TERR-1a(3)**. Prior to Project implementation, a qualified biologist will ~~would~~ prepare an HMMP that will ~~would~~ include, at a minimum, the following information:

- summary of impacts and proposed mitigation
- description of the location and boundaries of the proposed mitigation site(s) and description of existing site conditions
- description of the mitigation design and any measures to be undertaken to enhance (e.g., through focused management) the mitigation site for San Francisco collinsia, which may include prescribed burning or other habitat management strategies
- identification of an adequate funding mechanism for long-term management of the mitigation site
- description of management and maintenance measures intended to maintain and enhance habitat for San Francisco collinsia (e.g., weed control or fencing maintenance)
- description of germination methods and planting techniques that will be used to introduce the species into the mitigation site, although this information on San Francisco collinsia may not be well known, the related native annual species purple collinsia (*Collinsia heterophylla*) is available commercially and is described as easy to grow, requiring no pre-treatments, and with seeds shallowly sown into loosened topsoil (Everwilde Farms 2022, Swallowtail Garden Seeds 2022)
- description of habitat and species monitoring measures on the mitigation site, including specific, objective performance criteria (e.g., rate of germination and survival to seed-set; at a minimum, performance criteria will ~~would~~ include presence of at least as many

individuals as were impacted within the population by Year 7 of monitoring), monitoring methods, data analysis, reporting requirements, and monitoring schedule; monitoring will ~~would~~ document compliance with each element requiring habitat compensation or management

- a contingency plan for mitigation elements that do not meet performance or final success criteria within described periods. The plan will ~~would~~ include specific triggers for remediation if performance criteria are not met and a description of the process by which remediation of problems within the mitigation site (e.g., presence of noxious weeds) will ~~would~~ occur
- a requirement that Valley Water will ~~would~~ be responsible for monitoring, as specified in the HMMP, for at least 7 years post-construction

Valley Water has already been collecting seed from San Francisco collinsia plants at Anderson Reservoir and has banked this seed at the California Botanic Garden (formerly known as Rancho Santa Ana Botanic Garden) and the University of California, Santa Cruz Arboretum. Given the ease with which another native collinsia species, purple collinsia, can be cultivated and grown as a landscape plant (Everwilde Farms 2022, Swallowtail Garden Seeds 2022), it is likely that growing San Francisco collinsia by seed and establishing a new population to compensate for any affected occurrences is feasible if a suitable introduction site is identified. While some of the seed collected from this population will ~~would~~ be used in the mitigation effort, the remaining seed will ~~would~~ continue to be maintained in permanent conservation storage at the California Botanic Garden.

Although the majority of the collinsia population will be impacted directly when the reservoir is refilled following completion of Seismic Retrofit construction, maintaining a healthy collinsia population until the reservoir refills is important to allow for collection of seed as described above and to maximize the number of individuals that might persist along the shoreline after the reservoir is refilled. During Seismic Retrofit construction, Valley Water will remove weedy vegetation that threatens to outcompete San Francisco collinsia by encroaching into the area occupied by San Francisco collinsia due to the reservoir drawdown. At least once each spring or summer, a qualified botanist will determine which weedy vegetation (which may include both native and nonnative species encroaching into the collinsia population) needs to be removed to maintain suitable habitat conditions for collinsia. That vegetation will be removed under the direction of the qualified botanist.

Impact TERR-1b: Bay Checkerspot Butterfly, Monarch Butterfly, and Crotch's Bumble Bee (Less than Significant)

Seismic Retrofit Construction

Three special-status invertebrates, Bay checkerspot butterfly, monarch butterfly, and Crotch's bumble bee, occur in areas where they could be impacted by Seismic Retrofit construction.

Seismic Retrofit construction may impact Bay checkerspot butterflies in offsite serpentine grasslands in the expanded study area, but it is unlikely to affect individuals, or habitat used regularly by the species, directly. No Bay checkerspot butterflies have been observed in the Project Area during any field surveys, including surveys for adults conducted in the most suitable habitat in April 2014, and high-quality habitat is absent from the Project footprint. No extensive areas of serpentine bunchgrass habitat or of the Bay checkerspot butterfly's larval host plants are present on the site. The Project would result in impacts on 2.6 acres of designated critical habitat for the Bay checkerspot butterfly within designated Critical Habitat Unit 13. However, any small patches of open habitat supporting this species' host plants in the Project area are unsuitable to support a viable breeding population of the Bay checkerspot butterfly due to their small size, isolated locations, locations on south-facing slopes, and other factors. It is possible that an occasional dispersant may visit the site (and possibly nectar), but the Seismic Retrofit Area does not provide suitable habitat to support a subpopulation of the species, and it is unlikely that the species breeds in or immediately adjacent to the Project footprint.

Clearing of vegetation by Project activities could remove larval host plants (though these are unlikely to be used for breeding by the species due to the small and scattered nature of patches of these plants) and nectar sources for occasional adult dispersants, and dust mobilization by Project activities could adversely affect the health of such plants in areas adjacent to grading areas, stockpile areas, and haul roads. However, because Bay checkerspots visit these impact areas very infrequently and in low numbers, if at all, these effects would have little impact on the species. Also, the construction season would only slightly overlap with the adult flight season (e.g., in April), so the effects of dust mobilization on flowers that are in active use by adult Bay checkerspots would be minimal.

Seismic Retrofit construction activities could impact the Bay checkerspot butterfly and its habitat by contributing to the cumulative effects of nitrogen deposition on serpentine grasslands supporting this species. As discussed in Impact TERR-1a, prevailing winds would mobilize most of the nitrogen emissions from construction in the reservoir and around Anderson Dam away from the largest Bay checkerspot populations on Coyote Ridge to the northwest. However, nitrogen emitted by construction equipment and vehicles in the reservoir and around Anderson Dam could be carried to potential Bay checkerspot butterfly habitat on serpentine grasslands to the southeast, on the ridge east of the valley between Anderson Reservoir and Coyote Reservoir. There, Bay checkerspots were observed in serpentine habitat west of Coyote Reservoir, in Harvey Bear Ranch County Park, as recently as 2015 (CNDDB 2022). Thus, nitrogen emitted by Project construction equipment and vehicles could impact Bay checkerspot butterfly individuals and habitat by facilitating growth of invasive plants in the species' habitat.

Seismic Retrofit construction could impact monarch butterflies by removing milkweed, the larval host plant; killing eggs, larvae, or pupae on that milkweed; and removing a variety of flowering plants that serve as adult nectar sources. Milkweed is present in scattered patches on Anderson Dam and around the rim of the reservoir, and grading and clearing for construction would result in the removal of this plant. While milkweed removal would reduce the availability of the larval host plant, this would likely have only limited impacts on South Bay breeding populations of the monarch butterfly. As indicated in **Table 3.5-5**, inspection of approximately 480 clusters of milkweed plants along Coyote Creek between Anderson Dam and the Coyote Creek Golf Course area (including the Ogier Ponds) in May and June 2022, and 100 plants along the rim of Anderson Reservoir in July 2022, detected only two monarch larvae. Thus, although monarch butterflies do breed in the Project vicinity, they are scarce breeders. Rather, monarchs occur in the Seismic Retrofit Area primarily as migrants. Implementation of the milkweed survey plan as part of the Project construction monitoring components would minimize impacts on milkweed and avoid injury or mortality of monarch butterflies that might be using that milkweed. <u>Implementation of the milkweed survey plan would also reduce impacts on the Crotch's bumble</u>

bee, which uses milkweed heavily as a nectar and pollen source(California Bumble Bee Atlas 2024).

Crotch's bumble bee has been recorded once in the Seismic Retrofit Area, foraging on bull thistle in the bed of the drawn-down reservoir. ~~This species' habitat requirements in the county are poorly known; of the nine recent (2019-2022) County records in the iNaturalist (2022) and Bumble Bee Watch (2022) databases, two are from urban areas well removed from relatively natural habitats, and four were observed foraging only on the invasive bull thistle~~ Since 2019, there have been documented occurrences of more than 100 individuals from approximately 20 locations in Santa Clara County (Bumble Bee Watch 2024, iNaturalist 2022, S. Lockwood and S. Rottenborn, pers. obs.), indicating that the species is still extant, and fairly widespread, in the County. This species could occur in scrub, grassland, or other habitats in the Seismic Retrofit Area, both when foraging and possibly when nesting (e.g., in small mammal burrows or rock crevices). Seismic Retrofit construction could destroy subterranean nests and their occupants, clear vegetation that serves as pollen and nectar sources, and affect pollen and nectar sources through dust mobilization or changes in drainage patterns. To the extent that Crotch's bumble bee might breed in the bed of the drawn-down reservoir, refilling of the reservoir following Seismic Retrofit construction could result in the loss of overwintering queens. This species likely occurs in the Seismic Retrofit Area only in low densities (e.g., during a survey of the reservoir bed on July 30, 2022, only one Crotch's bumble bee was seen among 300 or more bumble bees inspected closely), and therefore the number of individuals that could be impacted by Seismic Retrofit construction would be low.

Changes to the dam's outlets may result in increases in flows downstream from the dam during construction. The magnitude of flow, and frequency of flows of a certain magnitude, will depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (2022c ~~2022d~~) predicts higher flows at the 2-, 5-, and 10-year return intervals during construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The higher the flow, the lower the probability and frequency of that flow occurring in any given year, so that very high flows, greater than the 10-year or 20-year events, are unlikely during the Project construction period, though possible.

Higher flows would result in erosion, deposition of sediment (from the reservoir bed and from material eroded from the Coyote Creek bank downstream from Anderson Dam), and loss of riparian vegetation along the creek channel. This would not affect the Bay checkerspot butterfly, which does not occur along Coyote Creek downstream from the dam. However, large flow events would modify vegetation along the creek, potentially removing milkweed and nectar/pollen sources for monarch butterfly and Crotch's bumble bee. Conversely, the open ground created by high flows and scour impacts on existing vegetation would be more conducive to the germination of milkweed and flowering plants that provide nectar and pollen for these species. Although there may be a temporal loss of floral resources for these insects as a result of higher flows, increased flows during construction would result in a net enhancement of habitat for these two species.

These elevated flows would be highest during the winter wet season, when monarch butterflies are scarce or absent from Coyote Creek, and when eggs, larvae, or pupae are not present on native milkweed (recent winter breeding by monarchs in the South Bay has been documented, but is associated with cultivated and irrigated, typically, nonnative milkweed rather than milkweed in natural settings that senesces in winter). As a result, any effects of high winter flows on milkweed would not impact individual monarch butterflies. Such high flows could result in the loss of overwintering Crotch's bumble bees, if they are in areas close to Coyote Creek, though it is likely that this species has evolved to select wet season refugia away from areas prone to high flows, so such impacts are unlikely.

Conservation Measures Construction

Special-status invertebrates would benefit from Valley Water's payment of VHP impact fees, which contribute to the VHP's conservation program that benefits VHP-covered (and many non VHP-covered) special-status species. The Bay checkerspot butterfly is a VHP-covered species, and the VHP's conservation program includes actions (i.e., habitat preservation, management, and monitoring) to directly benefit and recover this species. The monarch butterfly and Crotch's bumble bee are not currently VHP-covered species, though the SCVHA is proposing to add both as VHP-covered species during the upcoming VHP amendment. Whether or not these species are formally covered by the VHP, the VHP's conservation program includes the acquisition, enhancement, and management of lands providing suitable habitat (e.g., grasslands, riparian habitats, and other land cover types for monarch butterfly and grassland and scrub habitats for Crotch's bumble bee) that support and benefit these two species as well.

Otherwise, Bay checkerspot butterflies are absent from areas directly affected by the proposed Conservation Measures (including maintenance of the North Channel Reach and Live Oak Restoration Reach), and therefore no direct impacts of Conservation Measures on that species would occur. However, implementation of Conservation Measures could affect the Bay checkerspot and its habitat by contributing to the cumulative effects of nitrogen deposition on serpentine habitats supporting these species. These impacts would occur as described in *Conservation Measures Impacts Analysis* in Impact TERR-1a for special-status plants above.

Implementation of Conservation Measures could impact the monarch butterfly by removing milkweed; killing eggs, larvae, or pupae on that milkweed; and removing flowering plants that serve as adult nectar sources. Milkweed is present in the Ogier Ponds CM Area, and monarch butterflies have been documented breeding in that area. Milkweed is present in a number of areas along Coyote Creek in the Project Area (i.e., from Anderson Dam downstream to Coyote Creek Golf Drive, including the North Channel Reach and Live Oak Restoration Reach), and monarchs are expected to breed along this segment of creek. However, the number of breeding monarchs in the Conservation Measures Project Area is low, and implementation of the milkweed survey plan as part of the Project's construction monitoring components would minimize impacts on milkweed and avoid injury or mortality of monarch butterflies that might be using that milkweed.

It is unknown whether Crotch's bumble bee is present in the Conservation Measures Project Area. However, it is possible that the species could be present, possibly nesting or collecting pollen and nectar from flowering plants. Conservation Measures at the Ogier Ponds and Coyote Percolation Dam CM Areas, and possibly maintenance of the North Channel Reach and Live Oak Restoration Reach, could destroy nests and their occupants and remove pollen and nectar sources. However, the likelihood and magnitude of impacts of Conservation Measures on Crotch's bumble bee is low due to this species' low abundance.

Construction Monitoring

Two construction monitoring-related activities would help to minimize Project impacts on special-status invertebrates. Implementation of the milkweed survey plan as part of the Project's construction monitoring components would minimize impacts on milkweed and avoid injury or mortality of monarch butterflies that might be using that milkweed by taking steps to inspect milkweed for monarch eggs, larvae, or pupae before it is impacted and protecting those life stages if they are found. Because Crotch's bumble bees are known to regularly nectar on milkweed, implementation of the milkweed survey plan would help to minimize impacts on the bumble bee as well. The development and implementation of management and monitoring plans for *Phytophthora* would also reduce impacts on special-status invertebrates by minimizing impacts of Project activities on native plant species and communities from mobilization of *Phytophthora*.

Otherwise, construction monitoring activities are unlikely to have any substantive effect, adverse or beneficial, on the Bay checkerspot butterfly, monarch butterfly, or Crotch's bumble bee. Those activities involve relatively limited field activity by monitoring personnel, and though it is possible that those personnel could trample milkweeds or nectar/pollen sources for these species, or disturb individuals, such impacts would be minor and localized.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Bay checkerspot butterflies do not occur along Coyote Creek downstream from Anderson Dam, and therefore, post-construction operations of Anderson Dam related to downstream flows, and operations and maintenance of all the Conservation Measures along Coyote Creek downstream from the dam (e.g., Cross Valley Pipeline Extension, Ogier Ponds CM, Coyote Percolation Dam CM, North Channel Reach ~~Extension~~, Live Oak Restoration Reach, and gravel augmentation) would not impact that species. Monarch butterflies do occur along the downstream reach of Coyote Creek, and this species' larval host plant is locally common along the portion of the creek in Coyote Valley, and likely occurs in scattered patches even further downstream. In general, operation of Anderson Dam in accordance with FAHCE rule curves will result in flows predicted to be slightly lower than pre-FOCP flows, though spring pulse flows could be slightly higher for brief periods. Post-construction flows would not differ substantially from Pre-FERC Order Baseline flows in ways that could affect monarch butterflies, Crotch's bumble bees, or their habitats.

Maintenance of facilities at Anderson Dam, the Ogier Ponds CM, Coyote Percolation Dam CM, and the Cross Valley Pipeline Extension would occur in areas that were impacted by Project construction, and such maintenance would not occur in any additional areas occupied by, or providing suitable habitat for, special-status invertebrates. Therefore, such maintenance is not expected to result in impacts on these species above and beyond construction-phase impacts. Maintenance of the North Channel Reach and Live Oak Restoration Reach would involve very limited and localized impacts to maintain habitat enhancements constructed by the FOCP and would therefore have little potential to impact the monarch butterfly and/or Crotch's bumble bee. Maintenance activities could impact habitat for these invertebrates by mobilizing *Phytophthora*, and maintenance equipment and vehicles could contribute to cumulative impacts on the Bay checkerspot butterfly and its habitat through their nitrogen emissions. Adaptive management activities will affect areas downstream from Anderson Dam that do not support the Bay checkerspot butterfly; impacts of adaptive management activities on the monarch butterfly, Crotch's bumble bee, and their habitat would be similar to those resulting from Conservation Measures and post-construction flows.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts on the Bay checkerspot butterfly, monarch butterfly, and Crotch's bumble bee. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Implementation of BMP AQ-1 will reduce the potential for construction activities to mobilize dust onto larval host plants, adult nectar sources, and bumble bee pollen sources, thus reducing the effects of dust and the potential for *Phytophthora* to be mobilized within that dust to plants on which these special-status invertebrates rely. BMPs BI-8 and WQ-9 will avoid competition between invasive plants and native plants used by these invertebrates by requiring local plant species in revegetation. BMPs ~~HM-7,~~ HM-8, HM-9, HM-10, WQ-15, and WQ-16 will minimize the potential for hazardous materials and other pollutants to impact native plants and individuals of these special-status invertebrates, and HM-12 would reduce the potential for fire to affect these species and their habitats. BMPs BI-3, WQ-4, WQ-5, and WQ-11 will involve removing temporary fill, establishing appropriate staging and stockpiling areas and construction access areas, and keeping the work sites clean, thus helping to minimize impacts on special-status invertebrates and their habitats, and avoiding the spread of *Phytophthora* and weeds. BMP BI-11 will minimize predator attraction, thus reducing predators of these invertebrates. BMP BI-4 will minimize impacts of pesticides on nontarget species such as special-status invertebrates.

Implementation of VHP Conditions 4 and 5 would reduce the potential for and magnitude of impacts on special-status invertebrates and their habitats through numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact these species and their habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on these species' habitats. VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants. Condition 13 specifically addresses serpentine-associated special-status species, such as the Bay checkerspot by requiring surveys for adults and avoidance and minimization of impacts to their habitats.

Maintenance of Anderson Dam facilities would occur as part of the DMP and would employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources, such as special-status plants. DMP BMPs BI-10 and BI-11 include measures to minimize impacts to vegetation whenever clearing or trimming is necessary and minimize root impacts. BMP BI-12 entails avoidance of special-status plant species and sensitive natural communities, such as serpentine communities. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes to avoid impacts from invasive plant species. **DMP Mitigation Measure Wildlife-4** prohibits the use of herbicides that are not excluded from the applicable injunction, thus reducing the potential for herbicides to impact these invertebrates and their habitats.

Of these three invertebrates, only the Bay checkerspot butterfly is a VHP-covered species. All Project activities that could impact this species are covered by the VHP except for the additional year of Anderson Reservoir dewatering. High-quality Bay checkerspot butterfly breeding habitat is located far enough from Anderson Reservoir that no activities occurring in the bed of the dewatered reservoir in Year 6 would adversely affect populations of the species or high-quality habitat as a result of dust mobilization or other means. During activities in the dewatered bed of the reservoir in early spring of Year 6, dust mobilization could adversely affect the health of some plants that may be used as nectar sources by occasional adults that may disperse to the vicinity of the Seismic Retrofit Area. However, the construction season would barely overlap with the adult flight season (e.g., in April), so the effects of dust mobilization on flowers that are in active use by adult Bay checkerspots would be minimal. The haul road along the edge of the northern arm of the dewatered reservoir, closest to the large Bay checkerspot populations on Coyote Ridge (and therefore closest to where any dispersing adult checkerspots are most likely to occur near the Seismic Retrofit Area), would not be used after Year 5. Implementation of Valley Water's BMPs, including Valley Water BMP AQ-1, will further minimize mobilization of dust from Year 6 Project activities onto any Bay checkerspot nectar sources. As a result, activities within the dewatered bed of the reservoir in Year 6 would not result in the loss of any individual Bay checkerspot butterflies or in substantive impacts on this species' habitat. Therefore, with implementation of Valley Water BMPs and compliance with VHP conditions, Project impacts on the Bay checkerspot will not be substantial, and therefore would be **less than significant**.

Implementation of the FOCP *Milkweed Survey Plan* ~~*milkweed survey plan*~~ would avoid and minimize impacts on both the monarch butterfly and Crotch's bumble bee. That plan requires surveys to detect milkweed, avoidance and minimization of impacts to milkweed as feasible, and measures to avoid impacts to individual monarch butterfly eggs, larvae, and pupae if milkweed must be impacted. Implementation of the plan, which will continue unless and until the monarch butterfly is added to the VHP as a covered species, will therefore minimize Project impacts on individual monarch butterflies and on milkweed plants used by both these species. If the Monarch Butterfly is formally added to the VHP as a covered species as is currently proposed, which may occur by 2026, the VHP would then include conservation measures specifically focused on this species. Valley Water would then comply with all VHP conditions concerning the species in lieu of implementing the FOCP *Milkweed Survey Plan*.

Implementation of the FOCP *Crotch's Bumble Bee Avoidance Plan, w*hich would continue unless and until the Crotch's bumble bee is added to the VHP as a covered species or is no longer legally protected, would avoid and minimize impacts on the Crotch's bumble bee. That plan requires surveys to detect Crotch's bumble bees and their nests, avoidance measures if individuals or nests are detected, and measures to minimize impacts to the species' floral resources. Implementation of the FOCP *Crotch's Bumble Bee Avoidance Plan* would therefore minimize impacts on this species. If the Crotch's bumble bee is formally added to the VHP as a covered species as is currently proposed, Valley Water would comply with all VHP conditions concerning that species in lieu of implementing the FOCP *Crotch's Bumble Bee Avoidance Plan*.

Although the monarch butterfly and Crotch's bumble bee are not currently VHP-covered species, the VHP's vast conservation program would conserve lands that support populations of these two species due to its breadth, both geographically and in terms of the diversity of habitat types to be conserved. For example, narrow-leaved milkweed, the primary native larval host plant of the monarch butterfly, is common and widespread in the county, and it occurs on a variety of lands in the VHP's conservation areas. Similarly, Crotch's bumble bee is a generalist forager, using a vast array of flowering plants (Thorp et al. 1983). VHP conservation lands are expected to support Crotch's bumble bee populations, given the geographic spread of recent occurrences in the county, as well as high-quality habitat for the species. Therefore, Valley Water’s payment of VHP impact fees for the Project would contribute to a conservation program that would compensate for any impacts that the Project might have on the monarch butterfly and Crotch's bumble bee, even if these species are not formally added to the VHP as covered species. Thus, with implementation of Valley Water BMPs and compliance with VHP conditions, the Project will not have a substantial adverse effect on the monarch butterfly or Crotch's bumble bee, and Project impacts would be **less than significant**. Further, if the monarch butterfly and/or Crotch’s bumble bee are added to the VHP as covered species, as currently proposed, the VHP would include these species in its conservation program explicitly, thus providing even greater conservation benefits to these species.

Mitigation Measures

No mitigation is required.

Impact TERR-1c: California tiger salamander, California red-legged frog, and foothill yellow-legged frog **(Less than Significant with Mitigation)**

Seismic Retrofit Construction

A known California tiger salamander and California red-legged frog breeding pond (Rosendin Pond) is located 0.3 miles southeast of the Anderson Dam spillway and approximately 500 feet southeast of the proposed BHBA (CNDDB 2022). Because individual California tiger salamanders can disperse distances of up to 1.3 miles (Orloff 2007), California red-legged frogs can disperse up to 2 miles (Bulger et al. 2003), and because other ponds that potentially supporting these species are present in various locations around Anderson Reservoir, there is some potential for dispersing California tiger salamanders and California red-legged frogs to occur virtually anywhere in the Seismic Retrofit Area. Due to the detection of adults in the unlined spillway chute in June 2020, California red-legged frogs may attempt breeding in other waterbodies, such as the spillway chute, the pond below the spillway waterfall, or a pond just outside the Seismic Retrofit Area south of the dam, and it is possible that small numbers could attempt breeding in Coyote Creek below Anderson Dam as well. The abundance of predatory fish and bullfrogs in at least some of these waterbodies (e.g., the unlined spillway chute and Coyote Creek below the dam) would limit breeding success.

All land cover types that occur in such Project Areas, aside from reservoir and urban-suburban, are considered by the VHP as providing potential habitat for these species; the bed of the reservoir is not considered suitable habitat for the purposes of VHP compliance, though when the reservoir is dewatered, salamanders and frogs could disperse into its bed. All impacts to land cover types other than urban-suburban are considered permanent following VHP conventions. However, the Project would not result in the long-term loss of substantial amounts of California tiger salamander or California red-legged frog habitat, as most impact areas would continue to provide habitat similar to Existing Conditions Baseline conditions (i.e., post-FOCP conditions) after Seismic Retrofit construction and associated revegetation is completed.

Seismic Retrofit construction activities would include grading, excavation, and construction of new structures that would result in the loss of California tiger salamander and California red-legged frog foraging, dispersal, and refugial habitat and could result in the loss of individuals.

Construction activities may result in the injury or mortality of individuals as a result of worker foot traffic, equipment use, vehicular traffic, vegetation removal, and earth moving activities. Seasonal movements of these species may be temporarily affected during construction because of disturbance, and substrate vibrations may cause individuals to move out of refugia, exposing them to a greater risk of predation or desiccation. Lighting from nighttime work may spill into areas outside the construction footprint, subjecting individuals to increased risk of predation. Petrochemicals, hydraulic fluids, and solvents that are spilled or leaked from construction vehicles or equipment may kill individuals, although BMPs to control releases of such chemicals make this unlikely. Increases in human concentration and activity in the vicinity of suitable habitat may result in an increase in native and nonnative predators that would be attracted to trash left at the work site and that would prey opportunistically on these species. Movement of construction personnel and equipment within the site, and between onsite and offsite areas, could also spread pathogens such as chytrid fungus and ranavirus, which can impair the health of amphibians. California tiger salamanders and California red-legged frogs could be trapped in pits, trenches, or other depressions excavated during the Project or could be impacted if they take refuge in construction materials that are subsequently moved.

The number of individual California tiger salamanders and California red-legged frogs that could be impacted by construction activities is low given the distance from the nearest breeding ponds to the majority of the work areas and the minimal recorded occurrences of the species on the site. However, it is possible that some individuals would be present within these activity areas when construction occurs and could therefore be lost.

No known breeding habitat currently used by California tiger salamanders or California red-legged frogs would be impacted by Seismic Retrofit construction. Impacts to the unlined spillway chute, the pond below the waterfall, and Coyote Creek would affect potential breeding habitat for the California red-legged frog, though as discussed above, these waterbodies do not provide high-quality breeding habitat due to predator abundance. Because California tiger salamanders and California red-legged frogs do not use reservoirs for foraging or breeding (ICF 2012), these species would not breed in the reservoir during the wet season between Years 1 and 2, so dewatering in the spring of Year 2 would not result in stranding or desiccation of individuals, including eggs or larvae. By the time the reservoir is dewatered in Year 2, the egg-laying season for the species would have been completed, so even if smaller pools of water remain in the reservoir bed after dewatering occurs, they would not attract or be used by California tiger salamanders or California red-legged frogs.

During the wet seasons following Years 2 through 5 of Seismic Retrofit construction, water levels in the reservoir would be lower, because the reservoir’s outlets would be left wide open through the wet season. Depending on the timing and amount of rainfall, it is possible that California tiger salamanders or California red-legged frogs may attempt to breed in the smaller waterbody (or waterbodies, depending on topography and drainage) present in the reservoir bed. Heavy rains that maintain flow through the reservoir bed would discourage salamanders from laying eggs, but if pools without heavy flow form in depressions in the reservoir bed, individuals could lay eggs in those pools. In the spring of Years 3 to 6, when construction in the reservoir bed begins, there is some potential for California tiger salamander or California red-legged frog eggs or larvae to be present in pools in the reservoir. Pumping out the water in those pools, filling pools, or diverting flow that would otherwise have kept pools wet could result in desiccation of eggs or larvae, if present. Petrochemicals, hydraulic fluids, and solvents that are spilled or leaked from construction vehicles or equipment may kill individuals in such pools.

Despite the increased potential for California tiger salamanders and California red-legged frogs to occur in the reservoir bed as a result of dewatering, habitat conditions in the reservoir bed (e.g., along the channels entering the reservoir, in pools that form in depressions, and in the pool behind the cofferdam ~~at ponds behind check dams)~~ are unlikely to be so suitable that large numbers of individuals would occur in areas where they could be impacted by Project activities. Therefore, construction and dewatering within the reservoir would affect relatively few individuals.

Also, it is possible that the dewatered condition of the reservoir could allow California tiger salamanders and California red-legged frogs to disperse across the reservoir during the construction period, something that may not occur under normal conditions when the reservoir is filled. This dispersal may allow exchange of individuals and genes between subpopulations on either side of the reservoir, which can benefit the regional population given that the reservoir impedes such dispersal under normal conditions.

As the reservoir refills during the wet season following Year 6, any California tiger salamanders and California red-legged frogs that may be present in refugia within the reservoir bed would be displaced from their burrows by rising water. Such displacement could expose them temporarily to increased predation risk, desiccation risk, and associated energetic stresses. However, water levels would rise gradually enough that any individuals, who are well adapted to changing hydrologic conditions, would be able to safely disperse to refugia on higher ground. Furthermore, because this refilling would occur primarily during wet-season natural inflow from tributaries, California tiger salamanders and California red-legged frogs would be at less risk of desiccation when leaving burrows, because waters would rise during or closely following rain events, when the ground surface and vegetation are moist and when tiger salamanders would naturally be moving on the surface at night.

During Seismic Retrofit construction, dry season flows in Coyote Creek downstream from Anderson Dam would be maintained via bypass flows released from Coyote Reservoir, supplemented with water released into Coyote Creek through the CDL and Cross Valley Pipeline Extension. Groundwater levels along Coyote Creek or in North Coyote Valley (where California tiger salamanders breed in ponds near the west side of the valley) are not predicted to drop substantially as a result of operations during construction. Modeling performed by Valley Water predicted that there would be a reduction in groundwater recharge and storage during Seismic Retrofit construction relative to 2015 base conditions (when ~~interim seismic~~ restrictions limited reservoir capacity to 51,200 AF); however, groundwater storage is still predicted to be above Valley Water's 2021 Groundwater Management Plan storage target (Valley Water 2023a). Nevertheless, in the event that reduced creek flows resulting from the Project combined with critical drought conditions were to occur and cause a drop in groundwater levels, it is possible that ponds supporting California tiger salamanders in North Coyote Valley could have reduced hydroperiod, which could reduce the breeding success of the species by causing larvae to metamorphose before they have reached a large size, or to be stranded and desiccate in drying ponds. The ponds where California tiger salamanders have been recorded in North Coyote Valley are near the western edge of the valley (H. T. Harvey & Associates 2000d,e,f ~~2000a,d,~~ 2020, 2021), where the influence of Coyote Creek flows is likely much lower than in areas farther east, closer to the creek. No California red-legged frogs are known to breed in North

Coyote Valley; numerous surveys for the species have been performed along Fisher Creek and in ponds in North Coyote Valley, yet the species has not been detected (HTH 2000b,c,e, 2006a,b, 2007a,b, 2020, 2021), and it is possible that the species does not breed there at all. Because Valley Water would be monitoring groundwater levels and dryback effects in North Coyote Valley throughout Seismic Retrofit construction, and would augment creek flows, if necessary, no impacts on habitat for these species in North Coyote Valley are likely to occur.

Construction Phase Existing Conditions Baseline conditions for Seismic Retrofit construction allow for discharges from the dam of up to 2,500 cfs. During Seismic Retrofit construction, the reservoir's outlets would be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed. The magnitude of flow, and frequency of flows of a certain magnitude, will depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (2022c ~~2022d~~) predicts higher flows at the 2-, 5-, and 10-year return intervals during construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The higher the flow, the lower the probability and frequency of that flow occurring in any given year, so that very high flows, greater than the 10-year or 20-year events, are unlikely during the Project construction period, though possible.

If California red-legged frogs are present along the creek downstream from the dam, they could be displaced by winter flows that are higher during construction than the Existing Conditions Baseline. Because higher wet season flows would ramp up naturally, individuals close enough to the creek that may be affected by the rising water elevation would be able to emerge and move to higher ground in response to rising water levels. Such displaced individuals may be subject to increased predation risk and desiccation risk. However, the number of individuals that could be present in areas at risk of inundation is low due to the absence of high-quality breeding habitat in areas close to Coyote Creek downstream from the dam. If red-legged frogs were to attempt breeding in Coyote Creek downstream from the dam, high flows could dislodge egg masses or cover them with sediment, though again, the likelihood and frequency of attempted breeding in the creek would be low. These construction-period reservoir operations would more closely follow the natural hydrograph, with higher flows associated with rain events and lower flows during dry conditions, than normal dam operations. These flows during construction (including both drier conditions in summer and some higher-flow events in winter) are similar to the hydrological conditions under which California red-legged frogs evolved, so frogs would be well adapted to such conditions.

There is some possibility that an occasional individual California tiger salamander from nearby breeding areas (e.g., Rosendin Pond) might be present in upland refugia along the banks of Coyote Creek downstream from Anderson Dam, in areas that would be subjected to inundation as a result of higher winter flows during construction. Because higher wet season flows would ramp up naturally, individuals that are in burrows close enough to the creek to be affected by rising water elevations would be able to emerge and move to higher ground in response to rising water levels. Such displaced individuals may be subject to increased predation risk and desiccation risk. However, the number of individuals that could be present in areas at risk of inundation is very low due to the absence of high-quality breeding habitat in areas close to Coyote Creek downstream from the dam.

Considerable sediment has accumulated in the bed of Anderson Reservoir since construction of the dam. When these sediments are covered by water, as under normal conditions when the reservoir is filled, they are not easily eroded. However, when the reservoir has been dewatered, these sediments would be more subject to erosion from rainfall runoff and from the reservoir's tributaries. Because the reservoir's outlets would be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed, considerable sediment is predicted to be mobilized downstream from the dam during Seismic Retrofit construction. This increase in sediment mobilization would result both from the exposed nature of sediments under certain flows and the higher flow rates through the dam during construction. URS ~~AECOM~~ (2021) modeled sediment mobilization under different flow scenarios, concluding that the maximum sediment mobilization would occur if back-to-back 2-year rainfall events (i.e., events that have a 50 percent likelihood of occurring in any given year), or a single 5-year event (20 percent likelihood of occurrence in any given year), were to occur when relatively little water was present in the reservoir. During those events, flows would be high enough to erode large amounts of sediment from the reservoir (approximately 167,000 tons per event) but not so high as to inundate the reservoir level above the sediment bed, which would reduce their erosivity. This mobilized sediment could adversely affect California red-legged frogs by coating or covering egg masses, and increased turbidity could inhibit efficient foraging by larvae. However, very few individuals, egg masses, or larvae (if any) would be affected given that Coyote Creek, below Anderson Dam, does not provide high-quality habitat for the California red-legged frog. Farther downstream, where Coyote Creek flows through urban San José, California red-legged frogs are likely completely absent due to the absence of suitable habitat and the cumulative stressors of the urban environment (e.g., predation, human disturbance, and water-quality impacts).

In addition, flows that occur through the dam during Seismic Retrofit construction may result in erosion of wetland and riparian habitat along Coyote Creek downstream if flow velocity is high enough to erode sediment and scour vegetation. Such habitats provide potential habitat for California red-legged frogs, and all impacts to land cover types other than urban-suburban are considered permanent following VHP conventions. However, while this sedimentation and erosion may have adverse effects on red-legged frog cover for a year or two, until these areas are recolonized by vegetation, the long-term effects on the ecology of Coyote Creek would be beneficial. Sediment supplies to the creek have been modified and reduced due to the historical presence of the dam and the accumulation of sediment behind the dam. The constraints on sediment input to the creek, and limitations on natural erosion and sediment deposition processes downstream from the dam have contributed to limited regeneration of species, such as cottonwoods and willows that rely on bare sediment along stream channels for germination. As a result, following the potential initial loss of wetland and riparian habitat due to increased construction period wet-season flows, erosion, and sedimentation, the bed dynamism and rejuvenated sediment load from potential flows during the construction period could improve the regeneration of riparian vegetation over the long-term and help sustain high-quality habitat conditions.

There are no recent records of the foothill yellow-legged frog from the Project Area. No surveys conducted for the DMP, FOCP, or Project have detected the species at or near Anderson Dam, and surveys for the species have not detected yellow-legged frogs along Coyote Creek either downstream from Anderson Dam or in the reach between Coyote Dam and Anderson Reservoir (Valley Water 2016, 2019b ~~2019c~~; H. T. Harvey & Associates 2019b ~~2019a~~). If individuals were to disperse downstream from known occurrences along Otis Creek, or from historical locations along San Felipe Creek, normal conditions in Anderson Reservoir (i.e., the presence of vast, deep water) would likely prevent this stream-dwelling frog from reaching Anderson Dam. When the reservoir is dewatered during Seismic Retrofit construction, yellow-legged frogs could attempt to disperse into the bed of the reservoir along these tributaries. However, yellow-legged frogs are closely associated with cobbly streams. They would need to travel through a mile or more of stream channel lined with fine sediment that has accumulated in the reservoir bed to reach areas where Project activities would occur. Due to the presumed low sizes (owing to the lack of recent records) of yellow-legged frog populations that occur in areas where they could disperse to the Project Area, coupled with the distance these frogs would need to travel through unsuitable habitat conditions in silt-lined stream channels in the reservoir bed, there is a very low probability that foothill yellow-legged frogs would occur in areas where Project activities would occur within the bed of the dewatered reservoir. Foothill yellow-legged frogs would not reach Anderson Dam itself, or occur along Coyote Creek downstream from the dam.

Because foothill yellow-legged frogs are closely associated with streams, rather than making overland movements like California red-legged frogs, and because the species does not occur in the “reservoir” land cover type, Seismic Retrofit activities would not affect any land cover that is considered suitable for the species, where individuals may occur. For example, although the VHP models Coyote Creek downstream from Anderson Dam as secondary habitat for the species (ICF 2012), yellow-legged frogs have largely disappeared from streams below dams, and this species does not occur in Coyote Creek below Anderson Dam.

Seismic Retrofit construction could affect foothill yellow-legged frogs only in the unlikely event that an individual dispersed downstream into the bed of the dewatered reservoir. If that were to occur, injury or mortality of individuals may occur in the same ways described above for California tiger salamander and California red-legged frog. The number of individual foothill yellow-legged frogs that could be impacted by construction activities is extremely low, and it is possible that none would be adversely affected. No suitable breeding habitat currently used by foothill yellow-legged frogs would be impacted by the Project, and the channels that develop in the bed of the dewatered reservoir would be too silty (rather than cobbly), and contain too little flow, for use by breeding foothill yellow-legged frogs. Therefore, the Project would not affect yellow-legged frog eggs, larvae, or breeding habitat. If any yellow-legged frogs are present in the bed of the reservoir when it refills during the wet season following Year 6, they would disperse upstream to more suitable habitat, and no adverse effects from reservoir refilling would occur.

Conservation Measures Construction

The potential for California red-legged frog occurrence in the Ogier Ponds CM and Coyote Percolation Dam CM Areas is low, as abundant fish and bullfrogs in the Ogier Ponds, the Parkway Lakes, and the Coyote Percolation Pond reduce the potential for maintenance of a viable population in those areas, and US 101 impedes dispersal of individuals from breeding populations east of the highway. However, there is one CNDDB record from Ogier Ponds; a large population is present in a red-legged frog mitigation area on the Kirby Canyon landfill east of US 101, and individuals could occasionally disperse through culverts under the highway to the Ogier Ponds area. In addition, red-legged frogs have been recorded in the culvert carrying the Coyote Canal under US 101, adjacent to Ogier Ponds. Therefore, there is some potential for at least small numbers of individuals to occasionally occur in the Ogier Ponds CM Area. Similarly, few, if any, California red-legged frogs are present in the North Channel Reach or Live Oak Restoration Reach where maintenance of ~~Extension Area or other areas where~~ fish-related habitat enhancements are proposed. Nevertheless, if individual California red-legged frogs are present in these areas, they could be subject to the same types of construction-related impacts described for Seismic Retrofit construction above.

The potential for California tiger salamander occurrence in any of the~~se~~ Conservation Measures Project Areas is extremely low given the absence of suitable breeding ponds and pools that could provide a source for dispersing individuals. At best, a long-distance dispersant might be present along Coyote Creek in the North Channel ~~Extension Area~~ Reach or Live Oak Restoration Reach where maintenance of the habitat enhancements ~~Conservation Measures~~ would be implemented. Such an individual could then be subject to the same types of ~~construction-related~~ impacts, though more limited in scale and duration, described for Project construction above.

Foothill yellow-legged frog is absent from these areas downstream from Anderson Reservoir and would not be impacted by Conservation Measures.

All land cover types that occur in the Conservation Measures Project Area, aside from reservoir and urban-suburban, provide potential habitat for the California red-legged frog and California tiger salamander. Approximately 6.1 acres of new hardscaping is proposed at the Ogier Ponds (maintenance roads, spillway, and outlet) and Coyote Percolation Dam (the roughened ramp), thus resulting in the loss of some suitable habitat. Otherwise, Conservation Measures would not result in the long-term loss of California tiger salamander or California red-legged frog habitat, as most impact areas would continue to provide habitat similar to, or of higher quality than, Existing Conditions Baseline (post-FOCP) conditions after construction of Conservation Measures is completed. Therefore, although impacts modifying VHP land cover types for more than 1 year are considered permanent for VHP compliance purposes, no substantial long-term impacts on habitat of the California tiger salamander or California red-legged frog will result from the Project's Conservation Measures.

Conservation Measures include release of imported water via the CDL and Cross Valley Pipeline Extension, which would help maintain groundwater levels and thus the aquatic, wetland, and riparian habitats along Coyote Creek and in North Coyote Valley that may be used by special-status amphibians.

Special-status amphibians would benefit from Valley Water's payment of VHP impact fees, which contribute to the VHP's conservation program that benefits VHP-covered (and many nonVHP-covered) special-status species. The California tiger salamander, California red-legged frog, and foothill yellow-legged frog are all VHP-covered species, and the VHP's conservation program includes a number of actions, including habitat preservation, restoration, enhancement, and management, to directly benefit and recover these species.

Construction Monitoring

Although California red-legged frogs occur downstream from Anderson Reservoir only infrequently and in low numbers, monitoring of water quality, suspended sediment, and sediment deposition during Project construction would help to reduce impacts from unconstrained flow releases on any individuals present downstream from the reservoir. Invasive species monitoring and control to be implemented during construction would reduce impacts of invasive species, such as bullfrogs and nonnative fish, on California red-legged frogs in the Project Area. However, if any individuals are present in Coyote Creek downstream from the reservoir, they could be disturbed, captured, or possibly subject to electroshock during such construction-related, fisheries-related monitoring. California tiger salamanders would not use the creek itself, downstream from Anderson Reservoir, and thus would not be impacted by instream construction monitoring activities.

If steelhead require relocation from the CWMZ to Upper Penitencia Creek during Project construction, they could be relocated to areas supporting California red-legged frogs and foothill yellow-legged frogs (California tiger salamanders would not be present in fish relocation areas). The physical presence and activity of biologists during fish release and subsequent monitoring may disturb individual frogs. Relocated steelhead could compete with frogs for food, and larger individuals could possibly prey on red-legged frog and yellow-legged frog larvae. However, as described in the Fish Rescue and Relocation Plan (Valley Water and Stillwater Sciences 2020), the number of steelhead relocated to a given area within Upper Penitencia Creek would be low enough that steelhead densities would be within the natural range of variation that has allowed populations of other sensitive species (such as California red-legged frogs and foothill yellow-legged frogs) to persist so that no long-term, population-level impacts of steelhead relocation on red-legged frogs or foothill yellow-legged frogs would occur. Relocation of fish from Coyote Creek to Upper Penitencia Creek, and any follow-up monitoring (e.g., for amphibian diseases or New Zealand mud snails) involves some risk of relocating diseases or invasive species. However, chytrid has previously been recorded in the upper watershed of Upper Penitencia Creek (Padgett-Flohr and Hopkins 2010) and was detected by Valley Water in 2021, during monitoring associated with FOCP fish relocation. Chytrid was detected along Upper Penitencia Creek above the waterfall that serves as a barrier to upstream fish movement, demonstrating the presence of the pathogen is unrelated to fish relocation (Valley Water 2022b ~~2022a~~). The Fish Rescue and Relocation Plan includes measures to minimize the spread of pathogens or invasive aquatic species. If any fish relocations to Upper Penitencia Creek are necessary, then Valley Water would continue to implement the Amphibian Disease and New Zealand Mud Snail Monitoring Plan (Valley Water 2020j ~~2020e~~) throughout the Project.

Designated California red-legged frog critical habitat is present in the reach of Upper Penitencia Creek, where fish relocation may occur. Fish relocation would not modify red-legged frog habitat or the primary constituent elements of designated critical habitat, and with implementation of the measures in the Fish Rescue and Relocation Plan, the impacts of fish relocation on California red-legged frogs in Upper Penitencia Creek would be minimal. Therefore, fish relocation is not likely to adversely affect California red-legged frog critical habitat.

During Project construction, Valley Water would monitor groundwater levels and continue to perform monitoring per the Dryback Monitoring Plan. Results of this monitoring would be used by Valley Water to determine whether creek flows need to be augmented to avoid adverse dryback effects on aquatic, wetland, or riparian habitats that could affect special-status amphibians. Valley Water would compensate for any impacts on wetland, riparian, or aquatic habitat that are detected by dryback monitoring and that can be attributed to reduced creek flows due to Project construction by paying VHP fees for the impacts detected.

Construction monitoring related to *Phytophthora* would help minimize the potential for mobilization or spread of other pathogens, including those (such as ranavirus) affecting amphibians.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Analysis of the effects of post-construction FAHCE operations on the California tiger salamander, California red-legged frog, and foothill yellow-legged frog was performed relative to the Pre-FERC Order Baseline (2017 conditions) and WEAP-modeled Future Baseline (2035 conditions). As described previously in the general discussion of Project impacts on terrestrial biological resources, flows under the FAHCE rule curves will be generally similar to~~,~~ ~~those under 2017 conditions~~ but possibly slightly lower than the Pre-FERC Order Baseline Conditions, while FAHCE flows are likely to be slightly higher than under the WEAP-modeled Future Baseline. Any increase in flows would be ramped up and down to allow aquatic animals to adapt to changing flows. In general, FAHCE flows may entail slightly lower flows in winter and summer, due to retention of water in the reservoir for spring pulse flows, than either the Pre-FERC Order or Future Baselines, punctuated by the spring pulse flows described above. However, the effects of such changes may differ in different parts of Coyote Creek, as described previously.

Proposed FAHCE flows would have no substantial impact on California red-legged frogs. Very few California red-legged frogs would occur near Coyote Creek downstream from Anderson Dam due to the absence of high-quality breeding habitat near this reach of the creek. Flow ramping would occur to manage changes in the rate of water flow in a slow, stepwise fashion, allowing frogs to move to more sheltered refugia as flow rates are increased. Ramping would occur whenever Valley Water-controlled flows would be increased or decreased by 25 ~~50~~ percent or more from the existing flow condition. High flows may displace an occasional California red-legged frog along Coyote Creek downstream from Anderson Dam, and such changes in effects could impact a red-legged frog egg mass. However, flows high enough to result in such effects will occur very infrequently, and would occur slightly less frequently under post-construction operations than under pre-FOCP conditions. California tiger salamanders are unlikely to be in burrows so close to the creek that they would be adversely affected by spring pulse flows. Any salamanders subjected to such increases would be able to relocate to higher ground, especially if flow increases were great enough that ramping of flows would occur. Foothill yellow-legged frogs are absent from Coyote Creek downstream from Anderson Dam and thus would not be affected by post-construction operations of the dam.

From October through April, post-construction water temperatures in the CWMZ would not differ from the Pre-FERC Order or Future Baselines (see Figure P-CO.3 and Figure P-CO.4 in Appendix F). In summer, post-construction base flows would target maintaining a water temperature not to exceed a daily average of 64.4°F (18°C) in as much of the CWMZ as possible, which would differ from the Pre-FERC Order or Future Baselines. As depicted in Figure P-CO.3 and Figure P-CO.4 in Appendix F, the difference between FAHCE water temperatures and baseline temperatures varies considerably among locations within the CWMZ, and in some locations, differences can be as great as 5-10°F. In most locations, however, the difference would be only 2-4°F. Frogs are affected by water temperature, as larvae develop more rapidly in warmer water than in cool water (Manin and Pandian 1985), and studies suggest that California red-legged frogs in cool, moist regions may spend more time farther from water than frogs in warmer, drier regions (Bulger et al. 2003, Christopher 2004 in USFWS 2022, USFWS 2022). However, California red-legged frogs are also adversely affected by high temperatures, often being found in cooler sites, and warm-water fish are known predators of this species (USFWS 2006). Younger embryos tolerate water temperatures of 48-70°F (9-21°C) (Nussbaum et al. 1983), and areas with higher numbers of California red-legged frog larvae in a San Mateo County study had mean water temperatures of 60-75°F (15-25°C) (USFWS 2002). Another study found that California red-legged frogs were absent from water exceeding 70°F (22°C). Therefore, the target post-construction water temperatures in the CWMZ are well within the range used by California red-legged frogs. Furthermore, this species is unlikely to breed, or even occur, regularly or in numbers, if at all, in the CWMZ due to the abundance of nonnative predators and distance from suitable breeding sites. Therefore, reduced water temperatures resulting from post-construction operations will not have a substantial effect, either adverse or beneficial, on the California red-legged frog. Changes in water temperature will not affect the California tiger salamander, which would not use instream habitat downstream from Anderson Dam, or the foothill yellow-legged frog, which is absent from this reach of Coyote Creek.

Post-construction operations and maintenance of the Ogier Ponds CM, Live Oak Restoration Reach habitat improvements, and North Channel Reach ~~Extension~~ will have little effect on the California red-legged frog, which will occur only occasionally, if at all, in these areas. If any red-legged frogs are present in these areas, they would use the habitats provided by these Conservation Measures. The potential for California tiger salamander occurrence in any of the Conservation Measures areas is extremely low given the absence of suitable breeding ponds and pools that could provide a source for dispersing individuals. At best, an individual dispersing from a distant breeding location might be present along Coyote Creek in the North Channel Reach or Live Oak Restoration Reach where maintenance of habitat enhancements would occur. Operation of these Conservation Measures will have little to no effect on the California tiger salamander and no effect on the ~~or~~ foothill yellow-legged frog, which is ~~are~~ absent from these areas. The Coyote Percolation Dam CM will not impact special-status amphibians, which are not expected to be present in Coyote Creek downstream from the percolation dam.

Maintenance of Anderson Dam facilities would have little effect on California tiger salamanders or California red-legged frogs. It is possible that small numbers of individuals could be killed or injured by maintenance equipment, vehicles, or personnel, or during activities, such as filling and compaction of mammal burrows on the dam face. However, based on the lack of occurrences detected at the dam, and the absence of any individuals detected during the scoping of burrows for amphibians during 4 years of surveys, these species are present infrequently and/or in low numbers. Maintenance of all Conservation Measures, including sediment augmentation, Ogier Ponds and Coyote Percolation Dam habitat restoration improvements, and others, would not occur in areas occupied by, or providing suitable habitat for, the California tiger salamander, and the likelihood/frequency of occurrence by California red-legged frogs in these areas would be low. If a California red-legged frog were present during maintenance of a Conservation Measure, impacts could occur in the ways described above for maintenance of dam facilities.

Adaptive management activities consist primarily of monitoring and potential adaptive management actions. There is a very low potential for field monitoring activities to disturb California red-legged frogs, though if any individuals were present in monitoring locations, they could be disturbed by field personnel. Impacts of adaptive management actions would likely be similar to those resulting from Conservation Measures and post-construction flows.

Foothill yellow-legged frogs would not be impacted by post-construction operations, maintenance, or monitoring, as they are absent from areas affected by these activities.

Significance Conclusion Summary

Project impacts on the foothill yellow-legged frog are unlikely to occur and would not be substantial, and therefore the Project would have a less-than-significant impact on this species.

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce Project impacts on the California tiger salamander and California red-legged frog and reduce any adverse effects on the foothill yellow-legged frog that could occur. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Implementation of BMPs BI-2, WQ-1, and WQ-2 will reduce impacts on California red-legged frogs by minimizing use of vehicles and equipment in streams. BMPs BI-3, BI-9, WQ-4, WQ-5, and WQ-11 will involve removing temporary fill, restoring channel bottoms, establishing appropriate staging and stockpiling areas and construction access areas, and keeping the work site clean, thus helping to minimize impacts on special-status amphibians and their habitats and avoid the spread of pathogens. BMPs BI-8 and WQ-9 will reduce impacts on special-status amphibian habitat by avoiding competition between invasive plants and native vegetation. BI-10 would avoid entrapment of amphibians in pipes, hoses, trenches, and other locations during construction. BMP BI-11 will minimize predator attraction, thus reducing predators of these amphibians. BMPs ~~HM-7,~~ HM-8, HM-9, HM-10, WQ-3, WQ-6, WQ-15, and WQ-16 will minimize the potential for hazardous materials and other pollutants to impact these amphibians and their habitats, and HM-12 will reduce the potential for fire to affect these species and their habitats. BMP BI-4 will minimize impacts of pesticides on nontarget species, such as special-status amphibians.

Implementation of VHP Conditions 3, 4, 5, 7, 11, and 12 would reduce the potential for and magnitude of impacts on special-status amphibians and their habitats by minimizing impacts on stream, wetland, and pond habitats. These conditions require implementation of numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact these species and their habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on these species' habitats. VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants.

Maintenance of Anderson Dam facilities would occur as part of the DMP and would employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources, such as special-status amphibians. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation, and **DMP Mitigation Measure Vegetation-6** requires restoration of vegetation that may have been lost due to dryback following dewatering. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes to avoid impacts to amphibian habitat from invasive plant species. **DMP Mitigation Measure General-3** requires development of a reservoir-specific dewatering plan to minimize impacts on sensitive wildlife during dewatering, specifically including amphibians. BMP BI-2 requires salvage of native aquatic vertebrates from dewatered channels, and **DMP Mitigation Measure Wildlife-1** and BMP WQ-12 require implementation of a flow bypass system for activities that would interrupt flow downstream from the dam. **DMP Mitigation Measure Wildlife-2** restricts vehicle and equipment use in salmonid streams during portions of the year, which would reduce impacts on the occasional California red-legged frog that might occur in Coyote Creek downstream from the dam. **DMP Mitigation Measure Wildlife-4** prohibits the use of herbicides that are not excluded from the applicable injunction, thus reducing the potential for herbicides to impact these amphibians and their habitats. **DMP Mitigation Measure Wildlife-5** reduces the potential for special-status amphibians to be captured in rodent traps, and BMP BI-16 avoids entrapment of sensitive animals in pipes, hoses, holes, and trenches. **Mitigation Measure Wildlife-7** includes a number of AMMs specific to special-status amphibians. **Mitigation Measure Wildlife-8** includes measures to avoid California red-legged frogs and California tiger salamanders during weephole and expansion joint cleaning and repair. BMP BI-17 minimizes the attraction of predators of sensitive species. The DMP also includes a number of BMPs to protect water quality, maintain clean work sites, and reduce erosion, thereby reducing the potential for impacts on special-status amphibians; these include BMPs WQ-4, WQ-5, WQ-7, WQ-10, WQ-14, and WQ-18.

The California tiger salamander, California red-legged frog, and foothill yellow-legged frog are covered by the VHP, and most of the activities that could impact these species (including post-construction operations under FAHCE rule curves) are explicitly VHP-covered. Thus, VHP compliance would ensure that impacts of VHP-covered activities on these species remaining after implementation of BMPs and DMP measures would not be substantial, and therefore would be **less than significant**.

However, the following Project activities are not VHP covered, and their impacts are discussed below:

- The additional year of Anderson Reservoir dewatering could affect California tiger salamanders and California red-legged frogs (though not likely foothill yellow-legged frogs) that may disperse into the reservoir bed and that are then impacted by construction activities due to the reservoir's dewatered condition and could affect eggs or larvae in pools within the reservoir bed. However, habitat conditions in the reservoir bed (e.g., along the channels entering the reservoir, in pools that form in depressions, and in the pool behind the cofferdam ~~at ponds behind check dams~~) would not be so suitable that large numbers of individuals would occur in areas where they could be impacted by Project activities during the additional year of dewatering. Therefore, construction and dewatering within the reservoir during that year would affect relatively few individuals. During this additional year of dewatering, Valley Water would continue to implement all VHP conditions. Although this additional year of dewatering could result in adverse dryback effects on aquatic, wetland, and riparian habitat along Coyote Creek downstream from Anderson Dam and in North Coyote Valley, creek flow augmentation, groundwater monitoring, and dryback monitoring (with additional flow augmentation, and payment of VHP impact fees for impacted wetland and riparian habitat, as necessary) would avoid significant impacts related to dryback effects.

  In addition, to further reduce impacts, Valley Water will implement **Mitigation Measure TERR-1c(1)** to provide additional avoidance and minimization during activities in the dewatered reservoir from the end of the Year 5 construction season through the Year 6 construction season.

- Differences in dam releases between those covered by the VHP and those that may occur during Project construction, although the Project will adhere to the VHP-covered release requirements when draining Anderson Reservoir for dewatering each year, at the start of the construction season (i.e., around April 15), wet-season flows through

Anderson Dam may be much higher than those discussed in the VHP, as Valley Water needs to avoid having Anderson Reservoir fill during Project construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The VHP did not explicitly discuss the possibility that flows may exceed those in VHP **Table 2-4** during the construction period, outside of actual dewatering events. Therefore, the impacts of such flows on terrestrial biological resources may not be covered by the VHP.

As discussed above, these increased flows would have little, if any, adverse effect on special-status amphibians, as foothill yellow-legged frogs are absent from Coyote Creek downstream from the dam, and California tiger salamanders and California red-legged frogs would occur in areas where they could be affected by high flows very infrequently and/or in low numbers. These individuals would be able to move out of areas where they could be adversely affected by high flows as the flows ramp up (either intentionally, in the case of post-construction flows, or naturally during rain events, during construction). As a result, the higher flow rates would have little impact, if any, on special-status amphibians.

- Impacts of steelhead relocation to Upper Penitencia Creek are not covered by the VHP. Although these relocations would have little impact on the foothill yellow-legged frog and California red-legged frog (and no impact on the California tiger salamander) with implementation of the measures in the Fish Rescue and Relocation Plan and the Amphibian Disease and New Zealand Mud Snail Monitoring Plan, there is some potential for introduction of diseases or mud snails during those fish relocations; diseases or mud snails could cause substantial adverse effects on foothill yellow-legged frog and California red-legged frog, and this impact would be significant. If fish relocation to Upper Penitencia Creek is necessary, Valley Water will implement **Mitigation Measure TERR-1c(2)** to compensate for any impacts of such relocations on special-status amphibians by removing nonnative species that could adversely affect special-status amphibians from Valley Water-owned properties in the Upper Penitencia Creek watershed.

With implementation of **Mitigation Measures TERR-1c(1)** and **TERR-1c(2)**, Project impacts on the California tiger salamander, California red-legged frog, and foothill yellow-legged frog would not be substantial and therefore would be **less than significant**.

Mitigation Measures

TERR-1c(1) Special-Status Species Avoidance and Minimization Measures During Year 6 Reservoir Dewatering

Valley Water and/or its contractor will implement the following AMMs during Year 6 construction activities (i.e., dewatering; movement of construction personnel, vehicles, and equipment; or storage or stockpiling of equipment or materials) in the dewatered bed of Anderson Reservoir:

- Prior to Year 6 construction activities, Valley Water will obtain approval from USFWS and CDFW of appropriate relocation sites for all life forms of the California tiger salamander, California red-legged frog, ~~and~~ foothill yellow-legged frog, and northwestern pond turtle.

- A qualified biologist approved by USFWS and CDFW (hereafter “approved biologist”) Will conduct a preactivity survey for all life forms of the California tiger salamander, ~~and~~ California red-legged frog, and northwestern pond turtle (as well as the foothill yellow-legged frog, even though it is unlikely to be present) in areas where they could be stranded or desiccated as those pools are pumped out or dry out. Any individuals detected will be moved to USFWS/CDFW-approved relocation sites.
- Within 48 hours prior to the start of construction or other activities within the bed of the reservoir, following dewatering in the spring of Year 6, an approved biologist will conduct a preactivity survey for all life forms of the California tiger salamander, California red-legged frog, ~~and~~ foothill yellow-legged frog, and northwestern pond turtle in areas where they could be subject to impacts from activities in the bed of the reservoir during Year 6 construction. Any individuals detected will be moved to USFWS/CDFW-approved relocation sites.
- Before any heavy equipment stored overnight is moved, a dedicated member of the construction crew trained by an approved biologist will inspect the area underneath and around the equipment to determine that no California tiger salamanders, California red-legged frogs, ~~or~~ foothill yellow-legged frogs, or northwestern pond turtles are present and at risk of being crushed by moving equipment. If an individual of one of these species is present in an area where it could be killed or injured by Project activities, that member of the construction crew will contact the approved biologist, who will capture and relocate the animal to a USFWS/CDFW-approved relocation site.
- An approved biologist will be onsite or on-call during all activities that could result in the take of the California tiger salamander, California red-legged frog, ~~or~~ foothill yellow-legged frog, or northwestern pond turtle to determine that all Conservation Measures are being implemented appropriately and to relocate any individual of these species that needs to be relocated to avoid injury or mortality.
- ~~Pipes diverting water from behind check dams or cofferdams to outlets below Anderson Dam will be completely screened with wire mesh not larger than 5 millimeters, to prevent California tiger salamanders, California red-legged frogs, and foothill yellow-legged frogs from being entrained in outflow pipes. Screens will not be placed directly on the openings of the diversion pipes, to avoid having flow velocities that are too great for small or larval animals. Rather, the screens will be placed farther from the pipe, encircling an area of water just above the entrance to the diversion or formed into a cage around the pipe entrance, so that flow velocities through the screen are not so high as to entrain animals against the screen.~~

TERR-1c(2) Nonnative Species Management in Upper Penitencia Creek Watershed

During each year in which steelhead relocation to Upper Penitencia Creek occurs during Project construction, prior to relocation, Valley Water will perform management of nonnative species that could adversely affect special-status amphibians and reptiles on Valley Water-owned properties in the Upper Penitencia Creek watershed. Such management will include the removal and euthanasia of bullfrogs, nonnative fish, and/or nonnative turtles from selected ponds on Valley Water’s Upper Penitencia Creek watershed properties. Prior to performing annual nonnative species management, Valley Water will provide the USFWS and CDFW a description of the proposed nonnative species management and obtain those agencies' approval of the management activities. Following the implementation of the annual nonnative species management, Valley Water will provide the USFWS and CDFW a brief report summarizing the management actions performed.

***Impact TERR-1d~~: Western~~ Northwestern Pond Turtle* (Less than Significant)**

Seismic Retrofit Construction

Seismic Retrofit construction activities would include grading, excavation, and construction of new structures that would result in the loss of northwestern pond turtle foraging, dispersal, and refugial habitat; this could possibly result in impacts to northwestern pond turtle nests and nesting habitat that may result in the loss of individuals. Construction-related impacts on individuals could occur in the ways described in Impact TERR-1c for special-status amphibians. However, the number of individuals that could be impacted by Seismic Retrofit construction is very low. Although a northwestern pond turtle was recorded in Anderson Reservoir in 2001 (CNDDB 2022), the species is very scarce there, based on the lack of observations during a number of recent surveys and focused monitoring. This species has been recorded in low numbers elsewhere in the Seismic Retrofit Area, namely in a pool below the spillway waterfall and in Coyote Creek immediately downstream from the dam. Therefore, it is possible that some individuals would be present within these activity areas when construction occurs and could therefore be lost.

All land cover types that occur in the Seismic Retrofit Area provide potential habitat for the northwestern pond turtle, and all impacts to land cover types other than urban-suburban are considered permanent following VHP conventions. However, from a biological perspective, Seismic Retrofit construction would not result in the long-term loss of substantial amounts of northwestern pond turtle habitat, as most impact areas would continue to provide habitat similar to, or of higher quality than, Existing Conditions Baseline conditions after Seismic Retrofit construction is completed.

Groundwater levels along Coyote Creek or in North Coyote Valley are not predicted to drop substantially as a result of operations during construction. Modeling performed by Valley Water predicted that there would be a reduction in groundwater recharge and storage during Seismic Retrofit construction relative to 2015 base conditions (when ~~interim seismic~~ restrictions limited reservoir capacity to 51,200 AF); however, groundwater storage is still predicted to be above Valley Water's 2021 Groundwater Management Plan storage target (Valley Water 2023a). Nevertheless, it is possible that fewer pools suitable for this species may be present in the Coyote Creek channel, particularly if drought conditions continue, and that ponds supporting northwestern pond turtles (such as the Ogier Ponds) could have lower water levels or a reduced hydroperiod. This could increase competition among northwestern pond turtles, and between northwestern pond turtles and nonnative red-eared sliders, for food or basking sites. Dryback could also cause northwestern pond turtles to disperse away from their preferred waterbodies, thus exposing them to increased risk of predation or vehicular mortality.

Construction Phase Existing Conditions Baseline conditions for Seismic Retrofit construction allow for discharges from the dam of up to 2,500 cfs. During Seismic Retrofit construction, the reservoir's outlets would be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed. The magnitude of flow, and frequency of flows of a certain magnitude, will depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (2022c ~~2022d~~) predicts higher flows at the 2-, 5-, and 10-year return intervals during construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The higher the flow, the lower the probability and frequency of that flow occurring in any given year, so that very high flows, greater than the 10-year or 20-year events, are unlikely during the project construction period, though possible.

~~Western~~ Northwestern pond turtles within Coyote Creek downstream from Anderson Dam could be displaced by winter flows during construction that are higher than Existing Conditions Baseline (post-FOCP) flows. Because wet-season high-flow events would ramp up naturally, individuals close enough to the creek to be affected by high flows would be able to move to higher ground in response to rising water levels, though such displaced individuals may be subject to increased predation risk or vehicular mortality. However, such flows would resemble the natural hydrograph more than the Existing Conditions Baseline conditions do, and therefore represent conditions under which northwestern pond turtles evolved, so turtles should be well adapted to such conditions. Increased sediment mobilization during high flows could affect foraging efficiency by northwestern pond turtles by increasing turbidity, though such effects would be short-lived.

In addition, higher flows that occur through the dam during Seismic Retrofit construction would result in erosion of wetland and riparian habitat along Coyote Creek downstream. As described in Impact TERR-1c, this would result in an initial loss of wetland and riparian habitat followed by considerable regeneration of riparian vegetation that would help sustain high-quality habitat conditions over the long-term. Downed trees in sunlit areas would provide high-quality basking sites for northwestern pond turtles, and thus basking habitat along Coyote Creek would improve as a result of increases in flows during Project construction. Such high flows are unlikely to impact turtle nests; this species has evolved along creeks, which in climates like that in the Project Area involve flashy flows. As a result, turtles nest outside of floodplains where their nests could be impacted by high flows.

Conservation Measures Construction

The Ogier Ponds and the Coyote Percolation Pond, as well as the Parkway Lakes, which are outside the Project area but adjacent to the Coyote Percolation Pond, provide high-quality turtle habitat, with permanent ponding and ample sunlit areas for basking. ~~Western~~ Northwestern pond turtles are known to occur in the Ogier Ponds CM and Coyote Percolation Dam CM Areas. Within the Ogier Ponds complex, the individual ponds used most heavily by northwestern pond turtle, small former borrow pits that are part of a County Parks mitigation site in the southeastern corner of the complex, would not be impacted by the Ogier Ponds CM Project, and therefore the conversion of pond/reservoir land cover types to stream, wetland, and riparian habitats at Ogier Ponds would not result in a substantial loss of pond turtle habitat. Rather, the increase in instream habitat is likely to result in a net improvement in northwestern pond turtle habitat at Ogier Ponds. Young northwestern pond turtles have not been seen during monitoring of Coyote Creek or Ogier Ponds in recent years, and reproductive success is apparently low. Once Ponds 1-4 at Ogier Ponds are no longer in-line with Coyote Creek, following completion of construction of the Ogier Ponds CM, there may be some eutrophication of these ponds during warmer months (Valley Water 2023b). Eutrophication could reduce dissolved oxygen levels within ponds, potentially reducing populations of aquatic prey for northwestern pond turtles. However, eutrophication would not directly affect individual turtles (which do not rely on dissolved oxygen), and whether or not eutrophication occurs is dependent on nutrient loads to the ponds, which may not be high once the creek no longer flows through these ponds. Although grading and construction for Conservation Measures could result in impacts to northwestern pond turtle nests, the majority of grading would occur away from the ponds most heavily used by this species, and therefore the most likely nesting habitat would be avoided.

The Coyote Percolation Dam CM would not result in the loss of high-quality northwestern pond turtle habitat, as the area downstream from the existing percolation dam is not used as heavily as the percolation pond just upstream from the dam. Rather, this Project component may improve the ability of pond turtles to move upstream over the percolation dam without having to exit the creek and risk predation during overland dispersal. Nevertheless, construction activities at Ogier Ponds and Coyote Percolation Dam, as well as ~~Conservation Measures in the~~ maintenance of the North Channel Reach and Live Oak Restoration Reach ~~Extension and other areas where fish-related habitat enhancements are proposed,~~ could impact individual turtles in the same ways that Seismic Retrofit construction could impact them.

Improvement of steelhead rearing habitat at Ogier Ponds would include placement of woody debris in selected areas of Coyote Creek to enhance and restore fluvial processes and channel complexity. This activity would improve habitat conditions for northwestern pond turtles by improving basking habitat.

All land cover types that occur in the Conservation Measures Project Area, aside from urban-suburban, provide potential habitat for the northwestern pond turtle. With the exception of very limited areas of additional hardscaping proposed at the Coyote Percolation Dam, Conservation Measures would not result in the long-term loss of northwestern pond turtle habitat, as most impact areas would continue to provide habitat similar to, or of higher quality than, Existing Conditions Baseline (post-FOCP) conditions after construction of Conservation Measures and revegetation of temporarily impacted areas is completed. Therefore, although impacts modifying VHP land cover types for more than 1 year are considered permanent for VHP compliance purposes, no substantial long-term impacts on habitat of the northwestern pond turtle will result from construction of the Project's Conservation Measures.

Conservation Measures include release of imported water via the CDL and Cross Valley Pipeline Extension, which would help maintain groundwater levels and thus the aquatic, wetland, and riparian habitats along Coyote Creek and in North Coyote Valley used by northwestern pond turtles.

The Conservation Measures include the use of chillers to cool imported water discharged into Coyote Creek via the CDL. ~~Western~~ Northwestern pond turtles may spend more time basking (subjecting them to increased predation risk or lower time for foraging) and have lower growth rates when exposed to colder water (Ernst and Lovich 2009). However, the use of chillers is intended only to reduce temperatures of warm imported water in the CWMZ to levels tolerable for steelhead, and would not result in very cool conditions that could adversely affect turtles.

The northwestern pond turtle would benefit from Valley Water's payment of VHP impact fees, which contribute to the VHP's conservation program that benefits VHP-covered (and many nonVHP-covered) special-status species. The northwestern pond turtle is a VHP-covered species, and the VHP's conservation program includes a number of actions, including habitat preservation, restoration, enhancement, and management, to directly benefit and recover this species.

Construction Monitoring

~~Western~~ Northwestern pond turtles could be disturbed, captured, or possibly subject to electroshocking during such construction-related fisheries monitoring. Invasive species monitoring and control would also be implemented in the Project Area during construction; this would involve removal of any captured nonnative turtles, which would reduce competition (e.g., for high-quality basking sites) between northwestern pond turtles and nonnative turtles, as well as removal of any captured nonnative fish and bullfrogs, which prey on young northwestern pond turtles.

During Project construction, Valley Water would also continue to implement the plan for monitoring northwestern pond turtles that was developed for the FOCP (Valley Water 2020d ~~2020i~~). Although monitoring would not include Anderson Reservoir (which would remain dewatered per the 2020 FERC Order during Seismic Retrofit construction) as it does for the FOCP, monitoring of northwestern pond turtles along Coyote Creek from Anderson Dam downstream to the Coyote Percolation Pond/Parkway Lakes area, and at Ogier Ponds, would help determine whether Project construction is causing a noticeable decline in this species' abundance, potentially encouraging the SCVHA to implement additional measures (e.g., installation of basking structures in portions of Ogier Ponds not being impacted by the Project).

During Project construction, Valley Water would monitor groundwater levels and continue to perform monitoring per the Dryback Monitoring Plan. Results of this monitoring would be used by Valley Water to determine whether creek flows need to be augmented to avoid adverse dryback effects on aquatic, wetland, or riparian habitats. Valley Water would compensate for any impacts on wetland, riparian, or aquatic habitat that are detected by dryback monitoring and that can be attributed to reduced creek flow due to Project construction by paying VHP fees for the impacts detected.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Analysis of the effects of post-construction FAHCE operations on the northwestern pond turtle was performed relative to the Pre-FERC Order Baseline (2017 conditions) and WEAP-modeled Future Baseline (2035 conditions). As described previously in the general discussion of Project impacts on terrestrial biological resources, flows under the FAHCE rule curves will be generally similar to, ~~those under 2017 conditions~~ but possibly slightly lower than the Pre-FERC Order Baseline Conditions, while FAHCE flows are likely to be slightly higher than under the WEAP-modeled Future Baseline. Any increase in flows would be ramped up and down to allow aquatic animals to adapt to changing flows. In general, FAHCE flows may entail slightly lower flow in winter and summer, due to retention of water in the reservoir for spring pulse flows, than either the Pre-FERC Order Baseline or Future Baseline, punctuated by the spring pulse flows described above. However, the effects of such changes may differ in different parts of Coyote Creek.

FAHCE flows would not change conditions for northwestern pond turtles substantially, relative to pre-FOCP flows, and therefore would not result in substantial impacts to individuals or their habitats. Although spring pulse flows may cause turtles to disperse away from areas with higher flow velocities, such pulse flows would not be very high, and flow ramping would occur to manage changes in the rate of water flow in a slow, stepwise fashion, allowing individuals to move to more sheltered refugia as flow rates are increased. FAHCE operations and other post-construction flows would not impact northwestern pond turtle nests, which would be located above the floodplain.

Seismic Retrofit would enable storage of a deeper, higher volume cold pool, which, in turn, post-construction would enable Valley Water to release cooler water to the CWMZ from Anderson Dam during post-construction FAHCE rule curve operations than currently occurs. Such cool releases, which are described in detail in the special-status amphibian impact assessment above, would occur to benefit steelhead. Reductions in water temperature in the CWMZ could cause northwestern pond turtles to spend more time basking in the CWMZ. However, the improvements to basking habitat resulting from these flows and mobilization of large wood into the channel would offset adverse effects related to water temperature.

Post-construction operations of the Coyote Percolation Dam CM will not result in substantial impacts on northwestern pond turtles, which are adapted to variable flows, being able to move upstream or downstream, and out of the water, in response to changes in flow patterns. Post-construction operations and maintenance of the Ogier Ponds CM, Live Oak Restoration Reach habitat improvements, and North Channel Reach ~~Extension~~ will provide suitable habitat for northwestern pond turtles in Coyote Creek, while continuing to provide suitable habitat in the offline Ogier Ponds. Maintenance of all Conservation Measures would occur in areas that may be occupied by northwestern pond turtles. If a turtle were present during maintenance of a Conservation Measure, impacts could occur, as described above, for maintenance of dam facilities.

Maintenance of Anderson Dam facilities would have little effect on northwestern pond turtles. It is possible that small numbers of individuals could be killed or injured by maintenance equipment, vehicles, or personnel. However, based on the lack of occurrences near the dam, this species would be present infrequently and/or in low numbers.

Adaptive management activities consist primarily of monitoring and adaptive management actions. There is a very low potential for field monitoring activities to disturb northwestern pond turtles. However, if any individuals were present in monitoring locations, they could be disturbed by field personnel. Impacts of adaptive management actions would likely be similar to those resulting from Conservation Measures and post-construction flow. In addition, as described in **Table 2-1** *Project Components*, implementation of a Geomorphic Flows Plan would occur as part of future adaptive management under the Project and FAHCE AMP and will require additional CEQA review and regulatory approvals. In general, the geomorphic flows would include infrequent high flows sufficient to scour sediment, erode banks, scour vegetation, and result in channel migration in localized areas, which would maintain and increase both aquatic and riparian habitat complexity, reduce non-native invasive species, and increase benthic macroinvertebrate production. Geomorphic flows would thus enhance habitat for northwestern pond turtles by providing higher-quality (and likely more numerous) pools and basking habitat.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts on the northwestern pond turtle. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Implementation of BMPs BI-2, WQ-1, and WQ-2 will reduce impacts on <u>north</u>western pond turtles by minimizing use of vehicles and equipment in streams. BMPs BI-3, BI-9, WQ-4, WQ-5, and WQ-11 will involve removing temporary fill, restoring channel bottoms, establishing appropriate staging and stockpiling areas and construction access areas, and keeping the work site clean, thus helping to minimize impacts on <u>north</u>western pond turtles and their habitats and avoid the spread of pathogens. BMPs BI-8 and WQ-9 will reduce impacts on <u>north</u>western pond turtle habitat by avoiding competition between invasive plants and native vegetation. BI-10 will avoid entrapment of turtles in pipes, hoses, trenches, and other locations during construction. BMP BI-11 will minimize predator attraction, thus reducing predators of <u>north</u>western pond turtles. BMPs ~~HM-7~~HM-8, HM-9, HM-10, WQ-3, WQ-6, WQ-15, and WQ-16 will minimize the potential for hazardous materials and other pollutants to impact <u>north</u>western pond turtles and their habitats, and HM-12 will reduce the potential for fire to affect this species and its habitats. BMP BI-4 will minimize impacts of pesticides on nontarget species, such as <u>north</u>western pond turtles.

Implementation of VHP Conditions 3, 4, 5, 7, 11, and 12 would reduce the potential for and magnitude of impacts on <u>north</u>western pond turtles and their habitats by minimizing impacts on stream, wetland, and pond habitats. These conditions require implementation of numerous AMMs summarized in **Table 3.5-8**, and include limiting the footprint of activities, reducing the potential for pollutants to impact these species and their habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on this species' habitats. VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants.

Maintenance of Anderson Dam facilities would occur as part of the DMP and would employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources such as <u>north</u>western pond turtles. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation, and **DMP Mitigation Measure Vegetation-6** requires restoration of vegetation that may have been lost due to dryback conditions following dewatering. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes to avoid impacts to pond turtle habitat from invasive plant species. **DMP Mitigation Measure General-3** requires development of a reservoir-specific dewatering plan to minimize impacts on sensitive wildlife during dewatering, specifically including <u>north</u>western pond turtles, and BMP BI-2 requires salvage of native aquatic vertebrates from dewatered channels, and **<u>DMP</u> Mitigation Measure Wildlife-1** and BMP WQ-12 require implementation of a flow bypass system for activities that would interrupt flow downstream from the dam. **DMP Mitigation Measure Wildlife-2** restricts vehicle and equipment use in salmonid streams during portions of the year, which would reduce impacts on <u>north</u>western pond turtles. **DMP Mitigation Measure Wildlife-4** prohibits the use of herbicides that are not excluded from the applicable injunction, thus reducing the potential for herbicides to impact <u>north</u>western pond turtles and their habitats. DMP **Mitigation Measure Wildlife-5** reduces the potential for special-status species to be captured in rodent traps, and BMP BI-16 avoids entrapment of sensitive animals in pipes, hoses, holes, and trenches. **Mitigation Measure Wildlife-7** includes a number of AMMs specific to the protection of <u>north</u>western pond turtles and their habitat. BMP BI-17 minimizes the attraction of predators of sensitive species. The DMP also includes a number of

BMPs to protect water quality, maintain clean work sites, and reduce erosion, thus reducing the potential for impacts on northwestern pond turtles; these include BMPs WQ-4, WQ-5, WQ-7, WQ-10, WQ-14, and WQ-18.

The northwestern pond turtle is covered by the VHP, and most of the activities that could impact this species (including post-construction operations under FAHCE rule curves) are explicitly VHP-covered. Thus, VHP compliance would ensure that impacts of VHP-covered activities remaining after implementation of BMPs and DMP measures on the northwestern pond turtle would not be substantial, and therefore would be **less than significant**.

Following is a discussion of Project activities that are not VHP covered, and why impacts from these activities would not be substantial, and therefore would be less than significant:

- The additional year of Anderson Reservoir dewatering could result in adverse dryback effects on aquatic, wetland, and riparian habitat along Coyote Creek downstream from Anderson Dam and in North Coyote Valley. However, creek flow augmentation, groundwater monitoring, and dryback monitoring (with additional flow augmentation, and payment of VHP impact fees for impacted wetland and riparian habitat, as necessary) would avoid significant impacts related to dryback effects.
- Differences in dam releases between those covered by the VHP and those that may occur during Project construction would occur, although the Project will adhere to the VHP-covered release requirements when draining Anderson Reservoir for dewatering each year. At the start of the construction season (i.e., around April 15), wet-season flows through Anderson Dam may be much higher than those discussed in the VHP, as Valley Water needs to avoid having Anderson Reservoir fill during Project construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The VHP did not explicitly discuss the possibility that flows may exceed those in VHP **Table 2-4** during the construction period, outside of actual dewatering events. Therefore, the impacts of such flows on terrestrial biological resources may not be covered by the VHP. However, as discussed above, these increased flows would have little adverse effect on northwestern pond turtles. These individuals would be able to move out of areas where they could be adversely affected by high flows as the flows ramp up (either intentionally, in the case of post-construction flows, or naturally, during rain events and during construction).
- Impacts of steelhead relocation to Upper Penitencia Creek are not covered by the VHP. However, northwestern pond turtles do not occur in high numbers in the reach of Upper Penitencia Creek where steelhead relocation could occur, and therefore steelhead relocation would not result in substantial adverse effects on northwestern pond turtles ~~they would not be adversely affected by such relocation~~.

With implementation of BMPs, DMP measures, and compliance with the VHP, Project impacts on the northwestern pond turtle would be **less than significant**.

Mitigation Measures

No mitigation is required. Nevertheless, northwestern pond turtles would benefit from two mitigation measures described above. Northwestern pond turtles are expected to occur only in low numbers within the dewatered bed of Anderson Reservoir, so there is a low potential for impacts on individuals of this species during the additional, non-VHP-covered year of dewatering, but northwestern pond turtles will be included in the AMMs implemented per Mitigation Measure TERR-1c(1) to further reduce any impacts. In addition, nonnative species management in the Upper Penitencia Creek watershed, as described in Mitigation Measure TERR-1c(2), would benefit northwestern pond turtles in that watershed.

Impact TERR-1e: Bald Eagle and Golden Eagle (Less than Significant with Mitigation)

Seismic Retrofit Construction

Up to two pairs of bald eagles have nested near Anderson Reservoir in recent years. The most recently occupied nests have been located approximately 950 and 995 feet from the nearest area where Seismic Retrofit construction activities are currently proposed in the bed of the reservoir (i.e., within the "Seismic Retrofit [Proposed Construction Footprint]" on **Figure 3.5-2**). However, it is possible that construction activities may need to take place anywhere within the reservoir bed, in the area indicated on **Figure 3.5-2** as "Anderson Reservoir Boundary (Potential Additional Seismic Retrofit Construction)," and these two recently occupied nests are located approximately 250 and 790 feet from the edge of the reservoir. In addition, at least two (and possibly more) golden eagle territories overlap the reservoir, with recently occupied nests located approximately 0.8 and 1 mile from the nearest area where Seismic Retrofit activities are currently proposed in the bed of the reservoir and 0.34 and 0.83 miles from the edge of the reservoir. Because territories of both species overlap the Project area, Seismic Retrofit construction would impact these species. No nest trees would be impacted, as these eagles nest in trees well removed from the edge of the reservoir and well outside of direct impact areas where tree removal would occur. Eagles are not expected to build nests closer to Project activities than they currently do given the high levels of human disturbance associated with ongoing FOCP activities.

Seismic Retrofit construction would impact foraging habitat for these species; the wetted area of the drawn-down reservoir provides foraging habitat for the bald eagle, and both species also forage in the dry bed of the drawn-down reservoir and adjacent grassland habitats. Dewatering of the reservoir and construction activities within the reservoir bed would reduce the availability of foraging habitat for these species during construction. Following completion of construction, foraging habitat for the bald eagle would be enhanced as the reservoir is allowed to refill to a higher post-construction elevation, though refilling of the reservoir would reduce the availability of dry reservoir bed that is likely currently used by foraging golden eagles. In the long-term, though, refilling of the reservoir is unlikely to result in the loss of a golden eagle territory or have an adverse effect on productivity given the extensive grassland foraging habitat available to nesting eagles around the reservoir (including extensive grassland within each territory that has been identified by recent surveys).

During construction, the movement of heavy equipment, vehicles, and personnel within the Seismic Retrofit Area would increase human activity in proximity to existing eagle nests. The USFWS recommends disturbance-free buffers of 0.5 miles for blasting, 330 feet for nonmotorized human activities, and 660 feet for other Project activities near active nests of bald eagles (USFWS 2007), and 1 or 2 miles for blasting activities for active nests of golden eagles (USFWS 2017). Based on 2021-2022 nest locations, both bald eagle nests along the northwest arm of Anderson Reservoir are well over 660 feet from the nearest currently proposed Project activities (haul roads for stockpiling of materials are proposed within the reservoir bed). Each of the two golden eagle nest locations is approximately 2.1 miles from blasting areas at Basalt Hill; while one of these nests is just over a mile from the nearest Project activities in the reservoir bed, one nest is less than the recommended 1 mile from Project activities. USFWS guidelines suggest that buffers may be reduced, in consultation with USFWS, especially if nests are not within line-of-sight of construction activities. Topography interrupts line-of-sight for the golden eagles, and thus, golden eagles at the two current nest locations would not be disturbed by construction activities, or affected by reductions in foraging habitat, to the point that they would abandon their territories. However, because golden eagles fly around extensively while foraging, they would be aware of the construction activity in the reservoir bed, and there is some potential for reduction in productivity at the nest that is 0.8 miles from construction activity.

The analysis in the previous paragraph considers conditions present as of the 2022 breeding season. It is possible that the bald and/or golden eagles that have been nesting near the reservoir in recent years will move closer to or further from the reservoir prior to Seismic Retrofit initiation, that new pairs may nest near the reservoir, and/or that pairs may nest in different locations in different years during the 7-year Project. Also, as noted above, construction may need to occur within the bed of the reservoir in areas other than those currently proposed. As a result, there is some potential for Seismic Retrofit construction to occur within 660 feet of a bald eagle nest, or for golden eagles, or multiple pairs of golden eagles, to nest within the aforementioned, USFWS-recommended buffers. If that occurs, then by the time the construction season starts in mid-April, eagles could have a nest with eggs or young close to the construction area. Construction activities could therefore cause the abandonment of an active nest with eggs or young, or a reduction in productivity (e.g., if disturbance reduces foraging time or efficiency and adults are not able to provide all of their young with food).

Bald eagles establish their territories and build nests as early as December or January, and they may lay eggs as early as January or February. During Seismic Retrofit construction, the reservoir would be maintained at a low-water condition by leaving the outlets open throughout the wet season. Therefore, bald eagles would begin nesting under similar conditions, in terms of reservoir levels, as those that will be present when construction commences in any given year of the Project. Only minimal dewatering may be necessary prior to the start of each year's construction in mid-April, and such dewatering is not expected to reduce foraging habitat or prey availability, relative to levels present when nests are established in January or February, to the extent that it would adversely affect productivity.

Thus, Project construction could result in the abandonment of bald eagle or golden eagle nests and the loss of reproductive success, possibly including loss of eggs or young in nests. These impacts could occur throughout the Project construction period. However, the effects of this relatively short-term impact on regional bald eagle populations would be minor. This species did not historically nest in the county, yet more than 10 (and possibly 15 or more) pairs of bald eagles are currently present in the county, and this species' central California coast breeding numbers have increased considerably in the past 20 years. As a result, the short-term impact on bald eagle breeding and foraging habitat extent and quality at Anderson Reservoir would be minor from the perspective of its effect on regional bald eagle populations. Golden eagle populations have not been increasing regionally, and the loss of golden eagle productivity could have greater population impacts than is the case with bald eagles.

Bald eagles that forage at Anderson Reservoir in winter may use the reservoir in lower numbers and/or less frequently during Seismic Retrofit construction, as the dam's outlets would be left open so that minimal water accumulates behind the dam. However, because wet-season construction would not be occurring within the reservoir bed, some bald eagles would likely continue to forage there during winter. Changes in Coyote Creek flow downstream from Anderson Dam during Seismic Retrofit construction would have little effect, if any, on eagles. Although bald eagles occasionally forage downstream from the dam, they do so infrequently, and no substantial loss or modification of foraging habitat for bald eagles would result from changes in flows during construction.

Conservation Measures Construction

Implementation of Conservation Measures could affect bald eagles. A pair nested, apparently unsuccessfully, near Pond 3 at Ogier Ponds in 2019 (Valley Water 2022a ~~2022b~~). Although the species has not been known or suspected of nesting there since then, bald eagles occasionally forage at Ogier Ponds, especially in the winter season (Cornell Lab of Ornithology 2022). The Ogier Ponds CM Project would result in the conversion of some reservoir, pond, wetland, riparian, and grassland habitat to creek, wetland, and riparian habitat. This activity would not modify foraging habitat for bald eagles to the extent that it would substantially reduce the use of Ogier Ponds by bald eagles. In the event that bald eagles attempt to nest at Ogier Ponds again (e.g., if one of the Anderson Reservoir pairs were to relocate to Ogier Ponds), construction activities during the breeding season may result in the disturbance of nesting eagles, possibly to the point of nest abandonment. The nest tree used in 2019 is located approximately 350 feet from the nearest area of proposed disturbance for the Ogier Ponds CM, and other suitable trees (e.g., eucalyptus trees near the northern corner of Pond 3, where bald eagles have been observed perching) are even farther from Project areas. Bald eagles have not nested near the Coyote Percolation Dam CM, but they do forage at the Parkway Lakes and Coyote Percolation Pond (Cornell Lab of Ornithology 2022), and there is some potential (albeit low) for this species to nest near the Coyote Percolation Dam CM. Construction activities could disturb foraging bald eagles at both the Ogier Ponds CM and Coyote Percolation Dam CM Areas, and there is at least a low potential for nesting bald eagles to be disturbed by construction of these two conservation activities. Bald eagles are unlikely to forage in the North Channel Reach ~~Extension~~ or Live Oak Restoration Reach maintenance areas given the closed canopy of the riparian woodland, and they are also unlikely to nest in these ~~is~~ areas.

Golden eagles are occasionally observed at both the Ogier Ponds CM and Coyote Percolation Dam CM Areas, and elsewhere along Coyote Creek where other Conservation Measures are proposed, though they forage infrequently in those areas (they are typically seen flying high overhead), and they do not nest in or near any of those areas. Construction of Conservation Measures may disturb foraging golden eagles, but the magnitude and likelihood of such an impact is low, and neither project would result in substantial impacts to golden eagle foraging habitat or prey. Conservation Measures include the release of imported water via the CDL and Cross Valley Pipeline Extension, which would help maintain groundwater levels and thus the aquatic, wetland, and riparian habitats along Coyote Creek and in North Coyote Valley that support eagle prey, especially for the bald eagle.

Although neither eagle species is a VHP-covered species, both would benefit from Valley Water's payment of VHP impact fees. The VHP's vast conservation program conserves habitats that provide grassland, scrub, ponds, wetlands, streams, and other foraging habitats, as well as habitats that provide tall trees for nesting, for these two species due to its breadth, both geographically and in terms of the diversity of habitat types to be conserved.

Construction Monitoring

Foraging eagles could be disturbed by personnel conducting construction-related fisheries monitoring. However, any monitoring that benefits fish may benefit the bald eagle, given that fish are an important component of that species' diet.

During Project construction, Valley Water would monitor groundwater levels and continue to perform monitoring per the Dryback Monitoring Plan. Results of this monitoring would be used by Valley Water to determine whether creek flows would need to be augmented to avoid adverse dryback effects on aquatic, wetland, or riparian habitats. Valley Water would compensate for any impacts on wetland, riparian, or aquatic habitat that are detected by dryback monitoring and that can be attributed to reduced creek flow due to Project construction by paying VHP fees for the impacts detected. Such impact fees would contribute to the VHP's conservation program, and although neither eagle species is explicitly covered by the VHP, the conservation program conserves habitats used by both species, as described above. Thus, no substantial adverse effects of reductions in creek flow on foraging habitat or prey for bald eagles would occur.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Post-construction operations of Anderson Dam would provide for a reservoir that furnishes ample foraging habitat and prey for bald eagles, thus maintaining this important resource for that species. Otherwise, post-construction operations would not result in substantial impacts on bald or golden eagles. Golden eagles do not nest or forage in areas downstream from Anderson Dam that could be affected by post-construction flows, and FAHCE flows would not adversely affect foraging or nesting bald eagles.

Operation of the Ogier Ponds CM and Coyote Percolation Dam CM would provide habitat in Coyote Creek and Coyote Percolation Pond that bald eagles may use for foraging while continuing to maintain suitable bald eagle foraging habitat in the offline Ogier Ponds. Operation and maintenance of the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach Conservation Measures would be unlikely to disturb eagles, which likely do not forage in these closed-canopy areas.

Both species of eagles occasionally forage near the dam, and they could forage near Conservation Measures during maintenance activities. Maintenance and monitoring of both Seismic Retrofit and Conservation Measures, including the noise or activity of maintenance personnel, equipment, or vehicles, could occasionally disturb foraging eagles. However, no operations, maintenance, or monitoring activities would disturb nesting eagles. Adaptive management activities consist primarily of monitoring and potential adaptive management actions. There is a very low potential for field monitoring activities to disturb foraging eagles, though if any individuals were present in monitoring locations, they could be disturbed by field personnel.

Adaptive management activities consist primarily of monitoring and potential adaptive management actions. There is a very low potential for field monitoring activities to disturb bald or golden eagles, though if any individuals were present in monitoring locations, they could be disturbed by field personnel. Impacts of adaptive management actions would likely be similar to those resulting from Conservation Measures and post-construction flows.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts on the bald eagle and golden eagle. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Valley Water would implement BMP BI-5 to avoid and minimize impacts on nesting eagles; implementation of this BMP will avoid disturbance of active nests to the point of abandonment by conducting preactivity surveys and maintaining appropriate buffers between Project activities and active nests. BMPs HM-8, HM-9, HM-10, WQ-11, WQ-15, and WQ-16 will minimize the potential for hazardous materials and other pollutants to impact eagles and their prey, and HM-12 will reduce the potential for fire to affect these species and their habitats. BMP WQ-4 limits impacts from staging and stockpiling activities. BMPs BI-8 and WQ-9 will reduce impacts on eagle foraging habitat by avoiding competition between invasive plants and native vegetation. BMP BI-4 will minimize impacts of pesticides on nontarget species such as special-status eagles and their prey.

Implementation of VHP Condition 1 would avoid direct impacts on nesting eagles. VHP conditions 3, 4, 5, 7, and 11 would reduce the potential for and magnitude of impacts on bald eagles and their habitats by minimizing impacts on stream, wetland, and pond habitats. These conditions require implementation of numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact these species and their habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sedimentation impacts on this species' habitats. VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soils to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants.

Maintenance of Anderson Dam facilities would occur as part of the DMP and would employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources, such as bald and golden eagles and their habitats. BMP BI-8 requires preactivity surveys for nesting birds, and **DMP Mitigation Measure Wildlife-10** requires establishment of a disturbance-free buffer around nests of migratory birds, which includes eagles. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation, and **DMP Mitigation Measure Vegetation-6** requires restoration of vegetation that may have been lost due to dryback following dewatering. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes, which would avoid impacts to eagle foraging habitat from invasive plant species. **DMP Mitigation Measure General-3** requires development of a reservoir-specific dewatering plan to minimize impacts on sensitive wildlife during dewatering. **DMP Mitigation Measures Wildlife-11** and **Water Quality-1** and BMP BI-7 will reduce the potential for eagles to be poisoned by rodents that have ingested pesticide, and **Mitigation Measure Wildlife-4** prohibits the use of herbicides that are not excluded from the applicable injunction.

One pair of golden eagles is currently nesting close enough to proposed Project activities that there is some potential for loss of productivity owing to Project-related disturbance. Based on the current locations of bald eagle nests and currently proposed Project activities, construction would occur far enough from nests (greater than 660 feet) that construction-related disturbance of active nests would not occur. However, it is possible that bald and golden eagles could nest closer to construction activities in future years and/or that construction activities could occur anywhere in the reservoir bed, and construction activities could therefore cause the abandonment of an active nest with eggs or young, or a reduction in productivity (e.g., if disturbance reduces foraging time or efficiency and adults are not able to provide all of their young with food). This would be a substantial short-term adverse effect, even after application of BMPs and VHP Conditions. Implementation of **Mitigation Measure TERR-1e** will reduce Project impacts on these species to less-than-significant levels by implementing AMMs during Seismic Retrofit construction to minimize impacts on nesting eagles.

Long-term effects of the Project on the bald eagle are **less than significant**. The short-term impacts on bald eagle breeding and foraging habitat extent and quality at Anderson Reservoir would be minor from the perspective of its effect on regional bald eagle populations. Furthermore, the Project is necessary to allow Valley Water to continue to operate Anderson Reservoir and to eventually refill it. A larger, refilled reservoir would support greater numbers of pairs of bald eagles, and thus, the Project is necessary to ensure the long-term availability of the reservoir that has attracted nesting bald eagles and to provide suitable habitat for multiple pairs.

Compared to conditions under the Existing Conditions Baseline (existing conditions modified by FOCP implementation) conditions, the more extensive reservoir that will be present once the Project has been completed and Anderson Reservoir is refilled will provide habitat to support additional pairs of bald eagles. Suitable habitat to support golden eagles, in similar abundance to Existing Conditions Baseline conditions, will continue to exist around Anderson Reservoir after Project completion. Therefore, regional eagle populations would not be adversely affected by the Project.

With implementation of **Mitigation Measure TERR-1e**, Project impacts on bald eagles and golden eagles would not be substantial, and therefore would be less than significant. Furthermore, Valley Water would obtain a BGEPA permit from the USFWS to obtain authorization for the loss of any eagle productivity (which would most likely apply to bald eagle, given that this species forages in the reservoir) and would comply with permit conditions, which would further reduce impacts.

Mitigation Measures

TERR-1e Nesting Eagle Avoidance and Minimization Measures

Valley Water and/or its contractor will implement the following avoidance and minimization measures during Seismic Retrofit construction:

- Prior to drawdown of Anderson Reservoir and commencement of work activities within the reservoir bed during each year of construction (which would occur around April 15), Valley Water will perform surveys to identify the locations of active bald and golden eagle nests in areas where they might be disturbed by upcoming construction activities that would occur during the eagle breeding season and post-fledging dependency period for juvenile eagles (January 1 through August 31). Such surveys will focus on areas within 0.5 miles for blasting, 330 feet for nonmotorized human activities, and 660 feet for other project activities for bald eagle nests, and within 2 miles for blasting and 1 mile for other project activities for golden eagle nests.

- To the extent feasible, as determined by Valley Water's Project engineer, based on their assessment of whether alternative locations for Project activities that can maintain the appropriate buffers can be used during construction, construction activities will maintain buffers of 0.5 miles for blasting, 330 feet for nonmotorized human activities, and 660 feet for other project activities for bald eagle nests and 2 miles for blasting and 1 mile for other project activities for golden eagle nests, during the breeding season and post-fledging dependency period for juvenile eagles (January 1 through August 31). These buffers would apply during the courtship and egg-laying phases of the breeding season (January 1 through April 15). After April 15, if a qualified biologist confirms that the eagles did not lay eggs, or that a nest is no longer in use because the nest has failed or young are no longer dependent on adults, the buffers would not be necessary around that nest during that construction season.
- If Valley Water's Project engineer determines that the aforementioned buffers cannot feasibly be maintained around an active nest, as described above:
  - Valley Water will coordinate with CDFW and USFWS to determine whether there are feasible minimization measures that can be implemented to avoid or minimize disturbance of nesting eagles.
  - For nests that can be observed from accessible areas, a ~~A~~ qualified biologist will monitor the eagles' behavior at the nest as work occurs to determine whether there are any specific work activities that would disturb the birds, which may inform the identification of additional minimization measures.

If Valley Water determines that a work activity in the coming year must occur so close to a routinely used eagle nest (i.e., a nest used in the prior 2 years) that there is a high likelihood of nest abandonment once work commences in spring of a given year, Valley Water will coordinate with CDFW and USFWS to determine whether deterring nesting, prior to egg-laying, is appropriate.

Impact TERR-1f: Tricolored Blackbird, Yellow Warbler, White-tailed Kite, Northern Harrier, and Other Breeding Birds (Less than Significant)

Seismic Retrofit Construction

A variety of bird species protected by the MBTA and Fish and Game Code breed, forage, and roost in the Seismic Retrofit Area. These include breeding special-status species, such as the yellow warbler and white-tailed kite, as well as numerous nonspecial-status species. The tricolored blackbird is not known to breed in the Seismic Retrofit Area, but the colonization of portions of the dewatered bed of the reservoir by large patches of bull thistle provides potential habitat that could be used by this species for nesting. The northern harrier (*Circus hudsonius*) does not breed in the Seismic Retrofit Area, but one or two pairs could breed in North Coyote Valley wetlands that may be subject to dryback impacts due to reduced Coyote Creek flow during Seismic Retrofit construction. Northern harrier also breeds in tidal marshes along lower Coyote Creek and so is also discussed in Impact TERR-1j below.

Although birds do not nest in the open water of the reservoir (some species may nest in emergent or floating vegetation) or in most areas mapped as urban-suburban, most of the Seismic Retrofit Area provides potential nesting habitat for protected bird species. Thus, Seismic Retrofit construction would result in the loss of that nesting habitat. Much of that habitat (e.g., most areas that are not within the bed of the reservoir that would be refilled or that would be converted to urban-suburban land cover) would regenerate following the completion of construction and vegetative stabilization of bare soils by Valley Water, and would then be available for use by nesting birds, but some long-term loss of habitat would occur.

The nesting season for most birds breeding in the Seismic Retrofit Area is typically from February 1 through August 31, though some species may begin nesting in January or may have nests that remain active into September. Because construction in the bed of the reservoir and in Coyote Creek must occur during the dry season, the primary construction season would largely overlap the avian breeding season. If birds are actively nesting in or close to construction areas when construction activities occurs, vegetation clearing, grading, and activity of equipment, vehicles, and personnel could, in the absence of BMPs and VHP conditions, result in the physical disturbance or destruction of active nests (including eggs and young) or disturb adults to the point of nest abandonment.

Increased human activity may also affect the behavior of birds, causing them to avoid work areas, and therefore exposing them to increased competition with other birds in the areas to which they have dispersed, and increased levels of predation caused by unfamiliarity with the new area. Increases in human concentration and activity associated with construction in the vicinity of suitable habitat for these species may also result in an increase in native and nonnative predators that would be attracted to trash left in work areas and a reduction in the quality of breeding or foraging habitat caused by the introduction of nonnative vegetation or pathogens such as *Phytophthora*.

Groundwater levels along Coyote Creek or in North Coyote Valley are not predicted to drop substantially as a result of operations during construction. Modeling performed by Valley Water predicted that there would be a reduction in groundwater recharge and storage during Seismic Retrofit construction relative to 2015 base conditions (when ~~interim seismic~~ restrictions limited reservoir capacity to 51,200 AF); however, groundwater storage is still predicted to be above Valley Water’s 2021 Groundwater Management Plan storage target (Valley Water 2023a). Nevertheless, in the event that reduced creek flow combined with drought conditions were to cause a drop in groundwater levels, it is possible that habitats supporting nesting northern harriers, tricolored blackbirds, and yellow warblers, either along Coyote Creek or in North Coyote Valley, could suffer reduced health.

Existing Conditions Baseline conditions for Seismic Retrofit construction allow for discharges from the dam of up to 2,500 cfs. During Seismic Retrofit construction, the reservoir’s outlets would be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed. The magnitude of flow, and frequency of flows of a certain magnitude, will depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (2022c ~~2022d~~) predicts higher flows at the 2-, 5-, and 10-year return intervals during construction. At their maximum, such flows could be as high as 6,000 cfs, though the higher the flow, the lower the probability and frequency of that flow. Therefore, very high flows are highly improbable.

Higher flows during storm events could cause erosion and scour that would result in the loss of some riparian vegetation along the channel that is used by nesting special-status birds, such as yellow warblers, as well as numerous nonspecial-status birds. However, such habitat modifications would produce snags used by many bird species and would allow regeneration of riparian trees such as cottonwoods, willows, and sycamores as described in Impact TERR-1c. Thus, the habitat modifications resulting from such high flows and related inundation of habitat along Coyote Creek would help to rejuvenate the riparian corridor along Coyote Creek and maintain habitat heterogeneity that supports a diverse avian community. Furthermore, high flows and related inundation of riparian habitats would occur primarily outside the nesting season, and therefore would not disturb active nests.

Conservation Measures Construction

Numerous protected bird species breed in the Conservation Measures Project Area, including the Ogier Ponds CM Area, Coyote Percolation Dam CM Area, ~~and Conservation Measures in the~~ <u>Maintenance of the</u> North Channel <u>Reach, and Maintenance Activities at</u> the Live Oak Restoration Reach~~, and other areas where fish-related habitat enhancements are proposed~~. These species include a number of nonspecial-status species in addition to special-status species. The yellow warbler could breed in riparian habitat in and near any of the Conservation Measures; the white-tailed kite could breed in both riparian and adjacent upland habitats, and the tricolored blackbird could breed in more extensive areas of emergent wetland, such as at Ogier Ponds (though the species has not bred there in recent years). The northern harrier forages at Ogier Ponds, though it does not nest there. Impacts on nesting birds resulting from construction of the Conservation Measures could occur in the same ways described above for Seismic Retrofit construction activities.

Conservation Measures include release of imported water via the CDL and Cross Valley Pipeline Extension, which would help maintain groundwater levels and thus the aquatic, wetland, and riparian habitats along Coyote Creek and in North Coyote Valley that are used by numerous species of nesting birds.

Aside from the tricolored blackbird, no bird species impacted by the Project are VHP-covered species. However, numerous species would benefit from Valley Water's payment of VHP impact fees. The VHP's vast conservation program conserves a number of habitat types throughout much of the county, and these habitat types provide nesting and foraging habitat for many bird species, including tricolored blackbird, yellow warbler and white-tailed kite. Thus, due to its breadth, both geographically and in terms of the diversity of habitat types to be conserved, the VHP's conservation program benefits all the bird species potentially impacted by the Project.

Construction Monitoring

Construction monitoring for water quality, fisheries monitoring and fish rescue, aquatic species rescue and relocation, invasive species monitoring and control, and other monitoring efforts during the avian breeding season could result in the disturbance of nesting birds due to the noise and activity of monitoring personnel and equipment. Such impacts would be localized and infrequent.

During construction, Valley Water would monitor groundwater levels and continue to perform monitoring per the Dryback Monitoring Plan. Results of this monitoring would be used by Valley Water to determine whether creek flows need to be augmented to avoid adverse dryback effects on aquatic, wetland, or riparian habitats. Valley Water would compensate for any impacts on wetland, riparian, or aquatic habitat that are detected by dryback monitoring and that can be attributed to reduced creek flow due to Project construction by paying VHP fees for the impacts detected. Thus, no substantial adverse effects of reductions in creek flow on habitat for nesting birds would occur.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Analysis of the effects of post-construction FAHCE operations on nesting birds was performed relative to the Pre-FERC Order Baseline (2017 conditions) and WEAP-modeled Future Baseline (2035 conditions). FAHCE flows are not expected to result in substantial impacts, either adverse or beneficial, on nesting birds. As described previously in the general discussion of Project impacts on terrestrial biological resources, flows under the FAHCE rule curves will be generally similar to, ~~those under 2017 conditions~~ but possibly slightly lower than the Pre-FERC Order Baseline Conditions, while FAHCE flows are likely to be slightly higher than under the WEAP-modeled Future Baseline. In general, FAHCE flows may entail slightly lower flows in winter and summer, due to retention of water in the reservoir for spring pulse flows, than either the Pre-FERC Order Baseline or Future Baseline, punctuated by the spring pulse flows described above. However, the effects of such changes may differ in different parts of Coyote Creek, as described previously. There is some potential for spring pulse releases to disturb active nests very close to the water's surface (e.g., due to inundation or scour), but the relatively brief nature of these releases, and the fact that these flows would not be particularly high, would minimize the potential for any such impacts. Changes in creek temperature as a result of post-construction operations would not have a substantial effect on nesting birds.

Post-construction operations of the Ogier Ponds CM will provide habitat for nesting birds along the realigned segment of Coyote Creek while maintaining suitable habitat at the offline Ogier Ponds as well. The Coyote Percolation Dam CM will not result in substantial impacts on nesting birds.

Maintenance of Anderson Dam facilities and Conservation Measures, including maintenance of the North Channel Reach and Live Oak Restoration Reach, could disturb active nests of birds, either due to physical impacts to nests that are constructed on structures or in vegetation requiring maintenance or due to disturbance from noise or activity of maintenance personnel and equipment. Adaptive management activities consist primarily of monitoring and potential adaptive management actions. There is some potential for field monitoring activities to disturb nesting birds. Impacts of adaptive management actions would likely be similar to those resulting from Conservation Measures and post-construction flows.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts on nesting birds, including the northern harrier, tricolored blackbird, yellow warbler, and white-tailed kite. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Valley Water would implement BMP BI-5 to avoid and minimize impacts on nesting birds; implementation of this BMP will avoid disturbance of active nests to the point of abandonment by conducting preactivity surveys and maintaining appropriate buffers between Project activities and active nests. BMP BI-6, which involves installing nest exclusion materials to prevent birds from nesting in areas where they may be impacted, may also be implemented. BMPs HM-8, HM-9, HM-10, WQ-11, WQ-15, and WQ-16 will minimize the potential for hazardous materials and other pollutants to impact nesting birds and their food sources, and HM-12 will reduce the potential for fire to affect these species and their habitats. BMP WQ-4 limits impacts from staging and stockpiling activities. BMPs BI-8 and WQ-9 will reduce impacts on birds' nesting and foraging habitats by avoiding competition between invasive plants and native vegetation. BMP BI-11 will minimize the attraction of predators that may prey on nesting birds. BMP BI-4 will minimize impacts of pesticides on nontarget species, such as nesting birds and their food sources.

Implementation of VHP Condition 1 would avoid direct impacts on nesting birds. VHP conditions 3, 4, 5, 7, and 11 would reduce the potential for and magnitude of impacts on nesting birds and their habitats by minimizing impacts on stream, wetland, and pond habitats. In particular, these conditions require implementation of numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact these species and their habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on these species' habitats. VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants.

Maintenance of Anderson Dam facilities would occur as part of the DMP and would employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources, such as nesting birds and their habitats. BMP BI-8 requires preactivity surveys for nesting birds, and **DMP Mitigation Measure Wildlife-10** requires establishment of a disturbance-free buffer around nests of migratory birds. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation, and **DMP Mitigation Measure Vegetation-6** requires restoration of vegetation that may have been lost due to dryback following dewatering. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes, which would avoid impacts to bird habitat from invasive plant species. **DMP Mitigation Measure General-3** requires development of a reservoir-specific dewatering plan to minimize impacts on sensitive wildlife during dewatering. **DMP Mitigation Measures Wildlife-11** and **Water Quality-1** and BMP BI-7 will reduce the potential for birds of prey to be poisoned by rodents that have ingested pesticide, and **DMP Mitigation Measure Wildlife-4** prohibits the use of herbicides that are not excluded from the applicable injunction.

Of the nesting bird species considered in this impact, only the tricolored blackbird is a VHP-covered species. All Project activities that could impact this species are covered by the VHP except for the additional year of Anderson Reservoir dewatering. By the time Year 6 construction occurs, no suitable nesting habitat for the tricolored blackbird would be present in or near work areas in the bed of the dewatered reservoir, so no direct impacts related to that additional year of dewatering would occur. The additional year of Anderson Reservoir dewatering could result in adverse dryback effects on aquatic, wetland, and riparian habitat along Coyote Creek downstream from Anderson Dam and in North Coyote Valley, where tricolored blackbirds could breed. However, creek flow augmentation, groundwater monitoring, and dryback monitoring (with additional flow augmentation, and payment of VHP impact fees for impacted wetland and riparian habitat, as necessary) would avoid significant impacts on tricolored blackbirds related to dryback effects.

With the exception of the colonial tricolored blackbird, other bird species nesting in areas where they could be impacted by Project activities are present at relatively low densities. Several pairs of the yellow warbler and white-tailed kite, for example, could breed among all the Project's impact areas, and only one or two pairs of northern harriers might nest in North Coyote Valley. Numerous pairs of a wide variety of other bird species nest in the Project's impact areas, though the Project's impacts on the populations of any one species would not be so great as to result in a decline in regional (e.g., South Bay) populations. With implementation of BMPs, particularly BMP BI-5 for nesting birds, and compliance with VHP conditions, impacts on nesting special-status and nonspecial-status birds will not be substantial, and therefore will be **less than significant**. Furthermore, the VHP's vast conservation program would conserve numerous habitats throughout much of the county that support populations of virtually all bird species, including yellow warbler, white tailed kite, and tricolored blackbird, that may be affected by the Project due to the breadth of conserved habitat, both geographically and in terms of the diversity of habitat types. Therefore, Valley Water's payment of VHP impact fees for the Project would contribute to a conservation program that would help to offset impacts on habitat for nesting special-status birds.

Mitigation Measures

No mitigation is required.

Impact TERR-1g: Nonbreeding special-status birds (Less than Significant with Mitigation)

Seismic Retrofit Construction

Several special-status bird species, the Swainson's hawk, burrowing owl, and peregrine falcon, are not known or expected to breed in any areas where they could be impacted by Seismic Retrofit activities, but they could occur there as nonbreeding foragers, particularly during migration and in winter. In the Seismic Retrofit Area, grasslands and the bed of the drawn-down reservoir provide the areas most likely to be used by foraging Swainson's hawks and burrowing owls; peregrine falcons may forage in these same areas, and they may forage on waterbirds on the reservoir as well. Migrant or wintering burrowing owls may roost in California ground squirrel burrows in the Seismic Retrofit Area (most likely in grassland, among riprap on the dam face, or in the bed of the drawn-down reservoir). Due to the scarcity of these species near Anderson Reservoir, the number of individuals that may use the Seismic Retrofit Area for roosting or foraging is very low (likely no more than 1-2 individuals when these species are present at all).

All impacts to land cover types other than urban-suburban are considered permanent following VHP conventions. However, Seismic Retrofit construction would not result in the long-term loss of substantial amounts of grassland foraging habitat for burrowing owls or Swainson's hawk, or riprap that could provide refugia for nonbreeding burrowing owls, and it would result in an increase in reservoir habitat supporting prey and foraging areas for peregrine falcons. Construction activities could disturb foraging individuals of these species, though given the extensive areas of potential foraging habitat, those few individuals that might be foraging in the area could simply move to alternative areas nearby. Burrowing owls could be injured or killed if they are present in burrows when grading occurs, and construction activities could disturb roosting owls to the point of abandonment of their burrows, subjecting them to increased predation risk as they look for alternative burrows.

Groundwater levels along Coyote Creek or in North Coyote Valley are not predicted to drop substantially as a result of operations during construction. Modeling performed by Valley Water predicted that there would be a reduction in groundwater recharge and storage during Seismic Retrofit construction relative to 2015 base conditions (when ~~interim seismic~~ restrictions limited reservoir capacity to 51,200 AF); however, groundwater storage is still predicted to be above Valley Water's 2021 Groundwater Management Plan storage target (Valley Water 2023a). Nevertheless, in the event that reduced creek flow combined with drought conditions were to cause a drop in groundwater levels, any adverse effects of reduced Coyote Creek flow during Project construction on waterbird habitat along Coyote Creek or in North Coyote Valley could reduce prey availability for peregrine falcons, which often forage on waterbirds.

Construction Phase Existing Conditions Baseline conditions for Seismic Retrofit construction allow for discharges from the dam of up to 2,500 cfs. During Seismic Retrofit construction, the reservoir's outlets would be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed. The magnitude of flow, and frequency of flows of a certain magnitude, will depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (2022c ~~2022d~~) predicts higher flows at the 2-, 5-, and 10-year return intervals during construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The higher the flow, the lower the probability and frequency of that flow occurring in any given year, so that very high flows, greater than the 10-year or 20-year events, are unlikely during the Project construction period, though possible.

Higher flows during storm events could cause erosion and scour that would result in the modification of potential foraging habitat for peregrine falcons, Swainson's hawks, and burrowing owls along Coyote Creek. However, such habitat is infrequently used by foraging individuals of these species. A nesting pair of Swainson's hawks in North Coyote Valley could occasionally forage along the creek, though that pair has been seen most often foraging in agricultural and grassland habitats away from Coyote Creek. Therefore, effects of high construction-period flows on habitat for foraging special-status birds would not be substantial. Furthermore, high flows and related inundation of habitats along Coyote Creek would occur primarily outside the nesting season, so that it would not affect pairs of these nonbreeding special-status birds nesting outside the Project area and foraging within the Project area.

Conservation Measures Construction

Construction and implementation of proposed Conservation Measures could impact foraging activities of the Swainson's hawk, burrowing owl, and peregrine falcon, and roosting burrowing owls in the same ways as described for Seismic Retrofit Project construction activities above. Although peregrine falcons are occasionally observed at Ogier Ponds and in the Parkway Lakes/Coyote Percolation Pond area, Swainson's hawks and burrowing owls have not been recorded using these areas (Cornell Lab of Ornithology 2022), though they could occur rarely. These species could also occur, infrequently and in low numbers, in ~~areas supporting Conservation Measures in~~ the North Channel Reach and Live Oak Restoration Reach ~~Extension~~

~~Area and other areas~~ where maintenance of fish-related habitat enhancements would occur ~~are proposed~~. Implementation of the Conservation Measures would not result in a substantial reduction in the availability or quality of foraging habitat for these nonbreeding species, or in substantial adverse effects on roosting burrowing owls.

Conservation Measures include releases of imported water via the CDL and Cross Valley Pipeline Extension, which would help maintain groundwater levels and thus the aquatic, wetland, and riparian habitats along Coyote Creek and in North Coyote Valley that may be used by prey of these nonbreeding special-status birds.

The burrowing owl is a VHP-covered species, and the VHP includes a number of conservation activities focused on this species. In addition, the VHP's vast conservation program conserves numerous habitats, including grasslands, wetlands, ponds, and other habitats, that provide roosting and foraging habitat for many bird species, including these three species, due to its breadth, both geographically and in terms of the diversity of habitat types to be conserved. Therefore, payment of VHP fees would contribute to a conservation program that benefits the Swainson's hawk (which is under consideration for inclusion as a VHP-covered species in the upcoming VHP amendment), burrowing owl, and peregrine falcon.

Construction Monitoring

Construction monitoring for water quality, fisheries monitoring and fish rescue, aquatic species rescue and relocation, invasive species monitoring and control, and other monitoring efforts could result in the disturbance of roosting or foraging peregrine falcons, Swainson's hawks, or burrowing owls due to the noise and activity of monitoring personnel and equipment. Such impacts would be localized and infrequent, if they occur at all, due to the scarcity of these three species in areas where construction monitoring would occur.

Peregrine falcons often forage on waterbirds, and thus, any adverse effects of reduced Coyote Creek flow during Project construction on waterbird habitat along Coyote Creek or in North Coyote Valley could reduce prey availability for peregrine falcons. During construction, Valley Water would monitor groundwater levels and continue to perform monitoring per the Dryback Monitoring Plan. Results of this monitoring would be used by Valley Water to determine whether creek flows need to be augmented to avoid adverse dryback effects on aquatic, wetland, or riparian habitats. Valley Water would compensate for any impacts on wetland, riparian, or aquatic habitat that are detected by dryback monitoring and that can be attributed to reduced creek flow due to Project construction by paying VHP fees for the impacts detected. Thus, no substantial adverse effects of reductions in creek flow on peregrine falcon prey availability would occur.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Analysis of the effects of post-construction FAHCE operations on nonbreeding special-status birds was performed relative to the Pre-FERC Order Baseline (2017 conditions) and WEAP-modeled Future Baseline (2035 conditions). FAHCE flows are not expected to result in substantial impacts, either adverse or beneficial, on such birds. As described previously in the general discussion of Project impacts on terrestrial biological resources, flows under the FAHCE rule curves will be generally similar to~~,~~ ~~those under 2017 conditions~~ but possibly slightly lower than the Pre-FERC Order Baseline Conditions, while FAHCE flows are likely to be slightly higher than under the WEAP-modeled Future Baseline. In general, FAHCE flows may entail slightly lower flow in winter and summer, due to retention of water in the reservoir for spring pulse flows, than either the Pre-FERC Order Baseline or Future Baseline, punctuated by the spring pulse flows described above. Spring pulse releases may temporarily inundate foraging habitat, but such habitat is infrequently used by foraging individuals of these species, no burrowing owl roost sites are expected to be present in areas that might be inundated, and such flows would be relatively brief (and not particularly high, from the perspective of inundation of these bird species' foraging and roosting habitats). Changes in creek temperature as a result of post-construction operations would not have a substantial effect on nonbreeding special-status birds.

Post-construction operations of the Ogier Ponds CM would provide potential foraging habitat and prey for Swainson's hawk and peregrine falcon, and operations of the Coyote Percolation Dam CM would help to maintain suitable foraging habitat and prey for the peregrine falcon at the Coyote Percolation Pond. These species are not likely to use the closed-canopy riparian woodland at the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach.

Maintenance of Anderson Dam facilities and Conservation Measures could disturb foraging individuals of these species, and possibly roosting burrowing owls, due to disturbance from noise or activity of maintenance personnel and equipment. However, these species are not expected to occur frequently near areas where such maintenance will occur, and therefore no substantial disturbance impacts would occur. Adaptive management activities consist primarily of monitoring and potential adaptive management actions. There is some potential for field monitoring activities to disturb foraging or roosting birds, though again, such impacts would occur infrequently (if at all) due to the infrequency with which these species use areas where monitoring would be performed. Impacts of adaptive management actions would likely be similar to those resulting from Conservation Measures and post-construction flows.

Post-construction operations of Anderson Dam would provide for a reservoir that furnishes ample foraging habitat and prey for peregrine falcons. Refilling of the reservoir would reduce foraging habitat for nonbreeding Swainson's hawks and reduce foraging and potential roosting habitat for migrant and wintering burrowing owls. However, foraging habitat of the same or higher quality is abundant in grasslands in the region, and the loss of this foraging habitat would not result in any effects on populations of these species. Although burrowing owls could be using burrows in the reservoir bed when the reservoir refills following construction, those owls would relocate as the water level rises.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts to foraging and roosting, nonbreeding special-status birds, including the Swainson's hawk, burrowing owl, and peregrine falcon. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Valley Water would implement BMPs HM-8, HM-9, HM-10, WQ-11, WQ-15, and WQ-16 to minimize the potential for hazardous materials and other pollutants to impact foraging birds and their food sources, and HM-12 would reduce the potential for fire to affect these species' habitats and prey. BMP WQ-4 limits impacts from staging and stockpiling activities. BMPs BI-8 and WQ-9 would reduce impacts on birds' foraging habitats by avoiding competition between invasive plants and native vegetation. BMP BI-11 will minimize the attraction of predators that may prey on birds. BMP BI-4 will minimize impacts of pesticides on nontarget species, such as nonbreeding special-status birds and their prey.

VHP conditions 3, 4, 5, 7, and 11 would reduce the potential for and magnitude of impacts on nonbreeding special-status birds and their habitats by minimizing impacts on stream, wetland, and pond habitats. In particular, these conditions require implementation of numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact these species and their habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on these species' habitats. VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants.

Maintenance of Anderson Dam facilities would occur as part of the DMP and would employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources, such as nesting birds and their habitats. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation, and **DMP Mitigation Measure Vegetation-6** requires restoration of vegetation that may have been lost due to dryback following dewatering. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes, which would avoid impacts to bird habitat from invasive plant species. **DMP Mitigation Measures Wildlife-11** and **Water Quality-1** and BMP BI-7 will reduce the potential for birds of prey to be poisoned by rodents that have ingested pesticide, and **DMP Mitigation Measure Wildlife-4** prohibits the use of herbicides that are not excluded from the applicable injunction.

Of the potentially occurring nonbreeding special-status bird species, only the burrowing owl is a VHP-covered species. All Project activities that could impact this species are covered by the VHP, except for the additional year of Anderson Reservoir dewatering. However, by the time Year 6 construction occurs, the bed of the reservoir is likely to be so disturbed that burrowing owls would make little use of it for foraging or roosting.

The foraging and roosting habitat for these nonbreeding special-status birds that would be impacted by Project activities is not known to be used frequently or by large numbers of these species, and the extent of such habitat that would be impacted represents a very small proportion of regionally available habitat. Therefore, impacts on habitat used by these species, aside from burrowing owls, would not be substantial, and therefore would be **less than significant**.

Although no individual Swainson's hawks or peregrine falcons would be impacted, roosting burrowing owls could be injured or killed in burrows within the Project Area. Valley Water's payment of VHP impact fees for the Project would contribute to a conservation program that includes a number of conservation activities focused on the burrowing owl, and that would also benefit the Swainson's hawk and peregrine falcon.

Nevertheless, substantial adverse effects on burrowing owls could occur, and this impact would therefore be significant. Implementation of **Mitigation Measure TERR-1g** would avoid such impacts by identifying the locations of any burrowing owls prior to initiation of Project activities that could impact them and avoiding injury or mortality of those birds. With implementation of **Mitigation Measure TERR-1g**, impacts of the Project on nonbreeding special-status birds are **less than significant**.

Mitigation Measures

TERR-1g Burrowing Owl Impact Avoidance

Although burrowing owls have not been observed breeding in the Project Area, preconstruction surveys will be conducted, regardless of the season, prior to construction in any area providing burrowing owl refugia, as determined by a qualified biologist retained by Valley Water, due to the potential occurrence of migrant, wintering, or dispersing burrowing owls. A qualified biologist will determine whether potential roost sites (e.g., burrows of California ground squirrels, or riprap) ~~is~~ <u>are</u> present in, or within 250 feet of, the work area. If suitable habitat is present within these areas, a preconstruction survey will be performed within 7 days of the start of work activities. If a burrow with signs of burrowing owl presence (e.g., whitewash, pellets, and/or feathers) is observed during the preconstruction survey but no burrowing owl is present, a second survey will be performed within 24 hours prior to the start of work to determine whether burrowing owls are present. The second survey will occur between morning civil twilight and 10:00 a.m., or between 2 hours before sunset and evening civil twilight, to provide the highest detection probability. If no burrowing owls are found during the preconstruction surveys, the work may proceed. If burrowing owls are detected during the surveys and/or during the course of construction activities, the following measures will be implemented.

- If occupied burrows are identified, no new activities (i.e., activities that were not ongoing when the burrow was established) will occur within a 250-foot buffer zone during the nesting season (defined as February 1 to August 31). However, the buffer may be reduced with CDFW and SCVHA approval.
- After the nesting season, work may occur within the 250-foot buffer zone provided:
    - A qualified biologist monitors the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
    - The same qualified biologist monitors the owls during construction and finds no change in owl foraging behavior in response to construction activities.
    - If there is any change in owl foraging behavior as a result of construction activities, these activities will cease within the 250-foot buffer.
    - If the owls are gone for at least one week, the Project proponent may request approval from the SCVHA that a qualified biologist excavate the usable burrows to prevent owls from re-occupying the site. After the usable burrows are excavated, the buffer zone will be removed, and construction may continue.
    - Monitoring must continue as described above for the nonbreeding season as long as the burrow remains active.
- <u>In the event that passive relocation of burrowing owls from burrows must occur for Project activities to continue, Valley Water will coordinate with the CDFW and SCVHA to determine the appropriate procedures for relocation.</u>

Impact TERR-1h: Pallid Bat (Significant and Unavoidable)

Seismic Retrofit Construction

A maternity colony of the pallid bat has been located just outside of the Seismic Retrofit Area, in the Cochrane Road barn, since 1998. Based on periodic monitoring of this site conducted since

1998, this barn has supported up to 105 females, which use the roost year-round. This colony likely represents the largest and most stable colony of the species known in Santa Clara County. Males associated with this roost likely roost in suitable hollows or crevices within mature trees, and in crevices within rock faces, in the Seismic Retrofit Area.

Seismic Retrofit construction would not result in direct impacts on the Cochrane Road barn; the closest Project activities would be along Cochrane Road 75 feet away. Therefore, Seismic Retrofit construction would not cause any physical disturbance to or modification of the roost. However, given the intensity of construction activities, which would include some nighttime work, and the extent to which foraging habitat on Anderson Dam would be disturbed during construction, it is possible that pallid bats may abandon the roost within the barn while construction is ongoing. The noise associated with construction equipment and generators, and lighting from nighttime activities, may disturb bats as they roost in the barn or forage outside the barn, causing them to avoid foraging or roosting (or to abandon roosts) in areas close to construction activity. Typical buffers recommended between intense construction activity and pallid bat roosts are 90 feet for motor vehicles and foot traffic; 120 feet for heavy equipment; 150 feet for trenching; 250 feet for idling equipment or generators; 250 feet for shielded lighting; and 400 feet for unshielded lighting (H. T. Harvey & Associates 2016, Johnston et al. 2017). While it is possible that some females may tolerate construction occurring only 75 feet away, others may abandon the roost. Therefore, heavy construction activity associated with access along Cochrane Road, coupled with some nighttime work on the dam and the large-scale modification of habitat that would occur during construction, could cause at least some female pallid bats to abandon the roost.

Construction during the maternity season (April 1 to August 31) near maternity roosts may cause mothers to attempt to relocate to new roosts. Some females may find alternative roosts in other buildings, hollows in trees, or crevices in rock outcrops nearby. If females leave the barn roost early in the maternity season (e.g., in April or May), their young may be small enough that the females can carry the young to a new roost. However, if females leave the roost later in the maternity season (e.g., June or July), the young may be too large to carry, and abandonment of young or unsuccessful attempts to relocate young could lead to their mortality.

If pallid bats abandon the Cochrane Road barn roost during construction, they may return to the barn once Seismic Retrofit construction has been completed. However, unless high-quality alternative roost sites are present in the vicinity, the population may decline before the bats can re-occupy the barn due to permanent dispersal of females away from the roost, lower reproductive success by females using inferior roost sites (such as roosts located farther from high-quality foraging habitat), or predation of bats that are unable to find suitable roost sites.

Removal of trees containing large cavities and crevices, and modification of rock outcrops with large crevices, would reduce availability of roosting sites for males, which typically do not roost among the females within the barn. Removal of trees and modification of rock outcrops suitable for use by roosting bats would also remove alternative maternity roost sites, if pallid bats abandon the barn as a result of disturbance by the Seismic Retrofit construction.

When trees, structures, or rock outcrops containing roosting colonies or individual bats are removed or modified, individual bats could also be physically injured, killed, or subjected to physiological stress resulting from being disturbed during torpor. Bats roosting in trees, buildings, or rock outcrops that are to be removed or otherwise disturbed may flush from these areas before they can be injured or killed. However, bats flushed during the daytime could suffer increased predation, resulting in the loss of small numbers of individuals.

During construction, Seismic Retrofit activities would also result in the short-term loss of foraging habitat, such as open grassland areas in which the bats forage, as well as a temporary impact on foraging individuals through the alteration of foraging patterns (e.g., avoidance of work areas because of increased noise and activity levels during Project activities). However, the Project would not result in substantial long-term changes to the availability of foraging habitat after construction is completed and thus would not have a long-term impact on foraging habitat or prey availability.

Existing Conditions Baseline conditions for Seismic Retrofit construction allow for discharges from the dam of up to 2,500 cfs. During Seismic Retrofit construction, the reservoir's outlets would be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed. The magnitude of flow, and frequency of flows of a certain magnitude, will depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (2022c ~~2022d~~) predicts higher flows at the 2, 5, and 10-year return intervals during construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The higher the flow, the lower the probability and frequency of that flow occurring in any given year, so that very high flows, greater than the 10-yr or 20-yr events, are unlikely during the project construction period, though possible.

Higher flows during storm events could cause erosion and scour that would result in the loss of some large trees that could provide roosts for pallid bats (although no such roosts are known). However, such flows would occur primarily outside the maternity season, so that they would be unlikely to disturb maternity roosts. As described in Impact TERR-1c, larger flows would enhance the regeneration of riparian trees, including sycamores and cottonwoods that, when mature, could provide cavities large enough to support pallid bat roosts. Erosion and sedimentation resulting from high-flow events would also create more open foraging habitat for pallid bats.

Conservation Measures Construction

Pallid bats are not known to occur in the Conservation Measures Project Area. However, this species could forage in open habitats around the Ogier Ponds CM Area and Coyote Percolation Dam CM Area, and ~~Conservation Measures in~~ where maintenance of the North Channel Reach and ~~the~~ Live Oak Restoration Reach would occur ~~and other areas where fish-related habitat enhancements are proposed~~. Larger trees in these areas could possibly support roosts. If bats are roosting in trees within or near the Conservation Measures Project Area, they could be impacted in the same ways described above for tree roosts in the Seismic Retrofit construction area.

Conservation Measures include releases of imported water via the CDL and Cross Valley Pipeline Extension, which would help maintain groundwater levels and thus the aquatic, wetland, and riparian habitats along Coyote Creek and in North Coyote Valley that may be used by roosting or foraging pallid bats, or that support their prey.

The pallid bat is not a VHP-covered species. However, the VHP's vast conservation program conserves habitats, including forests, woodlands, and grasslands, that provide suitable roosting and foraging habitat for this species due to its breadth, both geographically and in terms of the diversity of habitat types to be conserved. Payment of VHP fees would thus contribute to a conservation program that benefits the pallid bat.

Construction Monitoring

Construction monitoring activities would have little effect, adverse or beneficial, on the pallid bat. To the extent this species might roost in riparian trees along Coyote Creek downstream from Anderson Dam or in North Coyote Valley, or forage in those areas, reduced Coyote Creek flow during Seismic Retrofit construction could affect the health of roost trees or reduce prey availability for pallid bats. During construction, Valley Water would monitor groundwater levels and continue to perform monitoring per the Dryback Monitoring Plan. Results of this monitoring would be used by Valley Water to determine whether creek flows need to be augmented to avoid adverse dryback effects on aquatic, wetland, or riparian habitats. Valley Water would compensate for any impacts on wetland, riparian, or aquatic habitat that are detected by dryback monitoring and that can be attributed to reduced creek flow due to Project construction by paying VHP fees for the impacts detected. Thus, no substantial adverse effects of reductions in creek flow on the pallid bat would occur.

Construction monitoring for water quality, fisheries monitoring and fish rescue, aquatic species rescue and relocation, invasive species monitoring and control, and other monitoring efforts could result in the disturbance of roosting pallid bats due to the noise and activity of monitoring personnel and equipment. However, such impacts would be localized and infrequent, and it is unlikely that bats would be substantially disturbed by such activities.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Analysis of the effects of post-construction FAHCE operations on pallid bats was performed relative to the Pre-FERC Order Baseline (2017 conditions) and WEAP-modeled Future Baseline (2035 conditions). After Seismic Retrofit construction is completed, refilling of the Anderson Reservoir will result in the inundation of the reservoir bed, which will reduce foraging habitat for pallid bats. However, ample foraging habitat will remain in the vicinity of the Cochrane Road roost site, in the form of grassland and other open habitats around the dam and reservoir. Post-construction operations would not result in substantial impacts on pallid bats' use of the Cochrane Road barn. Water releases from the dam would not affect these roosting bats, and maintenance activities would not occur close enough to the Cochrane Road barn to disturb these bats.

FAHCE flows are not expected to result in substantial impacts, either adverse or beneficial, on pallid bats. Flows under the FAHCE rule curves will be similar to those under 2017 conditions but possibly slightly lower, while FAHCE flows are likely to be slightly higher than under the WEAP-modeled Future Baseline. In general, FAHCE flows may entail slightly lower flow in winter and summer, due to retention of water in the reservoir for spring pulse flows, than either the Pre-FERC Order Baseline or Future Baseline, punctuated by the spring pulse flows described above. Such flows would not affect pallid bats or their roosting or foraging habitats.

Post-construction operations and maintenance of the Ogier Ponds CM and Coyote Percolation Dam CM will not result in substantial impacts on pallid bats. Maintenance of the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach could occasionally disturb roosting individuals, though such effects would be minor, localized, and infrequent, and would not impact large roosts. Maintenance of Anderson Dam facilities could result in increased noise in the vicinity of the Cochrane Road barn, though such impacts would be minor, localized, and infrequent and would not cause abandonment of the roost.

Adaptive management activities consist primarily of monitoring and potential adaptive management actions. Monitoring could result in the disturbance of roosting pallid bats due to the noise and activity of monitoring personnel and equipment. However, such impacts would be localized and infrequent, and it is unlikely that bats would be substantially disturbed by such activities. Impacts of adaptive management actions would likely be similar to those resulting from Conservation Measures and post-construction flows.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions will reduce impacts on the pallid bat. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Valley Water will implement BMPs HM-8, HM-9, HM-10, WQ-11, WQ-15, and WQ-16 to minimize the potential for hazardous materials and other pollutants to impact pallid bats and their food sources, and HM-12 will reduce the potential for fire to affect this species and its habitats. BMP WQ-4 limits impacts from staging and stockpiling activities. BMPs BI-8 and WQ-9 will reduce impacts on pallid bats' roosting and foraging habitats by avoiding competition between invasive plants and native vegetation. BMP BI-11 will minimize the attraction of predators that may prey on pallid bats. BMP BI-4 will minimize impacts of pesticides on nontarget species such as pallid bats.

Implementation of VHP Conditions 3, 4, 5, 7, and 11 will reduce the potential for and magnitude of impacts on pallid bats, their habitats, and their prey by minimizing impacts on stream, wetland, and pond habitats. These conditions require implementation of numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact these species and their habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on this species' habitats. VHP Condition 7 will entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation and revegetating with native plants or other appropriate plants.

Maintenance of Anderson Dam facilities will occur as part of the DMP and will employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources such as pallid bats and their habitats. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation, and **DMP Mitigation Measure Vegetation-6** requires restoration of vegetation that may have been lost due to dryback following dewatering. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes, which will avoid impacts to bat habitat from invasive plant species. **DMP Mitigation Measure Wildlife-4** prohibits the use of herbicides that are not excluded from the applicable injunction.

While these measures will reduce Project impacts on pallid bats, they would not eliminate disturbance of roosting pallid bats at the Cochrane Road barn, including during the maternity roost season (April 1 to August 31). The abandonment of the pallid bat maternity roost in the Cochrane Road barn, a substantial decline in the number of bats using that roost as a result of the Project, or the loss of multiple pallid bat individuals within an occupied roost (at any time of year) would be a substantial adverse effect and therefore a significant impact because this species' populations and available habitat are limited locally and regionally. Because the roost within the Cochrane Road barn is the largest and most stable known roost in the county, the loss of, or substantial decline in the number of individuals using, a roost in this barn or elsewhere in the Project vicinity would result in a substantial regional decline in this species' regional populations.

It is likely that currently unknown pallid bat roosts will benefit from the VHP's conservation program, and therefore Valley Water's contribution to that program through payment of impact fees would provide some benefit to pallid bat populations. However, because pallid bat populations in the county have been declining and the Anderson Dam population is the largest and most stable known to occur in the county, contribution to the VHP's conservation program will likely not adequately compensate for adverse impacts on the roosting bats at the Cochrane Road barn. Therefore, impacts on this species will likely not be adequately offset through VHP compliance alone. Project impacts on pallid bats would be substantial, and therefore significant. Valley Water will implement **Mitigation Measures TERR-1h(1)** to **TERR-1h(4)** to reduce impacts on individual pallid bats, the maternity roost site present in the Cochrane Road barn, and the population occupying this roost.

Implementation of **Mitigation Measure TERR-1h(1)** will reduce impacts on the pallid bats using the Cochrane Road barn roost. If adequate buffers are provided around the roost, then the pallid bat colony may persist on the site during and following construction. Implementation of **Mitigation Measure TERR-1h(3)** will further reduce the possibility that pallid bats may abandon the site and will provide further protection to this bat population by minimizing the potential for males and nonbreeding females outside the barn to be injured or killed during Project activities. Valley Water implementation of **Mitigation Measures TERR-1h(1)** and **TERR-1h(3)**, if fully implemented, will minimize the probability of colony abandonment or a substantial reduction in the size of the colony.

If Project activities during the maternity season cannot observe the buffers described in **Mitigation Measure TERR-1h(1)**, and especially if such activities must occur so close to the barn that bats must be evicted, then the risk of colony abandonment (or a substantial reduction in the number of females present in the colony) will be greater. Implementation of **Mitigation Measure TERR-1h(1)**, in conjunction with **Mitigation Measure TERR-1h(2)**, will avoid the abandonment of an active maternity colony during the maternity season. Bats evicted per **Mitigation Measure TERR-1h(2)** may find alternative roost sites; however, given the size of the roost at the Cochrane Road barn, it is unlikely that these bats will find commensurate habitat elsewhere, and the population of pallid bats in the county may be reduced substantially. Implementation of **Mitigation Measure TERR-1h(4)** will compensate for Project impacts if the number of females using available roosts after Project construction (i.e., the alternative roost structures and the barn, if it is not demolished) can be documented to be at least 75 percent of baseline numbers within 3 years following the completion of construction. The baseline for assessing the effectiveness of **Mitigation Measure TERR-1h(4)** is represented by the Existing Conditions Baseline, existing conditions modified by FOCP implementation; therefore, baseline numbers could consist of the most recent maternity-season survey tally (e.g., 105 females documented in June 2022) or the results of another survey conducted by Valley Water immediately after, or closer to the completion of, the FOCP. The standard for determining that **Mitigation Measure TERR-1h(4)** has adequately compensated for Project impacts is set at 75 percent of the population, rather than the entire population, because a reduction in colony size is likely to occur due to the residential development and subsequent loss of foraging habitat that is occurring in the area northwest of the barn, outside the Project Area, and due to inter-annual fluctuations in abundance of pallid bats at this roost site. Because of these fluctuations, and the possibility that pallid bats would return to the barn shortly after construction has been completed, determination of the post-construction number of pallid bats using this roost (and any alternative roost structure provided by Valley Water) would be based on surveys within three years following completion of construction. If pallid bat numbers are documented to be at least 75 percent of baseline numbers (as described previously in this paragraph) during any survey within 3 years following completion of construction, then the impact would be **less than significant**. Nevertheless, the Project could cause the number of females at this site to drop below 75 percent of existing numbers, and a substantial proportion of the regional population would have been affected. No other mitigation would be feasible to reduce this impact, as **Mitigation Measures TERR-1h(1)** to **TERR-1h(4)** represent the only feasible measures to reduce this impact, and because pallid bats are selective about their choice of roost sites, it is unknown whether pallid bats would use any alternative roost site provided under **Mitigation Measure TERR-1h(4)**. Therefore, this impact would be **significant and unavoidable**.

Mitigation Measures

TERR-1h(1) Avoid Disturbance of the Cochrane Road Barn Roost

The most important component of the pallid bat population near Anderson Dam is the offsite Cochrane Road barn in which the maternity colony is located. Measures to avoid and minimize disturbance of bats using the barn could avoid causing the abandonment of this roost. To the extent feasible (as determined by Valley Water’s Project engineer, based on their assessment of whether Project activities can proceed while implementing the appropriate measures during construction), Valley Water will implement the following measures during the maternity season (April 1 to August 31), if bats are using the barn in a given year:

- With the exception of vehicular use of Cochrane Road, Project-related activities, including staging of equipment and laydown of materials, will maintain a buffer from the barn of at least 65 feet for foot traffic; 90 feet for motor vehicles; 120 feet for operation of heavy equipment; 150 feet for trenching; 250 feet for idling equipment or generators; 250 feet for shielded lighting; and 400 feet for unshielded lighting.
- Lighting, both for construction and Project operations, will be directed away from the barn and designed to minimize any increase in lighting around the barn. Examples of design features that may be implemented to minimize lighting increases include shielding of lights, adaptation of light pole arm length and mast height to site-specific conditions, and placing light poles at non-standard intervals.
- All light-emitting diodes (LEDs) or bulbs installed for Project construction or operation will be rated to emit or produce light at or under 2700 Kelvin unless higher-Kelvin lighting is necessary for the particular activity being performed.

Fencing or other appropriate materials shall be placed around the Cochrane Road barn to indicate to construction personnel the limits of the buffers listed above. These measures can be relaxed (e.g., buffers reduced) if a qualified biologist, in consultation with the CDFW, determines that the risk to the colony of evicting the bats (per **Mitigation Measure TERR-1h(2)** below), so that they are not present in the barn during the maternity season, exceeds the risk of allowing Project activities to occur within buffers less than those described above. These measures will also be implemented, to the extent feasible (as determined by Valley Water's Project engineer, based on their assessment of whether Project activities can proceed while implementing the appropriate measures during construction), during the remainder of the year (September 1 to March 31) to avoid causing disturbance to the point that bats abandon the barn roost. Again, a qualified biologist, in consultation with CDFW, may determine that the risk to the colony of evicting the bats (per **Mitigation Measure TERR-1h(2)** below) exceeds the risk of allowing Project activities to occur within buffers smaller than those described above, allowing these measures to be relaxed.

A biological monitor will observe the Cochrane Road barn during initial activities conducted within the buffers described above, and periodically (weekly or more frequently) during Seismic Retrofit construction to determine whether there is any evidence that the colony is being disturbed by construction activities. If the biological monitor observes any such evidence of disturbance, the monitor will notify a qualified biologist who would determine (in consultation with CDFW) whether any feasible measures, such as increased buffers, can be implemented to avoid or reduce disturbance.

TERR-1h(2) Evict Pallid Bats prior to Initiating Maternity-Season Disturbance near the Cochrane Road Barn Roost

If prior to the maternity season it is determined by Valley Water's project engineer that it will not be feasible to maintain the buffers described in **Mitigation Measure TERR-1h(1)**, Valley Water may need to evict the bats roosting in the Cochrane Road barn prior to the maternity season to prevent abandonment of young (e.g., if construction starts during the maternity season) and to provide females with the opportunity to look for alternative, less disturbed roost sites in which to bear young. A qualified biologist retained by Valley Water (in consultation with CDFW) will determine, based on the type and level of disturbance that would occur during the upcoming maternity season, whether it is appropriate for the bats to be evicted or whether the proposed disturbance is of such a minor nature that eviction is unnecessary. In some circumstances, it may be preferable to allow roosting bats to continue using a roost while construction is occurring near the roost site. If it is determined that the risks to bats from eviction (e.g., increased predation or exposure, competition for roost sites, or long-term abandonment of the roost) are greater than the risk of colony abandonment, then the bats will not be evicted.

If the qualified biologist determines that eviction of bats is necessary to avoid abandonment of young, eviction will occur at night to decrease the likelihood of predation (compared to eviction during the day). Eviction will occur between September 1 and March 31, outside the maternity season. For example, if Valley Water and the qualified biologist determine that the Project activities planned for the upcoming maternity season are likely to disturb roosting bats to the point of causing abandonment of an active maternity colony, the bats will be evicted prior to the beginning of that maternity season. Eviction will not occur during long periods of inclement or cold weather (as determined by the qualified biologist) when prey is not available or bats are in torpor. Eviction activities will be planned by and performed under the supervision of a qualified biologist (in consultation with CDFW).

The precise eviction methods will be determined by the qualified biologist to minimize physical alterations of the Cochrane Road barn, recognizing its historical importance. Eviction may occur via removal of some of the boards on the barn to increase airflow through the barn, thereby reducing the suitability of thermal conditions within the roost. Alternatively, one-way doors may be installed in crevices being used for roosting to allow bats to exit the roost at night but not to re-enter. Following eviction, bat exclusion devices may be installed or left in place to prevent bats from taking up occupancy of the structure prior to the onset of the Project activities.

Exclusion devices may be removed after Project activities within the buffers described in **Mitigation Measure TERR-1h(1)** have reached their peak intensity in terms of level of activity of heavy equipment and night lighting, and proximity of those activities to the barn roost. At that point, removal of exclusion devices will allow those bats tolerant of such activities to resume use of the barn, without risk that activities will increase in intensity. Any exclusion devices in place when Project construction has been completed will be removed at that time.

TERR-1h(3) Minimize Impacts on Pallid Bats Roosting Outside the Cochrane Road Barn

Although the Cochrane Road barn is the center of activity for the female pallid bats associated with this roost, males likely roost during the day in smaller groups (or singly) in other locations nearby, and females may day-roost in other locations as well, particularly during the nonbreeding season. In addition, pallid bats could roost in trees outside the Seismic Retrofit Area, such as in the Conservation Measure Project Area. Because pallid bats may use a variety of such nonbreeding day-roosts, it is unknown which roosts may be occupied by pallid bats when Project activities disturb various locations. Therefore, Valley Water will implement measures during construction to minimize the likelihood of injury or mortality of individual pallid bats using roosts other than the Cochrane Road barn.

Prior to removal of any trees greater than 8 inches in diameter at breast height, a qualified biologist retained by Valley Water will inspect trees identified for removal for cavities, ~~or~~ crevices, or deep bark fissures that may be suitable for use by roosting pallid bats. If any trees contain such features, potential for bat presence will be presumed. All suitable roost trees will be ~~identified and~~ removed over a 2-day period under the supervision of a qualified biologist according to the following procedures. On the first day, the trees will be limbed but not entirely removed. In the afternoon, chainsaws will be used to remove tree limbs that do not contain suitable bat roosting habitat (e.g., cavities, crevices, and deep bark fissures); the disturbance and modification of the tree will discourage any bats roosting within from returning to the roost the next morning. On day 2, the rest of the tree with suitable roosting features will ~~can~~ be removed.

Similarly, prior to activities involving physical impacts on rock outcrops providing crevices suitable for roosting pallid bats, a qualified biologist will inspect the outcrops to identify suitable crevices. Depending on the locations and dimensions of the crevices, the qualified biologist will identify the most suitable means of encouraging bats to leave the crevices before rock outcrops are removed or destroyed. Examples of measures may include removal of portions of the outcrop, so that the disturbance and modification of the roost site discourages bats from returning once they have departed the roost; using bright, portable lights to illuminate the crevices, discouraging bats from returning to the crevices once they have exited; or installation of one-way doors in the crevices. Such measures will be implemented under the supervision of a qualified biologist.

Removal of potentially suitable bat roosting trees and eviction of bats from rock outcrops will not occur under unfavorable weather conditions (i.e., when nighttime temperatures are below 45°F or when it is rainy) and will occur outside the April 1-August 31 maternity season unless a qualified biologist surveys the trees or outcrops and determines that no maternity roost is present.

Similar preactivity surveys will be performed prior to any work within 120 feet of potential roost trees or rock outcrops for operation of heavy equipment; 150 feet for trenching; 250 feet for idling equipment or generators; 250 feet for shielded lighting; and 400 feet for unshielded lighting. Such surveys will be conducted by a qualified biologist within 2 weeks prior to the initiation of these activities near mature trees or structures that could provide suitable roost sites. If active pallid bat roosts are detected, the buffers, as described above, will be maintained during the maternity season. Outside the maternity season, the bats will be evicted under the direct supervision of the qualified biologist.

TERR-1h(4) Provide Alternative Pallid Bat Maternity Roost Structures

It is possible that Project disturbance, including construction activity and lighting near the Cochrane Road barn roost, the large-scale (albeit temporary) disturbance of foraging habitat on Anderson Dam, and/or eviction of bats per **Mitigation Measure TERR-1h(2)**, will cause the pallid bats to abandon the barn altogether or to return in reduced numbers. Therefore, if construction cannot comply with the buffers described in **Mitigation Measure TERR-1h(1)**, or if bats are evicted from the barn, Valley Water will provide an alternative bat roost and install it in an appropriate location near the Project Area at least six months prior to the initiation of Project construction or eviction of bats from the barn. A qualified biologist retained by Valley Water will design and determine an appropriate location for an alternative roost structure, based on the location of the original roost, habitat conditions in the vicinity, and areas of Project disturbance. The roost structure may be built to specifications determined by a qualified biologist or may be purchased from an appropriate vendor (although the qualified biologist must determine that the roost is appropriate for pallid bats). The bat roost structure will be installed in a location close to the barn but far enough from planned Project activities that Project construction is unlikely to disturb bats. The design and location of any alternative bat roost will be determined by the qualified biologist in coordination with CDFW.

Valley Water will monitor the alternative roost and the existing Cochrane Road barn for up to 3 years following Seismic Retrofit completion to determine use by bats. This mitigation measure will be deemed successful if at least 79 female pallid bats (or 75 percent of the highest number documented during the maternity season in any year between 2022 and start of construction, if additional monitoring is performed) are observed using a combination of the artificial roost and the barn following Project completion. Monitoring need not continue once this performance standard has been reached, even if 3 years of monitoring have not been completed. If by Year 3, at least 79 female pallid bats have not been recorded using a combination of the alternative roost structure and the barn, a qualified biologist, in consultation with CDFW, will identify alternative roost designs or locations for placement of the roost (or additional roost structures), and Valley Water will monitor the new roost structure(s) for an additional three years (or until the success criterion has been met, whichever occurs first).

Impact TERR-1i: Other special-status mammals (Less than significant)

Seismic Retrofit Construction

This impact analysis addresses special-status mammal species other than the pallid bat, including the San Francisco dusky-footed woodrat, mountain lion, ringtail, American badger, Townsend's big-eared bat, and western red bat.

The San Francisco dusky-footed woodrat nests and forages in all the forested, woodland, and scrub land cover types within the Seismic Retrofit Area. In addition, the species has been detected around boulders and rock outcrops on Basalt Hill and likely resides in crevices there. Seismic retrofit construction would result in the loss of 43.2 acres of suitable habitat for the species. In addition, construction could result in the injury or mortality of individual woodrats and disturbance or destruction of nests and young, leading to increased predation risk on woodrats flushed from nests, as a result of vegetation clearing and operation of equipment. However, the densities of woodrats observed in the Seismic Retrofit Area are low, even in high-quality habitat, based on surveys that have been conducted in that habitat (e.g., preactivity surveys for Project-related geotechnical activities and the FOCP). Therefore, the number of individuals and nests that would be disturbed is very low. Following completion of construction, vegetation in much of the impacted area would regrow over time.

The mountain lion, ringtail, American badger, Townsend's big-eared bat, and western red bat are not known or expected to breed in the Seismic Retrofit Area. However, all five species likely occur in the area as nonbreeders. The Seismic Retrofit Area could be part of the much larger territory of one or more mountain lions or badgers, and these species, as well as ringtails, may disperse into or through, or forage in, the area. Townsend's big-eared bats and western red bats may forage in the area, and small numbers of western red bats could roost in trees in the Seismic Retrofit Area. Virtually all of the land cover types in the Seismic Retrofit Area except reservoir and urban-suburban provide suitable habitat for these species, which may also forage in or over the bed of the drawn-down reservoir.

Seismic retrofit construction could impact all suitable habitat for these species within the Seismic Retrofit Area. Following completion of construction, vegetation in much of the impacted area would regrow over time. Construction would be unlikely to result in injury or mortality of individuals of the mountain lion, ringtail, American badger, or Townsend's big-eared bat, as no high-quality den or roosting habitat is present in the Seismic Retrofit construction area, and any individuals in the construction area would move away from heavy equipment or vehicles before they could be impacted. Western red bats could be roosting in trees when tree removal occurs, though in very low numbers, as this noncolonial species is present in the region only in low numbers during winter and migration; this foliage-roosting bat would also be able to fly away as soon as disturbance of the tree begins, and though daytime flushing of red bats would expose them to increased predation risk, the number of individuals that could be injured or killed as a result of predation attempts caused by Seismic Retrofit construction would be low.

Groundwater levels along Coyote Creek or in North Coyote Valley are not predicted to drop substantially as a result of operations during construction. Modeling performed by Valley Water predicted that there would be a reduction in groundwater recharge and storage during Seismic Retrofit construction relative to 2015 base conditions (when ~~interim seismic~~ restrictions limited reservoir capacity to 51,200 AF); however, groundwater storage is still predicted to be above Valley Water's 2021 Groundwater Management Plan storage target (Valley Water 2023a).

Nevertheless, reduced creek flow combined with drought conditions could result in adverse effects on riparian habitats or other vegetation used by these special-status mammals (e.g., for cover or foraging, and in the case of the woodrat, for nesting). Valley Water would be monitoring groundwater levels and dryback effects in North Coyote Valley throughout Seismic Retrofit construction, and would augment creek flows if necessary; therefore, no impacts on habitat for these special-status mammal species in North Coyote Valley are likely to occur.

Existing Conditions Baseline conditions for Seismic Retrofit construction allow for discharges from the dam of up to 2,500 cfs. During Seismic Retrofit construction, the reservoir's outlets would be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed. The magnitude of flow, and frequency of flows of a certain magnitude, will depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (2022c ~~2022d~~) predicts higher flows at the 2-, 5-, and 10-year return intervals during construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The higher the flow, the lower the probability and frequency of that flow occurring in any given year, so that very high flows, greater than the 10-year or 20-year events, are unlikely during the project construction period, though possible.

Higher flows during storm events could inundate riparian habitat supporting woodrat nests, or used by the mountain lion, ringtail, and American badger for cover or foraging, and though these species would be able to move to higher ground in response to rising water levels, they would temporarily lose the use of that habitat, and such displaced individuals would be subject to increased predation risk or vehicular mortality. Woodrat nests could be lost to such inundation. However, such habitat modifications would allow regeneration of riparian trees such as cottonwoods, willows, and sycamores, as described in Impact TERR-1c. Thus, the habitat modifications resulting from such high flows and related inundation of habitat along Coyote Creek would help to rejuvenate the riparian corridor along Coyote Creek and maintain habitat heterogeneity that supports a diverse avian community.

Conservation Measures Construction

San Francisco dusky-footed woodrats also nest at Ogier Ponds and along Coyote Creek downstream from Anderson Dam, such as within the North Channel Reach and Live Oak Restoration Reach maintenance areas ~~Extension Area.~~ In these areas, woodrats nest in dense mixed riparian forest and woodland, willow riparian forest and scrub, and coast live oak forest and woodland. As is the case at Anderson Dam, this species occurs in relatively low densities in these areas. Woodrat nests have not been detected at the Coyote Percolation Dam CM Area but could possibly be present in low numbers. The mountain lion, ringtail, American badger, Townsend's big-eared bat, and western red bat may use habitats at Ogier Ponds and along Coyote Creek downstream from Anderson Dam, such as within the North Channel Reach and Live Oak Restoration Reach maintenance areas ~~Extension Area~~, for dispersal habitat; they are less likely to occur at the Coyote Percolation Dam CM Area due to its more urban surroundings to the west and the presence of US 101 to the east. To the extent that these species are present in (or occasionally use) the areas where Conservation Measures construction will occur, these species and their habitats could be impacted by implementation of Conservation Measures in the same ways described for Seismic Retrofit construction above.

Conservation Measures include release of imported water via the CDL and Cross Valley Pipeline Extension, which would help maintain groundwater levels and thus the aquatic, wetland, and riparian habitats along Coyote Creek and in North Coyote Valley that may be used by these special-status mammals.

None of these mammals is a VHP-covered species, although the mountain lion and American badger are under consideration for inclusion as VHP-covered species in the upcoming VHP amendment. However, the VHP's vast conservation program conserves habitats, including a variety of grassland, scrub, woodland, and forest habitats, that support large populations of woodrats and provide suitable habitat for the other mammal species, due to its breadth, both geographically and in terms of the diversity of habitat types to be conserved. Payment of VHP fees would thus contribute to a conservation program that benefits all these special-status mammals.

Construction Monitoring

Construction monitoring for water quality, fisheries monitoring and fish rescue, aquatic species rescue and relocation, invasive species monitoring and control, and other monitoring efforts could result in the disturbance of woodrats and their nests, as well as individuals of the other mammal species, due to the noise and activity of monitoring personnel and equipment. Such impacts would be localized and infrequent, and they would not result in the loss of woodrat nests or suitable habitat for any of these species.

Reduced Coyote Creek flow during Seismic Retrofit construction could affect the health of riparian habitat that may be used by these species. During Seismic Retrofit construction, Valley Water would monitor groundwater levels and continue to perform monitoring per the Dryback Monitoring Plan. Results of this monitoring would be used by Valley Water to determine whether creek flows need to be augmented to avoid adverse dryback effects on aquatic, wetland, or riparian habitats. Valley Water would compensate for any impacts on wetland, riparian, or aquatic habitat that are detected by dryback monitoring and that can be attributed to reduced creek flow due to Project construction by paying VHP fees for the impacts detected. Thus, no substantial adverse effects of reductions in creek flow on these special-status mammals would occur.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Analysis of the effects of post-construction FAHCE operations on these special-status mammals was performed relative to the Pre-FERC Order Baseline (2017 conditions) and WEAP-modeled Future Baseline (2035 conditions). FAHCE flows are not expected to result in substantial impacts, either adverse or beneficial, on these mammals. As described previously in the general discussion of Project impacts on terrestrial biological resources, flows under the FAHCE rule curves will be generally similar to, ~~those under 2017 conditions~~ but possibly slightly lower than the Pre-FERC Order Baseline Conditions, while FAHCE flows are likely to be slightly higher than under the WEAP-modeled Future Baseline. In general, FAHCE flows may entail slightly lower flow in winter and summer, due to retention of water in the reservoir for spring pulse flows, than either the Pre-FERC Order Baseline or Future Baseline, punctuated by the spring pulse flows described above. There is some potential for spring pulse releases to disturb woodrat nests, though most nests would be outside/above the areas inundated, and such flows will be relatively brief (and not particularly high, from the perspective of inundation of these mammal species' habitats). Changes in creek temperature as a result of post-construction operations would not have a substantial effect on special-status mammals.

Post-construction operations of the Ogier Ponds CM and Phase 2 Coyote Percolation Dam Project will not result in substantial impacts on these mammals, though the Ogier Ponds CM would provide vegetation that may be used as nesting and foraging habitat by woodrats, roosting habitat by western red bats, and foraging habitat and cover during dispersal by mountain lions, badgers, and ringtails.

Maintenance of Anderson Dam facilities and Conservation Measures, including maintenance of the North Channel Reach and Live Oak Restoration Reach, could disturb woodrat nests, either due to physical impacts to nests that are constructed in vegetation requiring maintenance or due to disturbance from noise or activity of maintenance personnel and equipment. The number of nests likely to be disturbed would be low, however, given the low densities at which woodrat nests occur in these areas under Existing Conditions Baseline conditions and the fact that maintenance will occur in areas that were previously disturbed by construction. Maintenance could result in disturbance of roosting western red bats and foraging or dispersing individuals of any of these special-status mammal species, though such disturbance would occur infrequently and affect few individuals given the scarcity of all these species in the Project Area.

Adaptive management activities consist primarily of monitoring and potential adaptive management actions. There is some potential for field monitoring activities to disturb roosting western red bats and foraging or dispersing individuals of any of these special-status mammal species, though again, such disturbance would occur infrequently and affect few individuals. Impacts of adaptive management actions would likely be similar to those resulting from Conservation Measures and post-construction flows.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts on the San Francisco dusky-footed woodrat, mountain lion, ringtail, American badger, Townsend's big-eared bat, and western red bat. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Valley Water will implement BMPs HM-8, HM-9, HM-10, WQ-11, WQ-15, and WQ-16 to minimize the potential for hazardous materials and other pollutants to impact special-status mammals and their food sources, and HM-12 will reduce the potential for fire to affect these species' habitats and food. BMP WQ-4 limits impacts from staging and stockpiling activities. BMPs BI-8 and WQ-9 will reduce impacts on special-status mammal habitats by avoiding competition between invasive plants and native vegetation. BMP BI-11 will minimize the attraction of predators that may prey on these mammals. BMP BI-4 will minimize impacts of pesticides on nontarget species such as nonbreeding mammals and their food sources. BMP BI-10 will avoid entrapment of special-status mammals in pipes, hoses, pits, or trenches during construction.

VHP Conditions 3, 4, 5, 7, and 11 will reduce the potential for and magnitude of impacts on special-status mammals, their habitats, and their food sources by minimizing impacts on stream, wetland, and pond habitats. These conditions require implementation of numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact these species and their habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on these species' habitats. VHP Condition 7 will entail minimizing ground disturbance and vegetation removal, stabilizing soils to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants.

Maintenance of Anderson Dam facilities would occur as part of the DMP and would employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources such as special-status mammals and their habitats. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation, and **DMP Mitigation Measure Vegetation-6** requires restoration of vegetation that may have been lost due to dryback following dewatering. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes, which would avoid impacts to mammal habitat from invasive plant species. DMP **Mitigation Measures Wildlife-11** and **Water Quality-1** and BMP BI-7 will reduce the potential for predatory mammals to be poisoned by rodents that have ingested pesticide, and **<u>DMP</u> Mitigation Measure Wildlife-4** prohibits the use of herbicides that are not excluded from the applicable injunction.

Based on the low abundance of San Francisco dusky-footed woodrat nests observed in the Project Area, the number of individuals and nests of this species that would be impacted is low. The San Francisco dusky-footed woodrat is regionally common, reaching very high densities in some areas, and therefore the number of individuals that could be affected by the Project represents a very small proportion of the regional populations of this species. As a result, this effect does not reach the threshold for a substantial reduction in this species' regional populations, and the impact on San Francisco dusky-footed woodrat would therefore be less than significant.

The mountain lion, ringtail, American badger, Townsend's big-eared bat, and western red bat would be impacted in very low numbers, and with the exception of possible predation of western red bats flushed during tree removal, it is unlikely that any Project activities would result in injury or mortality of individuals. Furthermore, the Project would not result in substantial long-term impacts on habitat used by these species. Impacts on these species would not be substantial, and therefore would be less than significant.

These special-status mammals would also benefit from the VHP conservation program, to which Valley Water would contribute VHP impact fees for all land cover types that provide suitable habitat within the Project Area. Based on the above analysis, impacts on the San Francisco dusky-footed woodrat, mountain lion, ringtail, American badger, Townsend's big-eared bat, and western red bat would not be substantial, and would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact TERR-1j: San Francisco Bay special-status species (Less than Significant with Mitigation)

Seismic Retrofit Construction

Two special-status plant species, alkali milk vetch and Point Reyes bird's beak, could occur in tidal marshes of the expanded study area along lower Coyote Creek/Coyote Slough that may be subject to increased flow frequency and magnitude, and sediment deposition, during Seismic Retrofit construction. However, due to the complete lack of any recent records of those species from the Coyote Creek/Coyote Slough area, the probability of their occurrence in these areas is very low. Their potential presence is assumed solely because the tidal areas of the expanded study area have not been thoroughly surveyed for those species.

In addition, a number of special-status animals are known to inhabit tidal and nontidal habitats along lower Coyote Creek and Coyote Slough, which may be subject to increased flow frequency and magnitude and sediment deposition during Seismic Retrofit construction, but are absent from other areas subject to Project impacts. These species are the California Ridgway's rail, California black rail, Alameda song sparrow, San Francisco common yellowthroat, Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), salt marsh harvest mouse, and salt marsh wandering shrew (*Sorex vagrans halicoetes*).

Nonbreeding northern harriers forage in the Seismic Retrofit Area and Conservation Measures Project Area, but this species is considered a California SSC only when nesting. It may nest in North Coyote Valley, and it is addressed in Impact TERR-1f above in the context of nonbaylands breeding bird species that may be impacted by the Project. In addition, it nests commonly in tidal marshes along lower Coyote Creek, where it could be affected by increased flow frequency and magnitude, and sediment deposition, during Seismic Retrofit construction.

The California least tern (*Sternula antillarum browni*) also uses baylands habitats, but it would not be present along Coyote Slough during the time of year when Seismic Retrofit-related increases in frequency and magnitude of flows or sediment mobilization would occur (as discussed in **Table 3.5-5**), so it would not be impacted by the Project and is not discussed further.

Aside from the northern harrier (discussed in Impact TERR-1f above), Project activities would have little to no direct impacts on any of these baylands-associated special-status plant or animal species, as they do not breed or forage in or very close to the Seismic Retrofit Area. Even activities that could reduce water quality in Coyote Creek, such as spills of fuel or chemicals during construction, are unlikely to have a substantive effect on tidal marsh species given the dilution that would occur between construction areas and tidal marshes. However, during Seismic Retrofit construction, these species could be impacted by increased frequency and magnitude of flows, effects of such increased flows on the salinity of tidal marshes and tidal marsh vegetation, and deposition of sediment mobilized from the reservoir. During Seismic Retrofit construction, the reservoir's outlets would be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed. The magnitude of flow, and frequency of flows of a certain magnitude, will depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (2022c ~~2022d~~) predicts higher flows at return intervals greater than about the 2-year return interval during construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The higher the flow, the lower the probability and frequency of that flow occurring in any given year, so that very high flows, greater than the 10-year or 20-year events, are unlikely during the project construction period, though possible.

Valley Water (2023c ~~2022e~~) modeled potential effects of construction-period flows on tidal habitats along lower Coyote Creek and Coyote Slough in natural habitats. This modeling assumed that higher flows through Anderson Dam, taken from the memo used to compare construction-period flows through the dam with Pre-FERC Order Baseline flows (Valley Water 2022c ~~2022d),~~ would be coupled with tide height equaling mean higher-high water (MHHW) to represent the conditions that would occur if higher flows down Coyote Creek coincided with high tides.

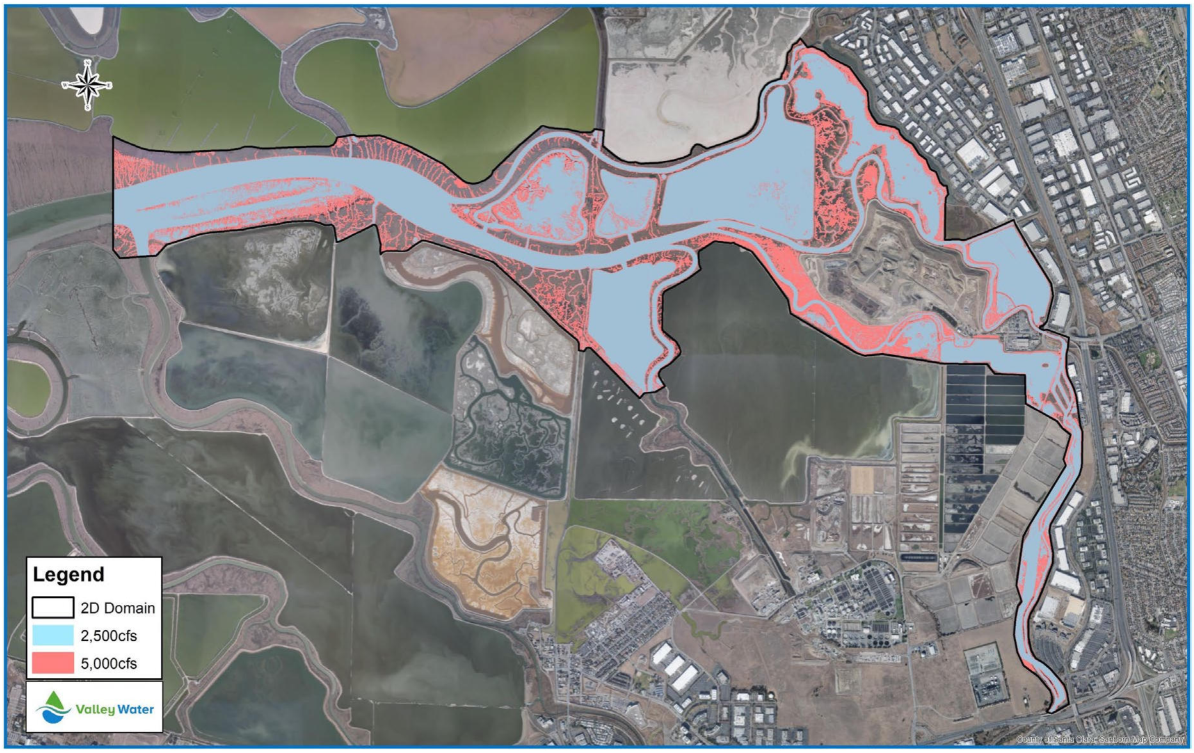
In addition to input of water flowing through Anderson Dam, there are 125 square miles of watershed downstream from Anderson Dam that would contribute water to Coyote Creek that eventually reaches tidal habitats (Valley Water 2023c ~~2022e~~). Storms that result in higher flows through Anderson Dam are likely to cause additional runoff entering Coyote Creek from the rest of the watershed. For example, during a late December 2022 storm, Anderson Dam was releasing water at a rate of 500 cfs, but Coyote Creek flows at CA-237 (just upstream from the uppermost tidal areas) were above 2,000 cfs (USGS). Thus, Anderson Dam contributes only a portion of the water that reaches tidal areas of Coyote Creek; the exact proportion provided by flows through Anderson Dam varies according to variability in rainfall and runoff among locations within the Coyote Creek watershed. For the purposes of the modeling performed for this tidal impact analysis, Valley Water (2023c ~~2022e~~) assumed that 2,000 cfs would be a baseline flow in Coyote creek that would reasonably occur without dam influence. This is based on historic stream gage data (USGS). Valley Water's analysis only considered the effects of flow through Anderson Dam during Seismic Retrofit construction on tidal habitats above the 2,500 cfs flow threshold (Valley Water 2023c ~~2022e~~).

Analyzing flows at 5-, 10-, 20- to 25-, and 50- to 100-year return intervals, Valley Water's modeling predicted that the extent of inundated floodplain (i.e., tidal marsh), beyond post-FOCP baseline conditions, would increase by approximately 68 acres (during the 5-year event) to 155 acres (during the 50- to 100-year event). Predicted acreage of additional inundation was 86 acres during the 10-year event and 121 acres during the 20- to 25-year event. These scenarios represented an increase in inundation ranging from 4.3 to 9.7 percent of the entire tidal floodplain in the expanded study area. Water surface elevation (i.e., depth) was predicted to increase more in the uppermost limits of tidal action, from CA-237 downstream to the confluence of Lower Penitencia Creek with Coyote Creek. Downstream from Lower Penitencia Creek (i.e., in the areas where baylands species could potentially occur), water surface elevation was predicted to increase by approximately 0.15 to 0.75 feet (during the 5-year flow) to 0.4 to 2 feet (during the 50 to 100-year flow), with intermediate increases during the 10- and 20- to 25-year flows.

Figure 3.5-12. ~~3.5-11~~ Modeled inundation change in tidal areas from the construction baseline condition (maximum Coyote Creek prevailing local flow of 2,500 cfs) to 3,500 cfs, representing a 5-year event passed through Anderson Dam during Seismic Retrofit construction.

Source: Valley Water (2022 e)

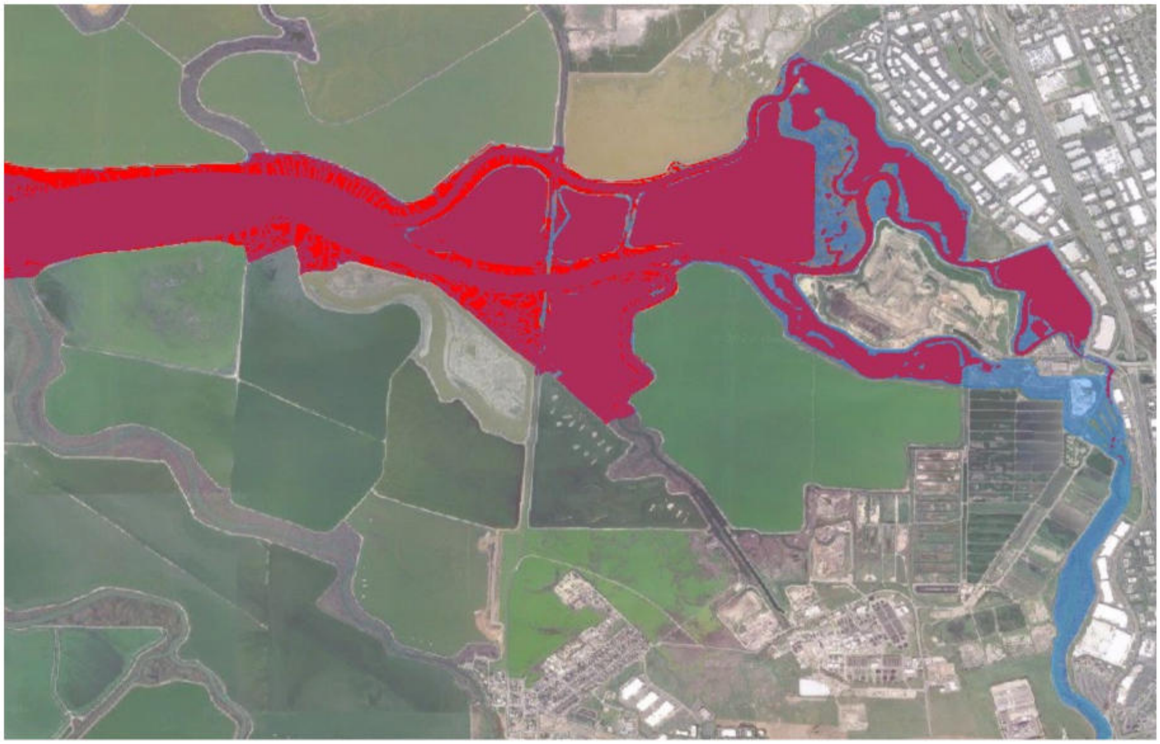
Figure 3.5-13. ~~3.5-12~~ **Modeled inundation change in tidal areas from the construction baseline conditions (maximum Coyote Creek prevailing local flow of 2,500 cfs) to 5,000 cfs, representing a 50- to 100-year event passed through Anderson Dam during Seismic Retrofit construction.**



Source: Valley Water (2022d ~~2022e~~)

To provide a familiar basis for comparison, Valley Water (2023c ~~2022e~~) also modeled inundation resulting from a January 2022 king tide event with no creek flow. This was overlaid with inundation that would occur from a 50-100-year flow passed through Anderson Dam with MHHW and shown in **Figure 3.5-14** ~~**Figure 3.5-13**~~.

Figure 3.5-14. ~~3.5-13~~ Modeled inundation of tidal areas from a January 2022 king tide (red) vs. the inundation from a 50- to 100-year flow event (5,000 cfs) passed through Anderson Dam during Seismic Retrofit construction (blue).



Source: Valley Water (2023c ~~2022e~~)

As indicated in **Figure 3.5-12** ~~**3.5-11**~~ and **Figure 3.5-13** ~~**3.5-12**~~, most of the areas affected by higher flows through Anderson Dam outlets are subtidal and intertidal habitats that are not currently vegetated. Most of the tidal marsh that would be inundated by such flows is located in the upper tidal reaches, such as in the Warm Springs Marshes, South Coyote Slough, and the Reach 1A Bypass area (all around the Newby Island Landfill). Less inundation of tidal marsh would occur farther downstream. Similarly, compared to areas inundated during a recent (January 2022) king tide, the additional areas that would be inundated by a 50- to 100-year event are concentrated in the upper tidal reaches (**Figure 3.5-14** ~~**3.5-13**~~). These marshes that would be inundated by flows from Anderson Dam during storm events support baylands species such as salt marsh harvest mice, salt marsh wandering shrews, California Ridgway's rails, California black rails, Alameda song sparrows, San Francisco common yellowthroats, and Bryant's savannah sparrows. In addition, 50- to 100-year flows would inundate some high-marsh and ecotone habitat further downstream, around the edges of the Island Ponds and along the railroad tracks, that would not be inundated during the king tide analyzed in **Figure 3.5-14** ~~**3.5-13**~~. Thus, 50- to 100-year flows would inundate some habitat used by tidal marsh species to escape rising water levels. Twenty- to 25-year flows would not inundate most of the high marsh and ecotone habitat in these tidal areas.

Seismic Retrofit-related increases in magnitude of flows, and frequency of higher flows, could impact the baylands animal species present along lower Coyote Creek and Coyote Slough. California Ridgway's rails, California black rails, salt marsh harvest mice, and salt marsh wandering shrews may have to move to higher ground or seek refuge in dense vegetation during high-flow events, particularly if they coincide with lunar high tides (e.g., king tides). These animals are particularly susceptible to predation during such events as they are forced to move into more exposed areas and to upland edges. Therefore, increased predation on rails, salt marsh harvest mice, and salt marsh wandering shrews could occur as a result of higher flows through Anderson Dam during Seismic Retrofit construction. Such effects would be greater with larger flows, as more of the tidal marsh would be inundated, yet the probability of such flows decreases with increasing rate of flow. Therefore, more limited areas of marsh would be inundated during the lower, higher-probability flows. Also, these species have evolved with exposure to high water levels from high fluvial flows and tidal flooding. As water levels ramp up, these tidal marsh species would move to higher ground and refugia in vegetation to avoid predation. Some predation would still occur, though (e.g., **Figure 3.5-14** ~~3.5-13~~ shows inundation of some ecotonal, high-tide refugial habitat), and the short-term (construction-period) effects of higher flows could lead to increased predation and loss of individuals of these species. California Ridgway's rail numbers are lower in the upper tidal reaches that would be affected most by higher flows during Seismic Retrofit construction than in lower reaches that would be affected least. Salt marsh harvest mice may breed March to November. Although the species has evolved with exposure to high wet-season flows, and thus it is unlikely to breed in numbers during the wet season, high flows during the period March-November could inundate nests of this species.

The Alameda song sparrow, San Francisco common yellowthroat, and Bryant's savannah sparrow are more mobile than rails or small mammals, being much more willing to seek refuge from high water in vegetated areas outside (upslope from) the marsh. Although these species would be displaced by high water, they would be less susceptible to increased predation risk than the rails or small mammals would be. Northern harriers would not be adversely affected, as they would likely take advantage of high-flow events to hunt for small birds and mammals exposed by high water.

Flows high enough to cause these tidal marsh-associated animals to be exposed to increased predation risk occur infrequently (with the magnitude of the flows inversely proportional to frequency of occurrence), so the likelihood and magnitude of any adverse effect of high flows on these species during the 7-year Seismic Retrofit construction period is not high. Nevertheless, the probability that a 20-year flow event will occur within the 7-year construction period is 30 percent.

Because the California Ridgway's rail, California black rail, Alameda song sparrow, San Francisco common yellowthroat, and Bryant's savannah sparrow have evolved in and near tidal marsh habitats subject to inundation from storm events and king tides, they are unlikely to have active nests in tidal marsh during the winter and early spring period when Seismic Retrofit-related increases in flows are most likely to occur. However, if a mid/late spring storm event were to occur and flows through Anderson Dam were substantially higher than Existing Conditions Baseline conditions, active nests of the California Ridgway's rail, California black rail, Alameda song sparrow, San Francisco common yellowthroat, and Bryant's savannah sparrow could be lost to inundation. Such an event has an extremely low probability, however.

If alkali milk vetch or Point Reyes bird's beak is present in marshes subject to increased frequency and magnitude of flows during Seismic Retrofit construction, individuals could be adversely affected as a result of inundation. However, these species are adapted to some inundation, having evolved in wetlands, and therefore mortality may not occur. Also, these are high-marsh species that would be subjected to inundation at a lower depth, velocity, and duration than areas closer to intertidal habitats. Therefore, it is unlikely that increased inundation as a result of higher flows through Anderson Dam during construction would adversely affect these two plant species.

In summary, the dam's outlets will be managed during Seismic Retrofit construction in such a way as to potentially result in increased frequency, depth, and/or duration of inundation of tidal marsh habitats far downstream from the dam. Such increased inundation would reduce the vegetative cover available to special-status species associated with San Francisco Bay tidal marshes, increasing predation of special-status tidal marsh animals that have to seek out more limited patches of vegetation that is not inundated. Such impacts would be infrequent and would occur only during the construction period.

The potential for increased flows during Seismic Retrofit construction to modify the salinity of water and sediment in tidal marshes, and thus the species composition of tidal marshes, was also assessed. Monitoring bay salinity, the USGS (Schemel 1998) concluded that large storm events can result in reductions in salinity in San Francisco Bay as a result of increased input from local (South Bay) streams and from the Sacramento/San Joaquin River Delta. Monitoring plant communities in South Bay marshes from 1989 to 2012, H. T. Harvey & Associates (2012) documented the dynamic nature of tidal marsh plant associations, with vegetation in certain areas becoming dominated by plant species associated with higher salinity in some years and changing to more brackish species associated with moderate or lower salinity in other years. They concluded that changes in dominant tidal marsh plant species among years is primarily a result of the effects of variability in freshwater runoff on plant species having differing tolerances to salinity. Following years of higher runoff, the extent of brackish-marsh plant species such as alkali bulrush expands at the expense of species associated with higher-salinity marshes such as pickleweed. Following drier years, the reverse occurs. Because the salt marsh harvest mouse and California Ridgway's rail are typically associated with more saline marshes, changes in dominant tidal marsh plant species composition as a result of increased freshwater inputs during Seismic Retrofit construction could potentially degrade habitat quality in marshes along lower Coyote Creek by reducing the extent of salt marsh and increasing the extent of brackish marsh.

However, the Project would not result in a substantial impact on special-status tidal marsh species as a result of the potential for increased freshwater input during construction, for a number of reasons. The most important contribution to salinity in the South Bay, including lower Coyote Creek, comes from input from the Sacramento/San Joaquin Delta (H. T. Harvey & Associates 2012). During wet years and large storm events when flows through Anderson Dam are higher, runoff through the Delta is also expected to be higher, so that the influence of freshwater inputs from Coyote Creek on South Bay salinity will always be lower than the influence from the Delta. The amount of fresh water reaching tidal habitats along lower Coyote Creek would not differ between baseline conditions and conditions during Seismic Retrofit construction; rather, it is the magnitude of flows during storm events that could increase during construction. The total volume of fresh water passing through Anderson Dam and reaching tidal habitats along lower Coyote Creek would depend on the weather, not on dam management during construction.

Special-status tidal marsh species, such as the salt marsh harvest mouse and California Ridgway's rail, are able to use a variety of tidal marsh plant associations, and while these species are most closely associated with marsh dominated by plants associated with higher-salinity marshes, they also use brackish marsh vegetation (H. T. Harvey & Associates 1990, 2007c; Shellhammer et al. 2010; Sustaita et al. 2011; Smith 2019). As a result, changes in the distributions of dominant plants as a result of changes in runoff are unlikely to result in substantial reduction in populations of these tidal marsh animals. Finally, any effects of increased freshwater inputs resulting from management of the dam’s outlets during construction would be short-term impacts, occurring only during, and possibly immediately following, Seismic Retrofit construction. Monitoring of marsh vegetation has documented that plant associations change relatively quickly (e.g., over a year or two) in response to variability in freshwater runoff and salinity, so any minor effects of increased freshwater inputs resulting from Seismic Retrofit construction would not last for more than a year or two following completion of construction. Because all the tidal marsh-associated special-status animals and plants considered in this impact assessment have evolved under conditions in which tidal marsh salinity varies among years based on climatic variability and freshwater inputs from Bay tributaries, none of these species would be impacted substantially by potential short-term changes in freshwater inputs from Coyote Creek during Seismic Retrofit construction.

During Seismic Retrofit construction, sediment that has accumulated in the bed of Anderson Reservoir may be mobilized downstream. When this sediment is covered by reservoir water, as under normal conditions when the reservoir is filled, they are not easily eroded. However, when the reservoir has been dewatered, sediment would be more subject to erosion from rainfall runoff and from the reservoir’s tributaries. Modeling of sediment mobilization under various scenarios of storm events and reservoir water levels by URS ~~AECOM~~ (2021) concluded that maximum sediment mobilization would occur if back-to-back 2-year rainfall events (i.e., events that have a 50 percent likelihood of occurring in any given year), or a single 5-year event (with a 20 percent likelihood of occurring in any given year), were to occur when little water was present in the reservoir and sediments are exposed. During those events, flows would be high enough to erode large amounts of sediment from the reservoir (approximately 167,000 tons per event) but not so high as to fully cover the sediments with water, which would reduce their erosivity. Less sediment would be mobilized during lower-magnitude, more frequent flows, during flows that occur when the reservoir has temporarily filled to contain more water and cover more sediment, or during higher flows that quickly cover sediment in the reservoir with water.

To predict the effects of such sediment mobilization on species using tidal baylands along lower Coyote Creek and Coyote Slough, the modeling efforts also estimated sediment deposition in tidal habitats along lower Coyote Slough. Under normal conditions, average sediment loads carried by the tides in the vicinity of the Island Ponds (approximately midway between the upper limits of tidal action along Coyote Creek and the mouth of Coyote Slough that serves as the lower end of the action area) are approximately 500 tons per tide cycle (or 1,000 tons per day) with peak daily loads of over 2,000 tons per day (over two tide cycles) (URS ~~AECOM~~ 2021). Thus, the tidal marshes, aquatic habitats, and mudflats in the study area are dynamic features, exposed to considerable sediment flux even in the absence of sediment mobilization from Anderson Reservoir. Nevertheless, sediment mobilized from the reservoir and carried to tidal habitats along lower Coyote Creek/Coyote Slough would result in some deposition in these habitats. **Table 3.5-10** provides estimates of the amount of sediment that would be deposited in low intertidal zones (e.g., the lower limits of mudflats) in four locations within the action area under different storm scenarios. The amount of sediment mobilized would be less than any of the predictions in **Table 3.5-10** during storm events of greater frequency and lower magnitude (e.g., 1-year events).

Within tidal habitats at the lowermost end of Coyote Creek and in Coyote Slough, maximum deposition of up to 6.46 inches of sediment in lower intertidal areas near the Warm Springs Wetlands, could occur during a 2-year, double peak storm event that occurs over 4.8 days when the reservoir has been dewatered during Seismic Retrofit construction. The depth of deposition would decrease along an upstream-downstream gradient within the baylands, being very low under all scenarios near the mouth of Coyote Slough. In addition, the depth of deposition would decrease with increasing elevation, so that the upper intertidal zone would experience less deposition than is indicated in **Table 3.5-10**, and deposition would be even less in the high marsh; in other words, sediment deposition in tidal areas is greatest in sloughs and channels providing aquatic, subtidal habitats, and intertidal mudflats, and least in vegetated tidal marsh. Whereas the modeling results assume deposition rates under very low-flow, inactive conditions, the flow velocities associated with events that transport large amounts of sediment downstream would be higher, and actual depths of deposition would therefore be lower because some sediment would continue to be carried downstream. Also, subsequent flows with lower sediment loads would wash some of the deposited sediment away, so that these sediment depths would not represent the magnitude of long-term increases in depth/elevation. Therefore, the depth of sediment actually deposited in vegetated marshes during a given flow event would be lower than indicated in **Table 3.5-10**.

Sediment mobilization during Seismic Retrofit construction provides a means of moving much-needed sediment to marshes. The historical urbanization and the presence of Coyote Dam and Anderson Dam have reduced the volume of sediment that would otherwise have been carried downstream in unmodified conditions. Due to sea level rise, sediment accumulation in marshes is important to help vegetated marshes remain at elevations, relative to a rising sea. Delivering increased sediment to the Bay's marshlands has been identified by several regional agencies as a priority for long-term marsh resilience in light of rising sea levels.

Table 3.5-10. Project Depth of Sediment Deposition (per Event) in Low Intertidal Zones of Quiescent and Slow-Moving Areas in Coyote Creek Estuary

Scenario	**1**	**2**	**3**	**4**	**5**
Flow Condition	2-Year Event	2-Year Event	2 ½-Year Event	2-Year Double Peak	5-Year Event
Reservoir Elevation (feet)	490 ~~488~~	Empty	Empty	467	467
Duration (days)	8.5	4.5	4.0	4.8	5.9
Location	**Projected Depth of Deposition (inches)**				
Warm Springs Wetland	0.28	2.06	0.44	6.46	2.69
Above Island Ponds	0.24	1.59	0.40	5.50	2.31
Above Mud Slough Junction	0.11	0.65	0.11	2.31	0.90
Near Mouth	<0.01	0.04	<0.01	0.20	0.10

Source: URS ~~AECOM~~ 2021

In addition, the South Bay Salt Ponds Restoration Project is restoring former salt ponds to tidal habitats, yet most ponds are, upon breaching, below elevations that would allow colonization and persistence of marsh vegetation. Sediment deposition is necessary to elevate these marshes to the point that they can be colonized by marsh vegetation. According to the tidal marsh recovery plan (USFWS 2013 ~~2016~~), "The effects of rising sea levels on tidal marshes are dependent upon the relative rate of sea level rise versus rates of sedimentation and accretion of the marsh surface. Unless a balance between sedimentation/accretion and erosion/subsidence is met that equals or exceeds the rate of sea level rise, there will be a net loss of tidal marsh habitat." Thus, by helping to elevate tidal habitats in the lower Coyote Creek/Coyote Slough area, sediment mobilization from Anderson Reservoir would contribute to the establishment of vegetated marshes in breached ponds such as the Island Ponds and Pond A6 and help existing marsh to be maintained in the face of sea level rise, thus helping to maintain suitable habitat for the alkali milk vetch, Point Reyes bird's beak, and baylands-associated animals. However, the extent of sediment mobilization from Anderson Reservoir that reaches tidal marshes is unknown.

If alkali milk vetch or Point Reyes bird's beak is present in marshes subject to increased sediment deposition during Seismic Retrofit construction, individuals could be adversely affected as a result of smothering by sediment. However, as noted in the discussion of inundation above, these species are adapted to some inundation and sediment deposition, having evolved in wetlands, and therefore mortality may not occur. Also, these are high-marsh species that would be subjected to less sediment deposition than areas closer to intertidal habitats. Sediment deposition would have a long-term beneficial effect on these species, if they are present.

Aside from inundation, sediment deposition associated with the Seismic Retrofit construction may have short-term, minor adverse effects and long-term beneficial effects on these baylands animal species. California Ridgway's rails and California black rails forage primarily on invertebrates, though Ridgway's rails may also take small vertebrates (Albertson and Evens 2000). Ridgway's rails feed in higher intertidal areas (e.g., mudflats), usually close to the cover of vegetated marshes, though they forage within marsh vegetation as well, and black rails forage almost exclusively within the cover of vegetation. Sudden deposition of several inches of sediment could reduce foraging efficiency by covering prey, which may adversely affect the prey and reduce their availability by making it harder for rails to reach them. However, because many of the rails' prey are benthic burrowers living in a dynamic environment, these invertebrates are able to adapt to sediment deposition, and no large-scale or long-term reduction in the invertebrates' populations (and therefore food availability for rails) would result from sediment deposition associated with the Seismic Retrofit. Also, the depth of sediment deposition would decrease with increasing elevation; the upper edges of mudflats (where Ridgway's rails typically forage) and tidal sloughs higher in the marsh would experience less deposition than indicated by the values in **Table 3.5-10**, and the higher-marsh areas inhabited by black rails (and salt marsh harvest mice and salt marsh wandering shrews) even less, reducing effects of sediment deposition on these species and their food. Insects, spiders, and other prey available to rails in vegetated marsh, may not be affected at all by sedimentation (e.g., if those prey are on vegetation above the high waters that carry the sediment).

During flow events that deposit sediment, salt marsh harvest mice and salt marsh wandering shrews climb higher into vegetation or move into higher patches, so no individuals would be covered or stuck in deposited sediment. Newly deposited sediment may cover seeds or other plant materials used by mice, or invertebrate prey for voles, on the substrate surface, reducing food availability somewhat. There is no expectation that sediment deposition would kill vegetation used by these bayland animals. Tidal marsh plants are adapted to growing in dynamic depositional environments, so the density and structure of vegetative cover and nesting habitat would not be adversely affected.

As discussed above, sediment deposition would have a long-term beneficial effect on all these special-status, tidal marsh-associated species by contributing to the establishment of vegetated marshes in breached ponds such as the Island Ponds and Pond A6 and help existing marsh to be maintained in the face of sea level rise, thus helping to maintain suitable habitat for these species in the long term.

In addition to inundation and sediment deposition impacts, contaminants in Anderson Reservoir sediments could adversely affect these bayland animal species. Under CWA Section 303(d), Anderson Reservoir is listed as impaired for mercury and polychlorinated biphenyls (PCB) (SWRCB 2017a ~~2018~~). In particular, mercury and PCBs have been found in fish caught in Anderson Reservoir. Neither Anderson Reservoir nor any of its tributaries are identified on the CWA Section 303(d) list as impaired for diazinon (SWRCB 2017a). Diazinon was banned for residential use in 2004 and there is no agricultural source of diazinon near Anderson Reservoir. None of the five samples cited by the SWRCB exceeded regulatory thresholds for listing (SWRCB 2017a), and the Final 303(d) Listing Report includes five samples with no exceedances.

Valley Water (2021f ~~2021a~~) prepared a Mercury, Diazinon, and PCBs Plan describing the potential occurrence of these contaminants in Anderson Reservoir and the means by which their concentrations would be tested during dredging for the FOCP. Monitoring and analysis of these issues were conducted pursuant to that plan in conjunction with implementation of FOCP. In consultation with RWQCB staff, it was determined that no further testing is necessary, nor are any diazinon-specific control measures necessary during the implementation of the FOCP (Valley Water 2021f ~~2021a~~). Composite samples of lake sediments collected in 2019 revealed that the reservoir has low sediment mercury concentrations consistent with natural background and industrial-era atmospheric deposition (SWRCB 2017b). Mercury concentrations in reservoir fish are elevated, likely due to biogeochemical and food web conditions that are conducive to methylmercury production and bioaccumulation (Valley Water 2021f ~~2021a~~). Valley Water's existing mercury data do not indicate that there is a reasonable potential for mercury in Anderson Reservoir sediments to exceed mercury thresholds (Valley Water 2021f ~~2021a~~). Anderson Reservoir is included on the CWA Section 303(d) list as impaired for PCBs in fish (SWRCB 2017a), with four of seven samples from Anderson Reservoir fish exceeding evaluation guidelines. However, sediment PCB concentrations in Anderson Reservoir have never been detected in outflow monitoring from Anderson Reservoir.

Literature indicates that California Ridgway's rail reproductive success can be adversely affected by a variety of contaminants and metals, including mercury and PCBs. When introduced to bird species through the bioweb, these contaminants may occur in the species' eggs in the South Bay (Schwarzbach et al. 2006, Ackerman et al. 2012~~, Casazza et al. 2014~~). Mercury is toxic to rail embryos and has a long biological half-life. Schwarzbach et al. (2006) found high mercury levels and low hatching success (due both to predation and, presumably, mercury) in Ridgway's rail eggs throughout the Estuary. Mercury contamination has also been linked to reduced body condition in Ridgway's rails (Ackerman et al. 2012), suggesting there are detrimental effects on survivorship of adult birds as well. Literature also shows that harvest mice may be affected by mercury and PCBs in the intertidal zone (Clark et al. 1992).

Most of the mercury in tidal areas in the South Bay comes from the Guadalupe River watershed, due to the high concentrations of naturally occurring mercury in the watershed and the amount that has been mobilized from historical mercury mines. Valley Water (2021f ~~2021a~~) determined that concentrations of mercury in Anderson Reservoir sediments are relatively low, particularly in comparison to levels already present in the South Bay due to inputs from the Guadalupe River waters. Similarly, available monitoring data indicate low levels of diazinon and PCBs in sediments and water mobilized from Anderson Reservoir (Valley Water 2021f ~~2021a~~), and removal of fish (which bioaccumulate mercury and PCBs) from Anderson Reservoir when it is drained prior to Seismic Retrofit construction would remove much of these contaminants from the system. Therefore, no substantial adverse effects on the health or reproductive success of special-status, baylands-associated animal species would result from mobilization of sediment and potentially adhered contaminants from Anderson Reservoir.

In summary, sediment mobilization and mobilization of contaminants as a result of Seismic Retrofit construction would not result in substantial adverse effects on species associated with San Francisco Bay tidal marshes. Sediment mobilization would provide a net beneficial effect, although the amount of sediment that would be mobilized during Project construction is unknown.

Conservation Measures Construction

Project Conservation Measures would not impact baylands-associated, special-status species, as no such measures would take place in areas where these species occur; Conservation Measures would not increase inundation of tidal marsh habitats or increased freshwater input to tidal marshes; and Conservation Measures would not cause substantial mobilization of sediments, contaminants, or any other potential stressors to tidal marsh far downstream.

Construction Monitoring

During Seismic Retrofit construction, Valley Water would monitor sedimentation of, and water quality within, Coyote Creek downstream from the dam following the Sediment Monitoring Plan (Horizon Water and Environment 2021). This monitoring would determine whether construction activities are resulting in substantial turbidity impacts; see the *Water Quality* section of this EIR for more detail. Otherwise, Project construction monitoring would not impact baylands-associated, special-status species, as no construction monitoring would take place in areas where these species occur; construction monitoring would not increase inundation of tidal marsh habitats or freshwater input to tidal marshes; and construction monitoring would not cause mobilization of sediments, contaminants, or any other potential stressors to tidal marsh far downstream.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Analysis of the effects of post-construction FAHCE operations on baylands species was performed relative to the Pre-FERC Order Baseline (2017 conditions) and WEAP-modeled Future Baseline (2035 conditions). FAHCE flows are not expected to result in substantial impacts, either adverse or beneficial, on baylands species. As described previously in the general discussion of

Project impacts on terrestrial biological resources, flows under the FAHCE rule curves will be generally similar to, ~~those under 2017 conditions~~ but possibly slightly lower than the Pre-FERC Order Baseline Conditions, while FAHCE flows are likely to be slightly higher than under the WEAP-modeled Future Baseline. In general, FAHCE flows may entail slightly lower flow in winter and summer, due to retention of water in the reservoir for spring pulse flows, than either the Pre-FERC Order Baseline or Future Baseline, punctuated by the spring pulse flows described above. Spring pulse releases would be of such low magnitude that they would not result in any substantial inundation, even temporarily, of habitat for baylands species; these brief flows would result in very small water surface elevation increases that are well within the normal range of tidal elevations along lower Coyote Creek and Coyote Slough. Similarly, Coyote Creek flow augmentation through the Cross Valley Pipeline Extension would not have substantive impacts on water surface elevations, relative to tidal marsh, in tidal areas because of the limited amount of such flow augmentation. Changes in creek temperature as a result of post-construction operations would not have a substantial effect on baylands species, as these special-status species would not be affected by minor variations in water temperature, and any changes in temperature of water released from the dam are not expected to be manifested in water temperature far downstream in tidal areas.

Valley Water (2022e ~~2022f~~) analyzed the potential effects of proposed FAHCE-related freshwater inputs on salinity in the South San Francisco Bay. Because of the limited magnitude of FAHCE-related flows, Valley Water concluded that the natural range and frequency of freshwater flows experienced by streams such as Coyote Creek would not change, and therefore, the ecological habitats in tidal areas downstream would not be affected substantially by these freshwater inputs. Therefore, operational flows from Anderson Dam following construction would not result in any substantial effects on tidal habitats as a result of changes in salinity.

Maintenance of Seismic Retrofit facilities and Conservation Measures (including maintenance of the North Channel and Live Oak Restoration Reach), and monitoring during adaptive management, would have no substantive impact on tidal marsh species far downstream, as no maintenance or adaptive management monitoring would take place in areas where these species occur; these activities would not increase inundation of tidal marsh habitats or freshwater input to tidal marshes; and these activities would not cause mobilization of sediments, contaminants, or any other potential stressors to tidal marsh habitats. Impacts of adaptive management actions would likely be similar to those resulting from Conservation Measures and post-construction flows.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts on tidal marsh-associated, special-status species to some extent by reducing impacts to water quality. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. None of these species are VHP-covered, and the VHP does not cover activities or habitats in baylands areas along lower Coyote Creek/Coyote Slough.

Implementation of BMPs BI-2, HM-8, HM-9, HM-10, WQ-1, WQ-2, WQ-3, WQ-4, WQ-6, WQ-11, WQ-15, and WQ-16 minimize the potential for hazardous materials and other pollutants to enter Coyote Creek waters and eventually be transported downstream to tidal habitats.

Implementation of VHP Conditions 3, 4, 5, 7, and 11 would reduce the potential for and magnitude of impacts on tidal marsh species and their habitats by minimizing impacts on stream and wetland habitats, and ~~thus~~ by reducing the potential for hazardous materials and other pollutants to enter Coyote Creek waters and eventually be transported downstream to tidal habitats. ~~require implementation of numerous AMMs summarized in the footprint of activities, reducing the potential for pollutants to impact these species and their habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on these species' habitats.~~ VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soils to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants.

Maintenance of Anderson Dam facilities would occur as part of the DMP and would employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources, such as tidal marsh species. **DMP Mitigation Measure Wildlife-2** restricts vehicle and equipment use in salmonid streams during portions of the year. The DMP also includes a number of other BMPs to protect water quality, maintain clean work sites, and reduce erosion, thus reducing the potential for impacts on special-status amphibians; these include BMPs WQ-4, WQ-5, WQ-7, WQ-10, WQ-14, and WQ-18.

It is unlikely that alkali milk vetch and Point Reyes bird's beak are present in areas that could be affected by Seismic Retrofit-related increases in frequency and magnitude of flow, patterns of freshwater input, and sedimentation, so the Project is unlikely to have adverse effects on these species. Even if they were to be adversely affected, the magnitude of those effects would be low, and the benefits of increased sediment deposition would outweigh the adverse effects. Impacts on these species would not be substantial, and therefore would be **less than significant**.

The California Ridgway's rail, California black rail, northern harrier, Alameda song sparrow, San Francisco common yellowthroat, Bryant's savannah sparrow, salt marsh harvest mouse, and salt marsh wandering shrew are present in areas along lower Coyote Creek/Coyote Slough that would be affected by Seismic Retrofit-related increases in frequency and magnitude of flow and sedimentation. No substantial effects of changes in the patterns of freshwater inputs would result from the Project, for reasons previously discussed. No substantial effects of contaminants or water quality impacts would occur, as Anderson Reservoir is not a substantial source of contaminants. The long-term effects of mobilization of sediment from Anderson Reservoir to tidal marshes on which these species depend would be beneficial. As indicated in the tidal marsh recovery plan, sediment needs to equal the rate of sea level rise for existing marshes to be maintained (USFWS 2013 ~~20166~~), and for new marshes to develop in tidal habitats being restored by the South Bay Salt Ponds Restoration Project, sediment availability needs to be even higher. By helping to elevate tidal habitats in the lower Coyote Creek/Coyote Slough area, sediment mobilization from Anderson Reservoir would contribute to the establishment of vegetated marshes in breached ponds such as the Island Ponds and Pond A6 and help existing marsh to be maintained in the face of sea level rise, thus helping to maintain suitable habitat for these species. However, the amount of sediment that would be mobilized from Anderson Reservoir to tidal marshes during Project construction is unknown, so the degree to which sediment mobilization would benefit tidal marsh species is uncertain.

The Project could also result in adverse effects on these tidal marsh species as a result of displacement of rails, mice, and shrews due to inundation and the associated increased predation risk. These effects would occur infrequently and would only have potential to occur during the 7-year Seismic Retrofit construction period, so such effects would be short-term in nature. Nevertheless, if higher flows during Project construction (i.e., flows exceeding the Existing Conditions Baseline, post-FOCP maximum rate of 2,500 cfs) were to result in increased extent, duration, or depth of inundation of tidal marsh habitat, individuals of these tidal marsh species could be lost as a result of the Project. Given the low population sizes and limited distributions of California Ridgway's rails, California black rails, salt marsh harvest mice, and salt marsh wandering shrews, loss of individuals as a result of Project-related inundation would be a substantial and therefore **significant** impact. Valley Water would implement **Mitigation Measure TERR-1j** to reduce Project impacts on these species by contributing to predator management activities in the South Bay and through high tide refugia enhancement, thereby offsetting increases in predation resulting from the Project. With implementation of **Mitigation Measure TERR-1j**, impacts on tidal Baylands species would not be substantial and therefore would be **less than significant**.

Mitigation Measures

TERR-1j Contribution to Baylands Predator Management and High Tide Refugia Enhancement

Valley Water will contribute funds to be used for predator management and enhancement of vegetation providing high tide refugia in areas where predation of the California Ridgway's rail, California black rail, salt marsh harvest mouse, and/or salt marsh wandering shrew could occur in South San Francisco Bay. For predator management, Valley Water will provide $22,500 in funding (approximately half of the entire 2022 predator management budget for the Don Edwards San Francisco Bay National Wildlife Refuge [Refuge]) for each year during Seismic Retrofit construction in which flows through Anderson Dam exceed 2,500 cfs. Valley Water will develop and implement an agreement with the U.S. Department of Agriculture Animal and Plant Health Inspection Service (APHIS), which performs predator management in coordination with the Refuge. That agreement will specify the funding that Valley Water will provide for ~~predator~~ management of avian and mammalian predators and, generally, how APHIS personnel will use those funds. In any given year, how those funds are spent will be determined by Refuge biologists, who routinely work with APHIS to prioritize predator management needs based on the most pressing predation issues occurring around the Refuge, on special-status species, at that time.

Prior to the start of Seismic Retrofit construction, Valley Water will provide APHIS with $45,000 in funding, representing 2 years of predator management activities. This funding will be provided in advance of impacts from greater than 2,500-cfs flows through the dam actually occurring, and for more than 1 year of predator management, to assist APHIS in planning for its staffing needs to perform the necessary predator management. Subsequently, during each year of Seismic Retrofit construction, Valley Water will monitor whether flows through Anderson Dam exceed 2,500 cfs. If such flows occur in a given calendar year, $22,500 will be debited from the initial payment of $45,000. If flows exceed 2,500 cfs in 2 years during construction, Valley Water will provide another $22,500 payment for another, future year of predator management. Valley Water will continue to make such payments for each year in which flows exceed 2,500 cfs during Seismic Retrofit construction.

For enhancement of high tide refugia, Valley Water will contribute funds to one or more ongoing programs that focus on removal of nonnative marsh vegetation and/or planting or management of native marsh vegetation that provides suitable high tide refugia for species such as the California Ridgway's rail and salt marsh harvest mouse. Examples of programs to which Valley Water might contribute include the San Francisco Bay Sea Lavender Control Program, the Invasive Spartina Project (to which Valley Water might contribute funds for restoration rather than invasive Spartina control), or revegetation efforts performed by Save the Bay or other organizations. Valley Water will contribute $20,000 to such programs for each year in which flows exceed 2,500 cfs during Seismic Retrofit construction.

Impact TERR-2: A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS (Less than Significant with Mitigation)

Seismic Retrofit Construction

The Seismic Retrofit Area supports five sensitive land cover types/natural plant communities – mixed riparian woodland and forest, coast live oak forest and woodland, foothill pine-oak woodland, and mixed serpentine chaparral. Aquatic and wetland habitats, including the reservoir, pond, perennial stream, intermittent stream, and coastal and valley freshwater marsh land cover types, are also considered sensitive, but they are addressed in detail in Impact TERR-3 rather than here (and mixed riparian woodland and forest is addressed in both impact sections).

Riparian habitats, such as mixed riparian woodland and forest, are important ecologically due to the high biodiversity they support and the ecological functions they perform. Oak woodland habitats, such as coast live oak forest and woodland and foothill pine-oak woodland, also support high numbers of wildlife species and thus are important ecologically. Serpentine communities, such as mixed serpentine chaparral, generally support low species diversity, but the species they do support are often rare due to the limited number of species adapted to life on serpentine soils and the limited distribution of such soils.

Seismic Retrofit construction would directly impact all the mixed riparian woodland and forest, coast live oak forest and woodland, foothill pine-oak woodland, and mixed serpentine chaparral in the Seismic Retrofit Area. Although all direct impacts on these land cover types are considered permanent in accordance with VHP conventions, it is likely that conditions in some construction areas, such as areas used for construction access north of the spillway, would provide suitable conditions for natural recolonization by these land cover types following completion of construction. As a result, some recovery of these impacted communities would occur. **Table 3.5-11** indicates the acreage of each sensitive plant community in the Seismic Retrofit Area, thus representing the maximum extent of each community that could be directly impacted by (i.e., lost to) Seismic Retrofit construction.

Table 3.5-11. Direct Impacts on Sensitive Natural Communities from ~~Construction of~~ Seismic Retrofit Construction

Community	Impact (acres)*
Mixed Riparian Woodland and Forest	1.29 ~~4.14~~
Coast Live Oak Forest and Woodland	10.6 14.3
Foothill Pine-Oak Woodland	11.2
Mixed Serpentine Chaparral	2.5

** In accordance with VHP conventions, acreages are reported to the nearest 0.1 acres except for wetland and riparian land cover types, which are reported to the nearest 0.01 acres.*

Construction activities such as grading, excavation, and placement of new structures and soil stockpiles would impact these land cover types. Project activities would affect these land cover types through direct disturbance and removal of vegetation and through damage to underground root structures. In addition, equipment use, vehicular traffic, and worker foot traffic may result in the injury, mortality, altered growth, or reduced seed set of individual plants within these communities. Creation of access routes and staging areas may result in the mechanical or physical removal of vegetation and modification of the seed bank due to grading. Dust that could be generated by construction activities may coat vegetative and floral surfaces, interfering with normal gas exchange, photosynthesis, or pollination.

In serpentine habitats, the conservation of topsoil and seed banks after grading would not be able to restore such habitats to similar conditions because topsoil would become homogenized, mixing the seeds and soils of previously specialized habitat types with more common California annual grassland. Such topsoil and seed banks, if placed in areas that previously supported serpentine habitats, would be unlikely to support the same poor nutrient conditions or the characteristically high proportion of native forbs following grading and restoration.

Movement of earth, vegetation, water (e.g., runoff), equipment, vehicles, and personnel could spread invasive plant propagules and pathogens such as *Phytophthora*. Invasion of native habitats by nonnatives results in adverse effects on both the native plants being displaced and native animals that would otherwise use those habitats. Because many invasive plants are able to easily colonize recently disturbed areas and/or tolerate repeated disturbance better than many natives, Project construction activities, such as clearing and grading, could create conditions suitable for spreading of invasive plant species. In addition, bare upland soils left after construction of temporary staging areas could encourage growth of weedy species, and mulching or erosion control mixes could include and thus introduce invasive, nonnative plant species. Furthermore, nonnative plant species could temporarily benefit from dewatering associated with the Project. *Phytophthora* could also impair the health of plants, spreading through root systems and resulting in the loss of individuals. *Phytophthora* could impair the health of plants in all these sensitive plant communities and therefore degrade the habitat quality these communities provide. Thus, both invasive plants and *Phytophthora* could impact sensitive communities both within and adjacent to the Seismic Retrofit Area. The potential for *Phytophthora* to be spread by Seismic Retrofit construction activities will be reduced via implementation of a Project-specific *Phytophthora* Pathogen Management and Monitoring Plan prepared for the Project based on those developed for the FOCP (Valley Water 2020h, 2021e ~~2021c~~) and the results of FOCP implementation and *Phytophthora* monitoring.

During Seismic Retrofit construction, dry season flows in Coyote Creek downstream from Anderson Dam would be maintained via bypass flows released from Coyote Reservoir, supplemented with water released into Coyote Creek through the CDL and Cross Valley Pipeline Extension. Groundwater levels along Coyote Creek or in North Coyote Valley are not predicted to drop substantially as a result of operations during construction. Modeling performed by Valley Water predicted that there would be a reduction in groundwater recharge and storage during Seismic Retrofit construction relative to 2015 base conditions (when ~~interim seismic~~ restrictions limited reservoir capacity to 51,200 AF); however, groundwater storage is still predicted to be above Valley Water's 2021 Groundwater Management Plan storage target (Valley Water 2023a). Nevertheless, in the event that reduced creek flow combined with drought conditions were to cause a drop in groundwater levels, riparian habitats could suffer reduced health.

Existing Conditions Baseline conditions for Seismic Retrofit construction allow for discharges from the dam of up to 2,500 cfs. During Seismic Retrofit construction, the reservoir's outlets would be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed. The magnitude of flow, and frequency of flows of a certain magnitude, will depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (2022c ~~2022d~~) predicts higher flows at the 2-, 5-, and 10-year return intervals during construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The higher the flow, the lower the probability and frequency of that flow occurring in any given year, so that very high flows, greater than the 10-yr or 20-yr events, are unlikely during the project construction period, though possible. Also, the probability of very high flows (i.e., flows greater than the 10-year/20-year magnitude/frequency) would be lower during construction than under Existing Conditions Baseline conditions because water would not be detained in the reservoir during construction, and therefore the probability of spilling would be lower. Thus, while moderate-sized flows could occur more frequently during construction, very high flows are likely to be less frequent (Valley Water 2022c ~~2022d~~).

Higher flows during storm events could cause erosion and scour that would result in the loss of some riparian vegetation along the channel. However, such habitat modifications would allow regeneration of riparian trees such as cottonwoods, willows, and sycamores, as described in Impact TERR-1c. With the dam's outlets kept wide open during Seismic Retrofit construction, the frequency and magnitude of flows through the dam will more closely resemble natural fluvial conditions that help to maintain riparian vegetation along natural streams. Thus, the habitat modifications resulting from inundation and scour help to rejuvenate the riparian corridor along Coyote Creek and maintain habitat heterogeneity that supports healthy riparian communities.

Deposition of nitrogen emitted by construction vehicles and equipment could impact sensitive serpentine communities, such as mixed serpentine chaparral, by facilitating the growth of nonnative plants that otherwise would be unable to compete with natives. Thus, Seismic Retrofit activities could impact serpentine communities offsite. As discussed in Impact TERR-1a, prevailing winds would mobilize most of the nitrogen emissions from Seismic Retrofit construction away from the most extensive, highest-quality serpentine communities on Coyote Ridge to the northwest. However, nitrogen emitted by construction equipment and vehicles in the reservoir and around Anderson Dam could be carried to serpentine grasslands to the southeast, on the ridge east of the valley between Anderson Reservoir and Coyote Reservoir.

Northern coastal salt marsh, which is absent from the Seismic Retrofit footprint but present in tidal habitats along lower Coyote Creek/Coyote Slough that could be impacted by increased frequency and magnitude flows and sediment mobilized during Seismic Retrofit construction, is also considered a sensitive community by CDFW. Northern coastal salt marsh could be impacted as described in Impact TERR-1j above, with inundation by high flow events and sediment deposition, and possibly increases in the magnitude of freshwater inputs during individual storm events, resulting in minor, temporary adverse effects. However, northern coastal salt marsh is well-adapted to flooding, inundation, and natural variability in freshwater inputs, and as described previously, deposition of sediment mobilized from Anderson Reservoir during Seismic Retrofit construction would provide a net benefit to northern coastal salt marsh by contributing to the establishment of vegetated marshes in breached ponds such as the Island Ponds and Pond A6 and helping existing marsh to be maintained in the face of sea level rise.

Conservation Measures Construction

Sensitive communities within the Conservation Measures Project Area (aside from aquatic and wetland communities addressed in Impact TERR-3 below) include mixed riparian woodland and forest, willow riparian forest and scrub, and coast live oak forest and woodland. These communities would be impacted by construction and implementation of the Ogier Ponds and Coyote Percolation Dam Conservation Measures in the same manner described above for Seismic Retrofit construction. **Table 3.5-12** indicates the acreage of each sensitive natural community in the Conservation Measures Project Area, thus representing the maximum extent of each community that could be directly impacted by (i.e., lost to) construction of Conservation Measures.

Table 3.5-12. Direct Impacts on Sensitive Natural Communities from Construction of Ogier Ponds and Phase 2 Coyote Percolation Dam Conservation Measures

Community			
	Impact (ac)		
	Ogier Ponds CM Area (acres)*	Phase 2 Coyote Percolation Dam CM Area (acres)*	Conservation Measures Total (acres)**
Mixed Riparian Woodland and Forest	4.95	0.20	5.15 ~~7.28~~
Willow Riparian Forest and Scrub	14.35	0	14.35
Coast Live Oak Forest and Woodland	0.7	0	0.7

* *In accordance* with VHP conventions, the area (acreage) of all streams is included in mixed riparian woodland and forest, and acreages are reported to the nearest 0.1 acres except for wetland and riparian land cover types (and except where the acreage is very low, as for coast live oak forest and woodland).

*** The "Total" column summarizes the total acreages within the Ogier Ponds* CM and Coyote Percolation Dam CM Areas. Additional impacts may result from Conservation Measures such as sediment augmentation, as discussed in the text. ~~though the locations and extents of such impact areas are not yet known~~

Key: CM = Conservation Measures

The Sediment Augmentation Program would periodically place sediment downstream of Anderson Dam within the upper portion of the CWMZ and monitor the rate and volume of sediment transport relative to flows. At a minimum, the Sediment Augmentation Program would include the placement of at least 500 cy of sediment within the Live Oak Restoration Reach. Annual sediment deposition and transport monitoring and long term habitat assessment monitoring would be conducted as a part of this CM, and sediment in this reach or the Ogier Ponds CM Restoration Reach will be augmented as necessary. The Ogier Ponds CM will impact 19.3 acres of mixed riparian woodland and forest and willow riparian forest and scrub. However, that Conservation Measure will also include the restoration of riparian habitats. Valley Water predicts that approximately 39.5 acres of riparian habitat, between ordinary high water (i.e., the edge of the realigned creek channel) and the top of bank on either side of the realigned channel, will be restored as part of the Ogier Ponds CM. ~~In addition, riparian habitat will be restored by the North Channel Extension CM.~~ Although there will be a temporal loss of riparian habitat during construction of this ~~these~~ Conservation Measures and maturation of the restored riparian habitat, there will be a net increase in riparian habitat acreage as a result of the~~se~~ Conservation Measures.

Maintenance of the North Channel Reach would include maintaining the constructed wetland bench, maintaining design flow capacity through the North Channel, and replacing restoration plantings, as needed. Maintenance of the Live Oak Restoration Reach habitat would continue to occur to assure continuing fisheries benefits created by the implementation during FOCP of restoration work in that reach. The extent of impacts to sensitive natural communities that would result from maintenance of the North Channel Reach and Live Oak Restoration Reach would depend on the extent of degradation that occurs during ADSRP construction. All impacts resulting from such maintenance would be beneficial, as the purpose of such impacts would be ameliorating any degradation to the habitat enhancements constructed by the FOCP. Because the locations and extent of maintenance activities cannot be known at this time, it is assumed that impacts could occur anywhere within the North Channel Reach and Live Oak Restoration Reach area shown on **Figure 3.5-6**. Conservatively, Valley Water has assumed that up to 10 percent of each type of sensitive natural community within the North Channel Reach and Live Oak Restoration Reach could be impacted by maintenance performed during the ADSRP. **Table 3.5-13** provides the maximum acreage and linear footage (for stream impacts) of each type of sensitive natural community that may be impacted by activities to maintain habitat restored within North Channel Reach and Live Oak Restoration Reach.

Table 3.5-13. Maximum Direct Impacts to Sensitive Natural Communities from Maintenance of the North Channel Reach and Live Oak Restoration Reach

Land Cover Type	Maximum Potential Impact (acres)	Impact (linear feet)[1]
Perennial Stream	0.51	325
Intermittent Stream	0.10	75
Coastal and Valley Freshwater Marsh	0.01	50
Willow Riparian Forest and Scrub	0.02	330

Mixed Riparian Forest and Woodland	0.56	400
Total	**1.20**	**400**

[1] The full linear footage of each land cover type occurring along drainages is provided, even where stream and riparian land covers occur along the same stream segment. However, the total linear footage does not double-count such areas of overlap among land cover types along a drainage.

In addition, implementation of Conservation Measures could impact serpentine communities, including high-quality serpentine communities on Coyote Ridge, by contributing to the cumulative effects of nitrogen deposition on serpentine habitats supporting these species. These impacts would occur as described in *Conservation Measures Impacts Analysis* in Impact TERR-1a for special-status plants.

Conservation measures include release of imported water via the CDL and Cross Valley Pipeline Extension, which would help maintain groundwater levels and thus the riparian habitats along Coyote Creek and in North Coyote Valley. Payment of VHP impact fees would directly contribute to the conservation of all the described sensitive natural communities impacted by the Project, as the VHP's conservation program includes preservation and management targets for all these communities. As discussed for Impact TERR-1j, Project Conservation Measures would not impact northern coastal salt marsh.

Construction Monitoring

During Seismic Retrofit construction, Valley Water would monitor groundwater levels and continue to perform monitoring per the Dryback Monitoring Plan. Results of this monitoring would be used by Valley Water to determine whether creek flows need to be augmented to avoid adverse dryback effects on water-dependent habitats, including riparian land cover types. If early signs of dryback are observed during monitoring, Valley Water would determine whether adaptive management of imported water releases during the construction and reservoir drawdown period could be used to reduce impacts (i.e., increasing release rates of imported water). Valley Water would compensate for any impacts on these habitats that are detected by dryback monitoring that cannot be reduced or reversed through imported water releases, and that can be attributed to reduced creek flow due to Seismic Retrofit construction by paying VHP fees for the impacts detected. Thus, no substantial adverse effects of reductions in creek flow on riparian habitat would occur.

During Seismic Retrofit construction, Valley Water would monitor sedimentation of, and water quality within, Coyote Creek downstream from the dam following the Sediment Monitoring Plan (Horizon Water and Environment 2021). This monitoring would determine whether construction activities are resulting in substantial turbidity impacts; see the *Water Quality* section of this EIR for more detail. However, as noted in the discussion of Seismic Retrofit construction impacts above, increased flows and associated erosion, sediment mobilization, and scour would have a net benefit on riparian plant communities.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Analysis of the effects of post-construction FAHCE operations on sensitive plant communities was performed relative to the Pre-FERC Order Baseline (2017 conditions) and WEAP-modeled Future Baseline (2035 conditions). As described previously in the general discussion of Project impacts on terrestrial biological resources, flows under the FAHCE rule curves will be generally similar to, ~~those under 2017 conditions~~ but possibly slightly lower than the Pre-FERC Order Baseline Conditions, while FAHCE flows are likely to be slightly higher than under the WEAP-modeled Future Baseline. In general, FAHCE flows may entail slightly lower flow in winter and summer, due to retention of water in the reservoir for spring pulse flows, than either the Pre-FERC Order Baseline or Future Baseline, punctuated by the spring pulse flows described above. However, the effects of such changes may differ in different parts of Coyote Creek, as described previously. No substantial impacts, either adverse or beneficial, of FAHCE flows on riparian plant communities would occur, as even spring pulse flows are not expected to be high enough to result in erosion or scour of riparian vegetation. FAHCE flows will not impact oak-dominated or serpentine plant communities, which are not located in areas that would be affected at all by these flows. Changes in creek temperature as a result of post-construction operations would not impact sensitive plant communities. As discussed for Impact TERR-1j, post-construction operations would not impact northern coastal salt marsh.

Post-construction operations of the Ogier Ponds CM will sustain riparian habitat along the realigned segment of Coyote Creek, though operation of the Coyote Percolation Dam CM or other Conservation Measures will not result in substantial impacts on sensitive habitats.

Maintenance of the North Channel Reach and Live Oak Restoration Reach to assure continuing fisheries benefits created by the implementation during FOCP could potentially impact riparian habitats as described in the Conservation Measures Construction section above.

Following completion of Seismic Retrofit activities, Anderson Reservoir would be allowed to refill to its maximum design capacity. If water levels in the reservoir result in more frequent inundation of plant populations or higher soil moisture levels, the risk of *Phytophthora* infection and disease may become greater than exists under current conditions (Phytosphere Research 2018).

Maintenance of facilities at Anderson Dam would occur in areas that were impacted by Seismic Retrofit construction, and such maintenance would not occur in any additional areas occupied by sensitive natural communities. Maintenance of Conservation Measures could impact riparian habitat via trampling during maintenance access and via vegetation management, though the extent of vegetation that would be subject to pruning or removal would be limited. Seismic Retrofit and Conservation Measures maintenance activities could impact sensitive communities by mobilizing *Phytophthora*, and maintenance equipment and vehicles could contribute to cumulative impacts on serpentine communities through their nitrogen emissions. Maintenance of the Seismic Retrofit would occur as part of the DMP and would employ the AMMs implemented by the DMP to avoid and minimize impacts on sensitive biological resources such as sensitive communities. However, the AMMs employed by the DMP do not include measures to minimize the introduction or spread of *Phytophthora*.

Adaptive management activities consist primarily of monitoring and potential adaptive management actions. During field monitoring, monitoring personnel or equipment could trample vegetation or spread *Phytophthora* in sensitive communities. Impacts of adaptive management actions would likely be similar to those resulting from Conservation Measures and post-construction flows. In addition, as described in **Table 2-1** *Project Components*, implementation of a Geomorphic Flows Plan would occur as part of future adaptive management under the Project and FAHCE AMP and would require additional CEQA review and regulatory approvals. In general, the geomorphic flows would include infrequent high flows sufficient to scour sediment, erode banks, scour vegetation, and result in channel migration in localized areas, which would maintain and increase both aquatic and riparian habitat complexity, reduce non-native invasive species, and increase benthic macroinvertebrate production. Although geomorphic flows may scour some riparian vegetation, they would also provide suitable substrate to allow for the germination of cottonwoods, willows, and other riparian plants, thus allowing the development of multi-aged stands of riparian habitat.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts on riparian habitats and other sensitive natural communities. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Implementation of BMP AQ-1 will reduce the potential for construction activities to mobilize dust onto sensitive communities outside the Project footprint, thus reducing the effects of dust and the potential for *Phytophthora* to be mobilized to sensitive communities within that dust. BMPs BI-8 and WQ-9 will avoid competition between invasive plants and native plants by requiring local plant species in revegetation. BMPs ~~HM-7,~~ HM-8, HM-9, HM-10, WQ-2, WQ-3, WQ-6, WQ-15, and WQ-16 will minimize the potential for hazardous materials and other pollutants to impact sensitive communities, and HM-12 would reduce the potential for fire to affect such communities. BMPs BI-3, BI-9, WQ-1, WQ-4, WQ-5, and WQ-11 will involve removing temporary fill, restoring channel bottoms, establishing appropriate staging and stockpiling areas and construction access areas, and keeping the work site clean, thus helping to minimize impacts on sensitive communities and avoid the spread of *Phytophthora* and weeds. BMP BI-4 will minimize impacts of pesticides on nontarget species such as native plants.

Implementation of VHP Conditions 4 and 5 would reduce the potential for and magnitude of impacts on sensitive communities through numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact plants and habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on sensitive communities. VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants. Conditions 13, 19, and 20 specifically address serpentine communities by requiring surveys to determine where serpentine-associated plants occur, avoidance and minimization of covered species where feasible, and plant salvage when impacts are unavoidable (at the discretion of the SCVHA).

Ongoing maintenance of the North Channel Reach, Live Oak Restoration Reach, and Ogier Ponds CM would occur as part of the SMP and would employ BMPs and mitigation measures required by the SMP to avoid and minimize impacts on sensitive biological resources, such as riparian habitats. Maintenance of Anderson Dam facilities would occur as part of the DMP and would employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources such as riparian and other sensitive habitats. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation, and **DMP Mitigation Measure Vegetation-6** requires restoration of vegetation that may have been lost due to dryback following dewatering. DMP **Mitigation Measure Vegetation-1** requires periodic botanical surveys, which would identify the locations of special-status plants (which are likely in serpentine communities), thus facilitating their avoidance when maintenance activities are performed (although as noted above, it is unlikely that new plant occurrences will occur within the Seismic Retrofit's impact areas). DMP BMPs BI-10 and BI-11 minimize impacts to vegetation. BMP BI-12 entails avoidance of sensitive natural communities such as serpentine communities. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes to avoid impacts from invasive plant species. **DMP Mitigation Measure Wildlife-1** and BMP WQ-12 require implementation of a flow bypass system for activities that would interrupt flow downstream from the dam. The DMP also includes a number of BMPs to protect water quality, maintain clean work sites, reduce erosion thus reducing the potential for impacts on riparian habitats; these include BMPs WQ-4, WQ-5, WQ-7, WQ-10, WQ-14, and WQ-18. However, the DMP mitigation measures do not include measures to minimize the potential for introduction or spread of *Phytophthora*, and therefore, there is some potential for *Phytophthora* to be mobilized by maintenance activities at Anderson Dam, potentially leading to infection of adjacent sensitive natural communities outside the Seismic Retrofit Area.

The Project will result in permanent impacts on a total of 20.79 ~~25.77~~ acres of mixed riparian woodland and forest and willow riparian forest and scrub, including 1.29 ~~4.14~~ acres from Seismic Retrofit construction and 19.50 ~~21.63~~ acres from Conservation Measures construction. However, approximately 39.5 acres of riparian habitat will be restored as part of the Ogier Ponds CM. Therefore, the Project will result in a net increase in the acreage of riparian woodland, forest, and scrub habitat. This net increase will help to compensate for the temporal loss of riparian functions and services that will occur between the time the existing riparian habitat is impacted and restored riparian habitat is planted and matures. In addition, the restored riparian habitat will have higher ecological functions and services than much of the impacted riparian habitat. For example, much of the impacted riparian habitat at Ogier Ponds consists of narrow stringers of riparian trees along the edges of Ponds 1 and 2, or riparian habitat around Pond 5 that is not in-line with Coyote Creek. In contrast, the riparian habitat that will be restored by the Ogier Ponds CM will include a broad, diverse corridor of riparian habitat that is immediately adjacent to the realigned creek channel and that therefore both benefits the channel (providing shade, woody debris, and organic material to the creek) and receives benefits from the channel (e.g., in the form of insects that hatch in the creek and are then fed on by terrestrial riparian animals). Therefore, the restoration of riparian habitat along the realigned creek channel at Ogier Ponds~~, coupled with riparian restoration at the North Channel Extension,~~ will compensate for Project impacts on riparian habitats.

The Project will permanently impact a total of 15 acres of coast live oak woodland and forest, 11.2 acres of foothill pine-oak woodland, and 2.5 acres of mixed serpentine chaparral, mostly from Seismic Retrofit construction. These land cover types would not be created or restored by the Project (e.g., as part of the Conservation Measures). However, VHP fees to be paid by Valley Water for the Project include specialty fees for mixed riparian woodland and forest, willow riparian forest and scrub, and mixed serpentine chaparral, in addition to general land cover fees. The Project's impact fees would contribute directly to the conservation of sensitive natural communities, including not only these riparian and serpentine communities, but also the coast live oak woodland and forest, and foothill pine-oak woodland, land cover types that will be impacted by the Project. Thus, with VHP compliance, impacts of VHP-covered activities on these sensitive natural communities would be **less than significant**.

Maintenance of the North Channel Reach and Live Oak Restoration Reach during and following Seismic Retrofit construction would impact up to 0.58 acre of mixed riparian forest and woodland and willow riparian forest and scrub. The net effects of this maintenance would be

<u>beneficial, occurring as needed to assure continuing fisheries benefits created by the implementation during FOCP of restoration work in those reaches.</u>

Three Project activities that are not VHP-covered could impact sensitive natural communities:

- The additional year of Anderson Reservoir dewatering could result in adverse dryback effects on riparian habitat along Coyote Creek downstream from Anderson Dam and in North Coyote Valley. However, creek flow augmentation, groundwater monitoring, and dryback monitoring (with additional flow augmentation, and payment of VHP impact fees for impacted wetland and riparian habitat, as necessary) would avoid significant impacts on riparian habitats related to dryback effects. Dust mobilization onto serpentine communities could also occur during this additional year of dewatering, but for reasons discussed in Impact TERR-1a, those impacts would be minimal.
- Differences in dam releases between those covered by the VHP and those that may occur during Project construction, although the Project will adhere to the VHP-covered release requirements when draining Anderson Reservoir for dewatering each year, at the start of the construction season (i.e., around April 15), wet-season flows through Anderson Dam may be much higher than those discussed in the VHP, as Valley Water needs to avoid having Anderson Reservoir fill during Project construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The VHP did not explicitly discuss the possibility that flows may exceed those in VHP **Table 2-4** during the construction period, outside of actual dewatering events. Therefore, the impacts of such flows on terrestrial biological resources may not be covered by the VHP.

  As discussed above, higher flows during construction-period storm events could cause erosion and scour that would result in the loss of some riparian vegetation along the Coyote Creek channel. However, such habitat modifications would allow regeneration of riparian trees such as cottonwoods, willows, and sycamores, as described in Impact TERR-1c. Thus, the habitat modifications resulting from higher flows help to rejuvenate the riparian corridor along Coyote Creek and maintain habitat heterogeneity that supports healthy riparian communities, a beneficial impact.
- High flows and sediment mobilized during Seismic Retrofit construction could impact northern coastal salt marsh in tidal areas far downstream from Anderson Dam. The net effect of the Project on this sensitive natural community would be beneficial.

In addition, because riparian habitats are regulated by CDFW under Section 1602 of the Fish and Game Code, and some riparian habitats are also regulated by the RWQCB under the Porter-Cologne Act, Valley Water would obtain all necessary permits from these agencies for impacts to riparian habitats and would comply with permit conditions. Implementation of Valley Water BMPs and DMP mitigation measures and BMPs, as well as compliance with the VHP, would assure that impacts on riparian habitats and other sensitive natural communities would not be substantial and therefore would be less than significant.

However, the DMP mitigation measures do not include measures to minimize the potential for introduction or spread of *Phytophthora*, and no other AMMs or BMPs provide *Phytophthora* minimization measures pertaining to Conservation Measures facilities. Therefore, there is some potential for *Phytophthora* to be mobilized by operations and maintenance activities at Anderson Dam and in the Conservation Measures locations. This could potentially lead to infection of sensitive communities. Implementation of **Mitigation Measure TERR-1a(2)** will reduce Project impacts on sensitive communities to **less-than-significant** levels by implementing AMMs during post-construction maintenance at Anderson Dam and Conservation Measures facilities to reduce the potential for introduction or spread of *Phytophthora*, thereby preventing substantial adverse effects.

Mitigation Measures

TERR-1a(2) Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of Phytophthora

Impact TERR-3: A substantial adverse effect on State or federally protected wetlands through direct removal, filling, hydrological interruption, or other means **(Less than Significant with Mitigation)**

Seismic Retrofit Construction

The Seismic Retrofit Area supports five land cover types—reservoir, pond, perennial stream, intermittent stream, and coastal and valley freshwater marsh—that are regulated by the USACE and SWRCB as jurisdictional waters of the U.S. and waters of the State, respectively, and by CDFW as a part its regulation of alterations in the bed and bank of rivers, creeks and streams, and related fish and wildlife resources. In addition, the SWRCB and CDFW may regulate impacts to mixed riparian woodland and forest, impacts to which are also addressed in Impact TERR-2. While each agency's jurisdiction with respect to these land cover types varies depending on the statute authorizing regulation, the jurisdiction of USACE, CDFW and the SWRCB over surface water features and land cover types overlaps substantially. **Table 3.5-14** ~~**Table 3.5-13**~~ indicates the acreage (and linear footage for applicable land cover types ~~stream impacts~~) of each type of jurisdictional wetlands or other waters of the U.S. or State in the Seismic Retrofit Area, thus representing the maximum extent of each type of jurisdictional habitat type that could be directly impacted by Seismic Retrofit construction.

Table 3.5-14 Table ~~3.5-13~~. Direct Impacts on Potential Jurisdictional Waters (Waters of the U.S., Waters of the State, and CDFW Jurisdictional Waters) from Seismic Retrofit Construction

Land Cover Type	Impact (acres) by Jurisdiction[1]			Impact (linear feet) by Jurisdiction[4]		
	Waters of the U.S.	Waters of the State	CDFW	Waters of the U.S.	Waters of the State	CDFW
Reservoir[2]	357.6	357.6	357.6	43,454 ~~---~~	43,454 ~~---~~	43,454 ~~---~~
Pond	0.19	0.19	0.19	---	---	---
Perennial Stream[3]	0.05 ~~0.73~~	0.05 ~~0.73~~	0.05 ~~0.73~~	120 ~~1,082~~	120 ~~1,082~~	120 ~~1,082~~
Intermittent Stream	0.88 ~~1.02~~	0.88 ~~1.02~~	0.88 ~~1.02~~	668 ~~864~~	668 ~~864~~	668 ~~864~~
Coastal and Valley Freshwater Marsh	0.51 ~~0.52~~	0.51 ~~0.52~~	0.51 ~~0.52~~	613 ~~---~~	613 ~~---~~	613 ~~---~~
Mixed Riparian Woodland and Forest	---	1.29 ~~4.14~~	1.29 ~~4.14~~	---	1,378 ~~---~~	1,378 ~~---~~
Total	**359.23 ~~360.06~~**	**360.52 ~~364.20~~**	**360.52 ~~364.20~~**	**44,855 ~~1,946~~**	**46,233 ~~1,946~~**	**46,233 ~~1,946~~**

Notes:

[1] In accordance with VHP conventions, acreages are reported to the nearest 0.1 acres for the reservoir land cover type and the nearest 0.01 acres for wetland and riparian land cover types.

[2] A total of 357.6 acres of reservoir are present within the currently proposed Seismic Retrofit construction footprint, but some portion of an additional 849.2 acres within the reservoir may also be indirectly impacted by construction activities.

[3] Perennial stream impact does not include approximately 1.3 ~~1.98~~ acres and 1,338 ~~1,674~~ linear feet of perennial stream that will have been impacted by the FOCP but that may also be present prior to the start of, and may therefore be impacted by, Seismic Retrofit construction.

[4] The linear footage of impacts represents the same impact areas as the impact acreage, just with a different metric.

Key: CDFW = California Department of Fish and Wildlife

Since 2012, Anderson Reservoir has been maintained in restricted condition due to DSOD storge elevation safety restrictions. In the fall of 2020, the reservoir was drawn down in compliance with a 2020 FERC order, and the reservoir must be maintained at the deadpool elevation until Seismic Retrofit construction is completed. These restrictions complicated the determination of the Ordinary High Water Mark (OHWM) for the reservoir because under the Existing Conditions Baseline, reservoir levels are lower than they were between 2012 and 2020, and much lower than they were prior to 2012, when the reservoir was operating without elevation restrictions. Per discussions with the USACE regarding the limits of waters of the U.S. in the reservoir during the drawdown, the reservoir land cover type was mapped in all areas below the elevation of the reservoir's rim, which is 627.9 feet, equivalent to the spillway elevation. Thus, for purposes of assessing impacts of the Project on federally and State-protected wetlands and waters, it was assumed that the entire reservoir, below elev. 627.9 feet, represents waters of the U.S., waters of the State, and CDFW jurisdictional waters.

Seismic Retrofit construction activities would result in the placement of fill, and related hydrological interruption, alteration of bed and bank, degradation of water quality, and other direct impacts on the acreages and linear footage of wetlands (coastal and valley freshwater marsh), non-wetland other waters (perennial stream, intermittent stream, pond, and reservoir), and mixed riparian woodland and forest as indicated in **Table 3.5-14** ~~**Table 3.5-13**~~. Seismic Retrofit impacts to wetlands will result entirely from lining the unlined portion of the spillway. Impacts to mixed riparian woodland and forest, perennial stream, and intermittent stream will result primarily from Project activities within the unlined spillway area and portions of the North Channel and South Channel of Coyote Creek that are not included in the North Channel Reach or Live Oak Restoration Reach ~~just downstream from Anderson Dam~~. Impacts to the reservoir will result from a variety of activities within the reservoir, including primarily discharges of fill for reconstruction and reinforcement of the base of the dam (which would result in a larger dam base), stabilization of the dam embankment and reservoir rim, construction of a coffer dam, and placement of spoils excavated from the dam within in-reservoir disposal areas. These types of Seismic Retrofit construction activities will impact areas within the 357.6 acres of reservoir comprising the Seismic Retrofit construction footprint. Other impacts that may result from the placement of fill for Seismic Retrofit construction, such as sedimentation and turbidity in the reservoir and Coyote Creek, and inundation of terrestrial species and their habitats upon refilling the reservoir to an unrestricted elevation, could potentially occur in other portions of the 1,206.8-acre reservoir.

Although impacts to all the jurisdictional land cover types within the Seismic Retrofit Area are considered permanent per VHP conventions, the majority of impacts unrelated to permanent placements of fill would occur only during the approximately 7-year period of Seismic Retrofit construction. These shorter-term impacts would result from drawdown of the reservoir, fill for reinforcement of the dam (in portions of the reservoir that would then be refilled with water); outlet channel construction; temporary access needed for construction of the Project; staging for activities and improvements to be constructed within jurisdictional waters; trampling of wetland vegetation; vegetation removal; and soil compaction from access and equipment, sedimentation and turbidity, and inundation following construction. Following construction, most of these impacted areas would be restored or recover to pre-Project conditions. After restoration or recovery, the long-term net loss of water and wetland habitats from Seismic Retrofit construction – including areas that were previously impacted by FOCP activities but remain as regulated habitats following completion of the FOCP – is limited to 3.0 acres ~~for~~ of reservoir, 0.51 ~~0.52~~ acre ~~for~~ of wetlands, ~~4.14~~ 0.25 acre of mixed riparian forest and woodland ~~acres for woody riparian habitats~~, and 0.55 ~~0.19~~ acre ~~for other waters (i.e.,~~ of pond and stream habitats~~)~~ (see **Table 3.5-16** ~~**Table 3.5-15**~~).

Given the drawn-down condition of Anderson Reservoir for implementation of FOCP, limited areas of temporary vegetated wetlands have formed outside the Project Area in the existing condition along the main creek channels in the upper ends of the reservoir, and at seeps, below the reservoir's OHWM. The Existing Conditions Baseline (i.e., post-FOCP) extent of these wetlands cannot be estimated accurately, as these vegetated wetlands disappear when inundated (as occurred for much of the reservoir bed during December 2022 and January 2023 storms) and regrow under drier conditions, so the extent of these wetlands upon completion of the FOCP will depend on rainfall and inundation over the next year or two. Following completion of dam reconstruction, these vegetated wetland areas would be inundated as the reservoir is refilled. Because water levels in the reservoir would not be higher at completion of the Project than they were prior to the lowering of the reservoir levels starting in 2012, no vegetated wetlands that were present under historical (pre-DSOD-restriction) conditions will be inundated when the reservoir refills. Rather, the reservoir will refill to its historical extent, and wetlands can be expected to re-establish at the post-construction, unrestricted reservoir water elevation.

During Seismic Retrofit construction, Anderson Reservoir would be largely dewatered not just to deadpool, but beginning in Year 2, to a lower elevation, so less water would be available during construction Years 2 to 7 than was available for release into Coyote Creek under Existing Conditions Baseline conditions (i.e., existing conditions as modified by the FOCP construction). Valley Water would use a combination of bypassed inflow into Anderson Reservoir and imported water released through the CDL (and, when necessary, chillers for CDL water) and Cross Valley Pipeline Extension to help maintain adequate water in Coyote Creek for fish (in the CWMZ) and groundwater recharge throughout the creek. In this way, Valley Water intends to maintain adequate creek flow to avoid substantial degradation of sensitive stream, riparian and pond habitats due to inadequate water availability related to ongoing construction of the Project. As a result, groundwater levels along Coyote Creek or in North Coyote Valley, such as groundwater supporting the seasonal wetlands in Laguna Seca, are not predicted to drop substantially as a result of operations during construction. Modeling performed by Valley Water predicted that there would be a reduction in groundwater recharge and storage during Seismic Retrofit construction relative to Pre-FERC Order baseline (when ~~interim seismic~~ restrictions limited reservoir capacity to 51,200 AF); however, barring extreme drought conditions that do not have a substantial probability of occurring during the construction phase, groundwater storage is still predicted to be above Valley Water’s 2021 Groundwater Management Plan storage target (Valley Water 2023a). Nevertheless, in the event that reduced creek flow combined with extreme drought conditions were to occur, the combination would cause a drop in groundwater levels, aquatic, wetland, and riparian habitats could suffer reduced health.

During Seismic Retrofit construction, the reservoir’s outlets would be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed. Existing Conditions Baseline conditions for Seismic Retrofit construction when the Stage 1 Diversion is in place, dam outlets will allow for wet weather releases from the dam of up to 2,500 cfs. When the Stage 2 Diversion is in place, dam outlets will allow for wet weather releases from the dam of up to 6,000 cfs, although such releases have a very low probability of occurring. The magnitude of flow, and frequency of flows of a certain magnitude, will depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (<u>2022c</u> ~~2022d~~) predicts higher flows approximately 2,500 cfs at the 2-, 5-, and 10-year return intervals during construction. At their maximum, such wet weather reservoir outflows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The higher the flow, the lower the probability and frequency of that flow occurring in any given year, so that very high flows, greater than the 10-year or 20-year events, are unlikely during the project construction period, though possible. Also, the probability of very high flows (i.e., flows greater than the 10-year/20-year magnitude/frequency) would be lower during Years 2 to 7 of ADSRP construction than under Existing Conditions Baseline conditions because less water would be detained in the reservoir during construction, and therefore the probability of maximum release would be lower. Thus, while moderate-sized flows could occur more frequently during Years 2 to 7 of Seismic Retrofit construction because outlet capacity increases in Year 2, very high flows are likely to be less frequent (Valley Water 2022c ~~2022d~~).

Higher flows released during storm events in Construction Years 2 to7 could impact mixed riparian woodland and forest, as described in Impact TERR-2. Higher flows during storm events could cause erosion and scour that would result in the loss of some riparian vegetation and instream wetlands along the channel. However, such habitat modifications would allow regeneration of riparian trees such as cottonwoods, willows, and sycamores, as described in Impact TERR-1c, as well as expanded areas for colonization by wetland vegetation at the edges of channels. With the dam’s outlets kept open during Seismic Retrofit Project construction, the frequency and magnitude of flows will more closely resemble natural fluvial conditions that maintain riparian vegetation along natural streams. Thus, the habitat modifications resulting from inundation and scour help to rejuvenate the riparian corridor along Coyote Creek and maintain habitat heterogeneity that supports healthy riparian and wetland communities.

Conservation Measures Construction

The Conservation Measures Project Area supports reservoir, pond, perennial stream, seasonal wetland, and coastal and valley freshwater marsh land cover types that are regulated by the USACE and State as jurisdictional waters of the U.S. and waters of the State, respectively, and as part of the regulation of stream and lake beds and banks by CDFW. In addition, the State may regulate impacts to some mixed riparian woodland and forest and willow riparian forest and scrub as well; impacts to these two riparian land cover types were also addressed in Impact TERR-2. These land cover types would be impacted by the Ogier Ponds CM and the Phase 2 Coyote Percolation Dam CM~~, and Conservation Measures along the North Channel Extension, and other areas where instream habitat improvements such as sediment augmentation in the Live Oak Restoration Reach and other areas of the FCWMZ would occur~~. **Table 3.5-15** ~~**Table 3.5-14**~~ indicates the acreage (and linear footage for stream impacts) of each type of jurisdictional wetlands or other waters of the U.S. or State expected to be impacted by ~~in the Conservation Measures Project Area, thus representing the maximum extent of each type that could be directly impacted by (i.e., lost to)~~ construction of the Ogier Ponds CM and Phase 2 Coyote Percolation Dam CM ~~Conservation Measures~~.

Table 3.5-15~~.~~ ~~Table 3.5-14~~ Direct Impacts on Potential Jurisdictional Waters (Waters of the U.S., Waters of the State, and CDFW Jurisdictional Waters) from ~~Conservation Measures~~ Construction of the Ogier Ponds and Phase 2 Coyote Percolation Pond Conservation Measures

Land Cover Type	Impact (acres) by Jurisdiction*			Impact (linear feet) by Jurisdiction**		
	Waters of the U.S.	Waters of the State	CDFW	Waters of the U.S.	Waters of the State	CDFW
Reservoir	17.2	17.2	17.2	1,890~~---~~	1,890~~---~~	1,890~~---~~
Pond	2.13	2.13	2.13	---	---	---
Perennial Stream	1.64 ~~1.66~~	1.64 ~~1.66~~	1.64 ~~1.66~~	2,604 ~~2,634~~	2,604 ~~2,634~~	2,604 ~~2,634~~
~~Intermittent Stream~~	0.26	0.26	0.26	482	482	482

Land Cover Type	Impact (acres) by Jurisdiction*			Impact (linear feet) by Jurisdiction**		
	Waters of the U.S.	Waters of the State	CDFW	Waters of the U.S.	Waters of the State	CDFW
Coastal and Valley Freshwater Marsh	3.65 ~~3.66~~	3.65 ~~3.66~~	3.65 ~~3.66~~	685~~---~~	685 ~~---~~	685~~---~~
Seasonal Wetland	0.05	0.05	---	---	---	---
Mixed Riparian Woodland and Forest	---	5.15 ~~7.28~~	5.15 ~~7.28~~	---		1,804~~---~~
Willow Riparian Forest and Scrub	---	14.35	14.35	---	2,835~~---~~	2,835~~---~~
Total	**24.67 ~~24.96~~**	**44.17 ~~46.59~~**	**44.12 ~~46.54~~**	**5,179 ~~3,116~~**	**4,884 ~~3,116~~**	**4,884 ~~3,116~~**

**In accordance with VHP conventions, acreages are reported to the nearest 0.1 acres except for wetland and riparian land cover types.*

*** The full linear footage of each land cover type occurring along drainages is provided, even where stream and riparian land covers occur along the same stream segment. However, the total linear footage does not double-count such areas of overlap among land cover types along a drainage. The linear footage of impacts represents the same impact areas as the impact acreage, just with a different metric.*

~~*Notes:*~~

~~*This table summarizes the total acreages within the Ogier Ponds CM, Coyote Percolation Dam CM, and North Channel Extension Areas. Additional impacts to jurisdictional habitats may result from Conservation Measures such as sediment augmentation, though the locations and extents of such impact areas are not yet known.*~~

Key: CDFW = California Department of Fish and Wildlife

Conservation Measures construction would result in placement of fill and alteration of bed and bank to restore Coyote Creek stream banks through the Ogier Ponds area and ~~place up to 500 cy of gravel and course sediment every 5 years for replenishment of spawning habitat within the FCWMZ,~~ install a roughened ramp to assist fish passage as part of the Phase 2 Coyote Percolation Dam CM. As discussed in Impact TERR-2 above, each gravel augmentation event implemented as part of the Sediment Augmentation Program would involve placement of up to 500 cy of sediment, potentially impacting up to 1,200 square feet (0.03 acre) of riparian habitat and up to 100 ft of linear perennial stream channel. Conservation Measures construction would also result in ~~and widen and lengthen the North Channel Extension ;~~ construction-phase localized hydrological interruption from dewatering; construction-phase degradation of water quality due to releases of sediment or other construction related pollutants during restoration project work; and other potential direct impacts on jurisdictional habitat types. Jurisdictional habitat types that would be affected are wetlands (coastal and valley freshwater marsh and seasonal wetland), non-wetland other waters (perennial stream, reservoir, and pond), and mixed riparian woodland and forest and willow riparian forest and scrub. ~~Because the entire footprints of these Conservation Measures could be impacted during construction, impact acreages for jurisdictional habitat types could total those reported in **Table 3.5-14**.~~ Although impacts to all the jurisdictional land cover types within these Conservation Measures areas are considered permanent per VHP conventions, portions of these impact areas (e.g., ~~intermittent~~

~~stream in the North Channel Extension Area and~~ perennial stream in the Coyote Percolation Dam CM Area) will be impacted only during construction.

All Conservation Measures will be comprised primarily of natural habitat types upon completion and attainment of habitat related success criteria. Upon implementation, the Ogier Ponds CM ~~and North Channel Extension~~ will result in the creation and restoration of jurisdictional habitats. Valley Water predicts that approximately 12.5 acres of perennial stream riverine aquatic and wetland habitat below the OHWM, as well as 39.5 acres of riparian habitat between the OHWM and the top of bank on either side of the realigned channel, will be restored, and 4.5-acres of freshwater marsh wetland will be created in the borrow site near Pond 3 as part of the Ogier Ponds CM. ~~In addition, 0.8 acres of intermittent stream, 0.2 acres of perennial stream and 1.4 acres of riparian habitat adjacent to the OHWM will be restored by the North Channel Extension.~~ Although there will be a temporal loss of riparian habitat during construction of the~~se~~ Conservation Measures, ~~for which VHP permanent impact fees will be paid,~~ implementation of the restoration and creation of habitat types by the CMs and related maturation of the restored riparian and wetland habitat types associated with the CMs will result in a net increase in stream, wetland, and riparian habitat acreage within Coyote Creek, in addition to providing fish habitat improvements and benefits as discussed in the ~~Aquatic Biological Resources~~ Biological Resources—Fisheries Resources section.

Collectively, the Ogier Ponds CM and Phase 2 Coyote Percolation Dam CM~~, and North Channel Extension~~ are intended to improve habitat quality and ecological functions and services, not only for steelhead but also for riparian and wetland animals. Net impacts of Conservation Measures on riparian habitat were discussed in detail in Impact TERR-2 above. Of the approximately 24.67 ~~24.96~~ acres of impacts to aquatic (reservoir, pond, and riverine) and wetland (coastal and valley freshwater marsh and seasonal wetland) land cover types resulting from the Ogier Ponds CM and Phase 2 Coyote Percolation Dam CM ~~these Conservation Measures,~~ 17.2 acres consist of reservoir at Ogier Ponds. At Ogier Ponds, the reservoir land cover type is used by low to moderate numbers of relatively few species of waterbirds, such as ducks, double-crested cormorants, and grebes. Conversion of reservoir to riverine and wetland habitats within the realigned Coyote Creek channel, with fringes of marsh and extensive riparian habitats, will continue to provide habitat for these waterbirds and wetland-associated animals while also increasing the number and diversity of terrestrial animals that will use those areas formerly occupied by reservoir, thus resulting in an increase in ecological functions and services in those areas. This increase in functions and services within 12.5 acres of restored riverine aquatic and 4.5 acres of wetland habitat will offset, and likely improve upon the functions and services currently provided by the 7.47 ~~7.76~~ acres of stream, pond, marsh, and seasonal wetland habitats as well as the 17.2 acres of reservoir that will be impacted by the Ogier Ponds CM and Phase 2 Coyote Percolation Dam CM ~~project~~. Conservation Measures also include release of imported water via the CDL and Cross Valley Pipeline Extension, which would help maintain groundwater levels and thus the aquatic, wetland, and riparian habitats along Coyote Creek and in North Coyote Valley (such as Laguna Seca).

Valley Water's payment of VHP permanent impact fees would include specialty fees for all wetland, other waters, and riparian land cover impacts (except for reservoir impacts) as required by the VHP. Payment of VHP impact fees would directly contribute to the conservation of intermittent and perennial streams, ponds, coastal and valley freshwater marsh, seasonal wetlands, mixed riparian woodland and forest, and willow riparian forest and scrub, as the VHP's conservation program includes preservation and management targets for all of these land cover types. SCVHA and Valley Water will track wetlands mitigation created and conserved with VHP fees in comparison to wetlands impacts to demonstrate the additional offset of wetlands impacts (i.e., from the combination of the Project's Conservation Measures and payment of VHP impact fees). Implementation of the Conservation Measures will provide additional habitat enhancements beyond what is required to offset project impacts. Specifically, the Ogier Ponds CM will include wetland features that would further enhance wetlands functions and values along Coyote Creek.

Table 3.5-16 summarizes the net impacts, in terms of loss and gain, of the Project resulting from construction of the Seismic Retrofit component, the Ogier Ponds CM, and the Phase 2 Coyote Percolation Dam CM.

Table 3.5-16.~~Table 3.5-15~~ Net Impact on Potential Jurisdictional Waters (Waters of the U.S., Waters of the State, and CDFW Jurisdictional Waters) from Construction of the Seismic Retrofit, Ogier Ponds CM, and Phase 2 Coyote Percolation Dam CM ~~and Conservation Measure Construction~~

	Permanent Loss (ac)[1]				Creation/Restoration (ac)	Net Loss/Gain
Habitat Type	**Seismic Retrofit**	**Ogier Ponds CM**	**Coyote Perc Dam CM**	**Total**	**Ogier Ponds CM**	
Reservoir	3	15	---	18	---	-18
Pond	0.19	2.13	---	2.32	---	-2.32
Intermittent Stream (ac)	0.04 ~~---~~	---	---	0.04 ~~0.26~~	---	-0.04 ~~+0.54~~
Perennial Stream (ac)	0.32 ~~0.5~~	1.25	0.39	1.96 ~~2.16~~	12.5[2]	+10.54
Coastal and Valley Freshwater Marsh	0.51 ~~0.52~~	3.65	---	4.16 ~~4.18~~	4.5	+0.34 ~~+0.32~~
Seasonal Wetland	---	0.05	---	0.05	---	-0.05
Mixed Riparian Woodland and Forest	0.25[3] ~~4.14~~	4.95	0.20	5.40 ~~11.42~~	39.5	+19.75 ~~+15.13~~
Willow Riparian Forest and Scrub	---	14.35	---	14.35		
Total (including reservoir)	**4.31 ~~8.35~~**	**41.38**	**0.59**	**46.28 ~~52.74~~**	**56.5**	**+10.22 ~~+6.16~~**
Total (excluding reservoir)	**1.31 ~~5.35~~**	**26.38**	**0.59**	**28.28 ~~34.74~~**	**56.5**	**+28.22 ~~+24.16~~**

Notes:

[1] This is expected loss from permanent impacts/fill, and does not necessarily match the VHP definition of "permanent"

[2] Based on the OHWM along the realigned creek, these acres could include riverine and wetland habitat, though most is likely to be non-wetland (riverine).

[3] The total riparian habitat lost as a result of seismic retrofit construction does not include the loss of 0.70 acre that was previously impacted by the FOCP, and for which permanent VHP impact fees were paid.

<u>Implementation of the Sediment Augmentation Program and maintenance of the North Channel Reach and Live Oak Restoration Reach would not result in a net change (i.e., loss or gain) of the area of waters of the U.S., waters of the State, or CDFW-jurisdictional habitats, as these CMs do not replace jurisdictional waters with non-jurisdictional habitats, and they are therefore not included in **Table 3.5-16**. As indicated in **Table 3.5-13**, maintenance of habitat restored within the North Channel Reach and Live Oak Restoration Reach could impact up to 1.20 acres and 400 linear feet of stream, marsh, and riparian habitat. However, such maintenance activities would be beneficial, maintaining the habitat enhancements implemented in these areas by the FOCP.</u>

Construction Monitoring

During Seismic Retrofit construction, Valley Water would monitor groundwater levels and continue to perform monitoring per the Dryback Monitoring Plan. Results of this monitoring would be used by Valley Water to determine whether creek flows need to be augmented to avoid adverse dryback effects on water-dependent habitats, including aquatic, wetland, and riparian land cover types. Valley Water would compensate for any impacts on these habitats that are detected by dryback monitoring and that can be attributed to reduced creek flow due to Seismic Retrofit construction by paying VHP fees for the impacts detected. Thus, no substantial adverse effects of reductions in creek flow on aquatic, wetland, and riparian habitat would occur.

Other construction monitoring measures that would monitor impacts on jurisdictional wetlands and other waters include construction-phase monitoring of water quality, suspended sediment, and sediment deposition in Coyote Creek. These monitoring activities would protect jurisdictional water from adverse effects and would not significantly adversely impact those resources.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Post-construction, Anderson Reservoir would be allowed to refill to the unrestricted elevation, thus increasing substantially the volume and acreage of waters that are actually held within the reservoir, relative to Pre-FERC Order Baseline and Existing Conditions Baseline (post-FOCP) conditions, both of which are characterized by reservoir storage restrictions that are eliminated upon completion of the Project. However, refilling of the reservoir would simply restore the historical conditions, with respect to type and extent of jurisdictional waters present within the reservoir that were present prior to DSOD restrictions in 2012 and drawdown in 2020 in response to the FERC order.

Analysis of the effects of post-construction FAHCE operations on jurisdictional waters was performed relative to the Pre-FERC Order Baseline and WEAP-modeled Future Baseline. As described previously in the general discussion of Project impacts on terrestrial biological resources, flows under the FAHCE rule curves will be generally similar to those under Pre-FERC Order conditions but possibly slightly lower, while FAHCE flows are likely to be slightly higher than under the Future Baseline. In general, FAHCE flows may entail slightly lower flow in winter and summer, due to retention of water in the reservoir for spring pulse flows, than either the Pre-FERC Order Baseline or Future Baseline, punctuated by the spring pulse flows described above. However, the effects of such changes may differ in different parts of Coyote Creek, as described previously. No substantial impacts, either adverse or beneficial, of FAHCE flows on jurisdictional habitats would occur, as even spring pulse flows are not expected to be high enough to result in erosion or scour of riparian vegetation. Further, post-construction operations would allow for releases that maintain groundwater recharge historical levels and would not adversely affect groundwater-dependent wetland and riparian habitat. As a result, post-construction operations would not adversely affect jurisdictional wetlands, other waters, and riparian habitats.

Post-construction operations of the Ogier Ponds CM will sustain jurisdictional habitats along the realigned segment of Coyote Creek. Operation of the Phase 2 Coyote Percolation Dam CM or other Conservation Measures will not result in substantial impacts on jurisdictional habitats, though maintenance of all Conservation Measures could result in minor, localized, and infrequent impacts to jurisdictional habitats similar in character to, but less severe than those associated with construction.Maintenance of facilities at Anderson Dam would occur in areas that were impacted by Seismic Retrofit construction, and such maintenance would not occur in any additional areas occupied by jurisdictional habitats. Maintenance of the habitat restoration and fish barrier remediation Conservation Measures could impact wetlands, other waters, and riparian habitat, though the extent of impacts would be limited. Seismic Retrofit and Conservation Measures maintenance activities could impact riparian habitats by mobilizing *Phytophthora*, as described in Impact TERR-2. Maintenance of the Seismic Retrofit and Phase 2 Coyote Creek Percolation Dam CM would occur as part of the DMP and would employ the AMMs implemented by the DMP to avoid and minimize impacts on sensitive biological resources, such as sensitive communities. Maintenance of the North Channel Reach ~~Extension~~, Live Oak Restoration Reach, and Ogier Ponds CM would occur as part of the SMP and would employ the AMMS implemented by the SMP to avoid and minimize impacts on sensitive biological resources, such as sensitive communities. However, the AMMs employed by the DMP and SMP do not include measures to minimize the introduction or spread of *Phytophthora*.

Adaptive management activities consist primarily of monitoring and determination by the AMT to adjust post-construction flow operations for Anderson Dam or CMs or revise the design for certain non-flow, fish passage barrier remediation or habit restoration CMs. While field monitoring would not significantly adversely affect jurisdictional resources, monitoring personnel or equipment could trample vegetation or spread *Phytophthora* in riparian habitats. Impacts of adaptive management actions to adjust post-construction flow operations or fish passage barrier and habitat restoration CMs would likely be similar in character to, but less substantial than those resulting from construction of Conservation Measures and implementation of post-construction flows. In addition, as described in **Table 2-1** *Project Components*, implementation of a Geomorphic Flows Plan would occur as part of future adaptive management under the Project and FAHCE AMP, and would require additional CEQA review and regulatory approvals. In general, the geomorphic flows would include infrequent high flows sufficient to scour sediment, erode banks, scour vegetation, and result in channel migration in localized areas, which would maintain and increase both aquatic and riparian habitat complexity, reduce non-native invasive species, and increase benthic macroinvertebrate production. Geomorphic flows would thus help to enhance and maintain diverse, high-quality instream and riparian habitat.

Significance Conclusion Summary

Project Construction

Implementation of Valley Water BMPs, payment of VHP permanent impact specialty habitat fees, and implementation of applicable VHP conditions would offset impacts on federally and State-regulated wetlands, other waters, and riparian habitats. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Implementation of BMP AQ-1 will reduce the potential for construction activities to mobilize dust onto jurisdictional habitats outside the Project footprint, thus reducing the effects of dust and the potential for *Phytophthora* to be mobilized to jurisdictional habitats within that dust. BMPs BI-8 and WQ-9 will avoid competition between invasive plants and native plants by requiring local plant species in revegetation. BMPs ~~HM-7,~~ HM-8, HM-9, HM-10, WQ-2, WQ-3, WQ-6, WQ-15, and WQ-16 will minimize the potential for hazardous materials and other pollutants to impact wetlands, other waters, and riparian habitats, and HM-12 would reduce the potential for fire to affect such communities. BMPs BI-3, BI-9, WQ-1, WQ-4, WQ-5, and WQ-11 will involve removing temporary fill, restoring channel bottoms, establishing appropriate staging and stockpiling areas and construction access areas, and keeping the work site clean, thus helping to minimize impacts on jurisdictional habitats and avoid the spread of *Phytophthora* and weeds. BMP BI-4 will minimize impacts of pesticides on nontarget species such as native plants.

Implementation of VHP Conditions 4 and 5 would further reduce the potential for and magnitude of impacts on jurisdictional habitats through numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact plants and habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on jurisdictional habitats. VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants.

Valley Water will pay VHP impact fees for wetlands, other waters, and riparian habitats, which include specialty fees for these important land cover types, as required by the VHP. The Interagency Review Team, including USACE, CDFW, and the RWQCB, have approved the VHP as an In Lieu Fee Program for impacts to water of the United State and waters of the state. The USACE Compensatory Mitigation Rule, which has been incorporated into Subpart J of the Watershed Definition of the Procedures for Discharges of Dredged or Fill Material to Waters of the State (April 2, 2019), require provision of compensatory mitigation in accordance with an approved In Lieu Fee Program where available as a first priority. If insufficient mitigation is available through an approved In Lieu Fee Program, applicants may provide compensatory mitigation that is consistent with such program as permittee-responsible mitigation. The VHP serves as both an approved In Lieu Fee Program, and as a landscape and watershed-level framework for compensatory mitigation for impacts to jurisdictional waters, including waters of the U.S., waters of the State, and CDFW-jurisdictional habitats. The VHP specifically sets biological goals for land cover types that constitute jurisdictional resources. Accordingly, in accordance with state and federal regulations that prioritize mitigation via approved In Lieu Fee Programs, Valley Water will pay permanent impact fees for all land cover types associated with jurisdictional waters that are impacted during construction of the Project, including the Seismic

Retrofit components and (as required by the VHP) the CMs, notwithstanding habitat restoration and creation that is planned as a part of the Project.

In addition to the payment of VHP permanent impact fees as required by the VHP, the implementation of the Conservation Measures more than offsets the Project's net impacts on such habitats (see **Table 3.5-16** ~~**Table 3.15-15**~~). Ecological services and functions associated with the habitat created by the CMs are expected to exceed those provided in the Existing and Pre-FERC Order conditions. Therefore, the Project will result in a net increase in the acreage of riparian, wetland, woodland, forest, and scrub habitat. This net increase, together with the payment of VHP permanent impact fees, will account for the temporal loss of riparian functions and services that will occur between the time the existing riparian habitat is impacted and restored riparian habitat is planted and matures. In addition, the restored riparian and wetlands habitat will have higher ecological functions and services than much of the impacted riparian habitat. For example, much of the impacted riparian habitat at Ogier Ponds consists of narrow stringers of riparian trees along the edges of Ponds 1 and 2, or riparian habitat around Pond 5 that is not in line with Coyote Creek. In contrast, the riparian habitat that will be restored by the Ogier Ponds CM will include a broad, diverse corridor of riparian habitat that is immediately adjacent to the realigned creek channel and that therefore both benefits the channel (providing shade, woody debris, and organic material to the creek) and receives benefits from the channel (e.g., in the form of insects that hatch in the creek and are then fed on by terrestrial riparian animals).

Maintenance of the North Channel Reach and Live Oak Restoration Reach during and following Seismic Retrofit construction would impact up to 0.61 acre of stream and 0.01 acre of coastal and valley freshwater marsh. The net effects of this maintenance would be beneficial, occurring as needed to assure continuing fisheries benefits created by the implementation during FOCP of restoration work in those reaches.

Implementation of Valley Water BMPs, payment of VHP permanent impact specialty habitat fees, and implementation of applicable VHP conditions would offset impacts to a level that is less than significant. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**. VHP-related AMMs are provided in **Table 3.5-8,** and anticipated habitat restoration and creation acreages and linear feet are set forth in **Table 3.5-16** ~~**Table 3.15-15**~~**.**

Because waters of the U.S. are regulated by the USACE under Section 404 of the CWA, waters of the State are regulated by the State under Section 401 of the CWA and under the Porter-Cologne Act, and stream and riparian habitats are regulated by CDFW under Section 1602 of the Fish and Game Code, Valley Water would also obtain all necessary permits from these agencies related to impacts on wetlands and other waters and would comply with permit conditions.

Project Maintenance

Maintenance of Anderson Dam and Phase 2 Coyote Percolation Dam CM facilities would occur as part of the DMP and would employ the BMPs and mitigation measures required by the DMP to avoid and minimize impacts on sensitive biological resources, such as jurisdictional habitats. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation, and **DMP Mitigation Measure Vegetation-6** requires restoration of vegetation that may have been lost due to dryback following dewatering. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes to avoid impacts from invasive plant species. **DMP Mitigation Measure Wildlife-1** and BMP WQ-12 require implementation of a flow bypass system for activities that would interrupt flow downstream from the dam. The DMP also includes BMPs to protect water quality, maintain clean work sites, reduce erosion thus reducing the potential for impacts on jurisdictional habitats; these include BMPs WQ-4, WQ-5, WQ-7, WQ-10, WQ-14, and WQ-18. However, the DMP mitigation measures do not include measures to minimize the potential for introduction or spread of *Phytophthora*, and therefore, there is some potential for *Phytophthora* to be mobilized by operations and maintenance activities at Anderson Dam, potentially leading to infection of adjacent jurisdictional habitats outside the Seismic Retrofit Area.

Ongoing maintenance ~~Maintenance~~ of the North Channel ~~Extension~~ Reach, Live Oak Restoration Reach, and Ogier Ponds CM would occur as part of the SMP and would employ BMPs and mitigation measures required by the SMP to avoid and minimize impacts on sensitive biological resources, such as jurisdictional habitats. SMP BMPs GEN-1 and GEN-2 limit instream work to periods that limit impacts to jurisdictional habitats; GEN-9 requires identification and avoidance of sensitive natural vegetation communities, which includes wetland and riparian habitats. GEN-16-GEN-27 and GEN-32 would protect jurisdictional habitats for indirect impacts, such as hazardous material spills, during maintenance. GEN-29-GEN-31 require dust control and vehicle maintenance practices that would prevent the introduction and spread of invasive weeds and *Phytophthora*. SMP vegetation management BMPs would also protect jurisdictional habitats during maintenance work from direct impacts, invasive weeds, and fire risks, and post-project restoration BMPs would restore any temporarily impacted jurisdictional habitats.

Implementation of Valley Water BMPs and DMP and SMP mitigation measures and BMPs, and compliance with the VHP, would reduce ongoing impacts associated with maintenance of Anderson Dam and the CMs on federally and State-regulated wetlands and other waters. However, the SMP and DMP mitigation measures do not include measures to minimize the potential for introduction or spread of *Phytophthora*. Therefore, there is some potential for *Phytophthora* to be mobilized by maintenance activities at Anderson Dam and in the Conservation Measures locations. This could potentially lead to degradation of the quality of jurisdictional wetland and riparian habitats due to the adverse effects of *Phytophthora*. Implementation of **Mitigation Measure TERR-1a(2)** will reduce Project impacts on jurisdictional habitats to **less than significant** levels by implementing AMMs during post-construction maintenance at Anderson Dam and Conservation Measures facilities to reduce the potential for introduction or spread of *Phytophthora*, thereby preventing substantial adverse effects.

Project Operation and Adaptive Management

Project flow operations are not expected to affect the quality or extent of federally or State-regulated wetlands, riparian habitat or non-wetland waters, and impacts would be less than significant.

Monitoring activities associated with long-term adaptive management are not expected to adversely affect and would benefit the quality or extent of federally or State-regulated wetlands, riparian habitat or non-wetland waters, and impacts would be less than significant. While adaptive management actions to adjust or modify flow operations or fish barrier remediation and habitat restoration CMs cannot be predicted with certainty at this time, it is expected that adaptive management modifications would be like those associated with post-construction operations and maintenance of Seismic Retrofit components and CMs. Accordingly, those impacts would be less than significant for the same reasons that post-construction operations and Project maintenance activities are concluded to be less than significant.

Mitigation Measures

TERR-1a(2) Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of Phytophthora

Impact TERR-4: Interfere substantially with the movement of any native resident or migratory species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites **(Significant and Unavoidable)**

Seismic Retrofit Construction

Seismic retrofit construction would have both adverse and beneficial effects, all temporary, on wildlife movement. Removal of vegetation providing cover or other resources for animals; construction of fencing to prevent human access into the construction area; grading and excavation; and the disturbance associated with activity by construction vehicles, equipment, and personnel would discourage some animals that would otherwise have moved through the Seismic Retrofit Area from doing so, causing them to avoid this area during construction. Although most construction activities would occur between 6:00 a.m. and ~~5:00~~ 6:00 p.m., tunneling required for the outlet works and concrete construction activities could occur 24 hours/day, 6 days/week. Because some construction may occur at night, when many mammals, reptiles, and amphibians are active, use of the Seismic Retrofit Area by nocturnal animals would be diminished during construction due to disturbance, resulting in a reduction in habitat connectivity through the site during construction.

Because US 101 impedes wildlife movement across Coyote Valley, culverts, road undercrossings, and Coyote Creek crossings are important locations for dispersing animals to be able to move under the highway. The US 101 crossing over Coyote Creek 1.5 miles west of the Seismic Retrofit Area is particularly important for habitat connectivity and wildlife movement because of its large size; many animals are reluctant to move through long, narrow corridors such as culverts, so the large size of the Coyote Creek undercrossing makes it attractive to a variety of animals. Seismic Retrofit activities are far enough from that undercrossing that construction would not result in a substantial reduction in use of that undercrossing by dispersing animals.

Once construction activities are complete, conditions for wildlife movement through and within the Project Area would be the same as Existing Conditions Baseline (post-FOCP) conditions, and there would be no long-term impacts on wildlife dispersal through the Seismic Retrofit Area. Furthermore, sufficient habitat and cover for dispersing animals would remain on the downstream side of the dam, along with sufficient cover within riprap on the upstream side of the dam, following Project completion so that animals would still be able to disperse across the dam even following removal of vegetation during construction.

During Seismic Retrofit construction, dry season flows in Coyote Creek downstream from Anderson Dam would be maintained via bypass flows released from Coyote Reservoir, supplemented with water released into Coyote Creek through the CDL and Cross Valley Pipeline Extension. Groundwater levels along Coyote Creek or in North Coyote Valley are not predicted to drop substantially as a result of operations during construction. Modeling performed by

Valley Water predicted that there would be a reduction in groundwater recharge and storage during Seismic Retrofit construction relative to 2015 base conditions (when ~~interim seismic~~ restrictions limited reservoir capacity to 51,200 AF); however, groundwater storage is still predicted to be above Valley Water's 2021 Groundwater Management Plan storage target (Valley Water 2023a). Nevertheless, in the event that reduced creek flow combined with drought conditions were to cause a drop in groundwater levels, aquatic, wetland, and riparian habitats providing cover and other resources for animals dispersing along the creek could suffer reduced health.

Existing Conditions Baseline conditions for Seismic Retrofit construction allow for discharges from the dam of up to 2,500 cfs. During Seismic Retrofit construction, the reservoir's outlets would be left open during the wet season to minimize the amount of water that accumulates in the reservoir bed. The magnitude of flow, and frequency of flows of a certain magnitude, will depend on rainfall amounts during individual runoff events and Coyote Reservoir releases. Valley Water (2022c ~~2022d~~) predicts higher flows at the 2-, 5-, and 10-year return intervals during construction. At their maximum, such flows could be as high as 6,000 cfs, which represents the maximum capacity of all dam outlets that will be present. However, a 6,000-cfs flow during Seismic Retrofit construction has a very low probability of occurring, as it would represent a 200-year event (with a 0.5 percent likelihood of occurring in any given year). The higher the flow, the lower the probability and frequency of that flow occurring in any given year, so that very high flows, greater than the 10-year or 20-year events, are unlikely during the project construction period, though possible. Also, the probability of very high flows (i.e., flows greater than the 10-year/20-year magnitude/frequency) would be lower during construction than under Existing Conditions Baseline conditions because water would not be detained in the reservoir during construction, and therefore the probability of spilling would be lower. Thus, while moderate-sized flows could occur more frequently during construction, very high flows are likely to be less frequent (Valley Water 2022c ~~2022d~~).

Higher flows during storm events could cause erosion and scour that would result in the loss of some riparian vegetation along the channel that could be used by dispersing animals. However, such habitat modifications and sediment brought into the creek channel by higher frequency and magnitude flows would allow regeneration of riparian trees such as cottonwoods, willows, and sycamores, as described in Impact TERR-1c. Thus, the habitat modifications resulting from higher flows help to rejuvenate the riparian corridor along Coyote Creek and maintain habitat heterogeneity that supports healthy riparian communities for wildlife dispersal. Higher flows could briefly interrupt dispersal events by animals attempting to cross Coyote Creek, though these flows would subside quickly after storm events, because Anderson Dam would not be detaining flows during construction.

Dewatering of the reservoir during Seismic Retrofit construction is likely to improve the ability of some terrestrial animals to move along and across the reservoir. Dewatering would increase the amount of terrestrial habitat and narrow the aquatic impediments to dispersal to the narrow stream channels within the reservoir bed. For some animals with lower mobility, such as reptiles and amphibians, Anderson Reservoir represents a dispersal impediment that makes it difficult for individuals to move between populations on either side of the reservoir, and such dispersal may occur more readily during Seismic Retrofit implementation. For example, the dewatered condition of the reservoir could allow fewer mobile species that do not use reservoir habitat, such as California tiger salamanders, California red-legged frogs, and small mammals, to disperse across the reservoir during the construction period, something that may not occur under normal conditions when the reservoir is filled. This dispersal may allow exchange of individuals and genetic diversity between subpopulations on either side of the reservoir, which can benefit the regional population given that the reservoir impedes such dispersal under normal conditions.

For larger, more mobile animals, such as black-tailed deer, mountain lions, and feral pigs, larger numbers of individuals are already present on both sides of the reservoir, and these larger animals can more easily disperse long distances around the reservoir under post-FOCP or even historical conditions. As a result, dewatering of the reservoir during Seismic Retrofit construction will not have a substantial effect, either adverse or beneficial, on larger mammals. For example, such dewatering will not increase the abundance of feral pigs on either side of the reservoir, as large numbers of pigs are already present and are able to easily disperse east and west across the reservoir under Existing Conditions Baseline conditions.

Numerous animals breed within and around the Seismic Retrofit Area, but with the exception of the pallid bat maternity roost in a barn along Cochrane Road, no particularly important wildlife nursery areas are present in the vicinity or would be impacted by Seismic Retrofit construction. The pallid bat roost would be impacted by construction-related disturbance as described in Impact TERR-1h.

Conservation Measures Construction

The Conservation Measures Project Area includes areas important for wildlife movement on both local and regional scales. As mentioned above, North Coyote Valley provides a critical landscape linkage for animals dispersing between the Santa Cruz Mountains and Diablo Range. To animals dispersing from one side of the valley to the other, or species for which cross-valley gene flow occurs over a period of generations, Coyote Creek and Ogier Ponds provide important habitat areas for cover, foraging areas, and nesting, roosting, or denning sites. The construction of the Ogier Ponds CM would impact habitats used by a variety of animals for dispersing along Coyote Creek, and the removal of vegetation, grading and excavation, and disturbance by construction equipment and personnel would reduce such wildlife movement during construction of that Conservation Measure. However, during construction animals would still be able to move around the construction area (e.g., between the pond complex and US 101) when moving along Coyote Creek. After completion of the creek realignment, animals would be able to move along the realigned section of Coyote Creek at least as easily as they currently do or even more easily. The restored creek channel would likely provide even higher-quality cover and habitat than is currently present. As a result, the Ogier Ponds CM will not result in a long-term impact on wildlife movement.

Other Conservation Measures, such as construction of the Coyote Percolation Dam CM, maintenance ~~Maintenance~~ of the North Channel Reach and Live Oak Restoration Reach, ~~Extension~~ and implementation of the Sediment Augmentation Program, could result in temporary disturbance of wildlife movement during construction/implementation. However, those impacts would be minor, localized, and of short duration.

Construction phase water releases from the reservoir, CDL and Cross Valley Pipeline Extension would help to maintain aquatic, wetland, and riparian habitats along the Coyote Creek channel on which dispersing animals depend for cover and other resources. These water releases will thereby minimize adverse effects of dryback on wildlife movement for animals using the aquatic, wetland, and riparian habitats along Coyote Creek. Payment of VHP impact fees as required by the VHP would directly contribute to the preservation and enhancement of wildlife movement. The VHP's conservation program includes targeted acquisition, enhancement, and management of lands that are important to wildlife movement throughout the region, so Valley Water's payment of impact fees will benefit wildlife movement.

Numerous animals breed within and around the Conservation Measures Project Area, but no particularly important wildlife nursery areas are present near, or would be impacted by, proposed Conservation Measures.

Construction Monitoring

During Seismic Retrofit construction, Valley Water would monitor groundwater levels and continue to perform monitoring per the Dryback Monitoring Plan. Results of this monitoring would be used by Valley Water to determine whether creek flows need to be augmented to avoid adverse dryback effects on water-dependent habitats, including aquatic, wetland, and riparian land cover types. Valley Water would compensate for any impacts on these habitats that are detected by dryback monitoring and that can be attributed to reduced creek flow due to Seismic Retrofit construction by paying VHP fees for the impacts detected. This monitoring would therefore reduce the potential for dryback impacts to affect cover and the use of Coyote Creek habitats by dispersing animals.

Construction monitoring for water quality, fisheries monitoring and fish rescue, aquatic species rescue and relocation, invasive species monitoring and control, and other monitoring efforts could result in the disturbance of dispersing animals due to the noise and activity of monitoring personnel and equipment. Such impacts would be localized and infrequent, and they would not substantially impede wildlife movement.

No particularly important wildlife nursery areas would be impacted by proposed construction monitoring. For example, construction monitoring would not occur close enough to the pallid bat roost in the Cochrane Road barn that monitoring would disturb bats using the roost.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Post-construction operations would allow Anderson Reservoir to refill. This would reduce the ability of smaller, less mobile animals to move across the bed of the dewatered or drawn-down reservoir, though it would simply be restoring conditions faced by dispersing animals prior to the 2012 DSOD restrictions. Post-construction operations would allow for releases that maintain sufficient water in Coyote Creek downstream to continue to support aquatic, wetland, and riparian habitats, thus facilitating continued use of the Coyote Creek corridor for wildlife movement.

Analysis of the effects of post-construction FAHCE operations on wildlife movement was performed relative to the Pre-FERC Order Baseline (2017 conditions) and WEAP-modeled Future Baseline (2035 conditions). FAHCE flows are not expected to result in substantial impacts, either adverse or beneficial, on wildlife movement. As described previously in the general discussion of Project impacts on terrestrial biological resources, flows under the FAHCE rule curves will be generally similar to~~, those under 2017 conditions~~ but possibly slightly lower than the Pre-FERC Order Baseline Conditions, while FAHCE flows are likely to be slightly higher than under the WEAP-modeled Future Baseline. In general, FAHCE flows may entail slightly lower flow in winter and summer, due to retention of water in the reservoir for spring pulse flows, than either the Pre-FERC Order Baseline or Future Baseline, punctuated by the spring pulse flows described above. There is some potential for spring pulse releases to inundate vegetative cover along Coyote Creek that may be used by dispersing animals. However, such flows will be relatively brief (and not particularly high, from the perspective of inundation of habitat for dispersing animals). Changes in creek temperature because of post-construction operations would not have a substantial effect on wildlife movement.

Maintenance of Anderson Dam facilities and Conservation Measures, including maintenance of the North Channel and Live Oak Restoration Reach, could disturb dispersing animals, either due to physical disturbance of vegetation or due to disturbance from noise or activity of maintenance personnel and equipment. Such maintenance activities would be localized and infrequent and would therefore not substantially impede wildlife movement. Adaptive management activities consist primarily of monitoring and potential adaptive management actions. There is some potential for personnel or equipment involved in field monitoring activities to disturb dispersing animals, though such impacts would be localized and brief. Impacts of adaptive management actions would likely be similar to those resulting from Conservation Measures and post-construction flows.

Post-construction operations, maintenance, and monitoring would have little to no impact on the pallid bat roost in the Cochrane Road barn, as such activities would not occur very close to that barn.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts on wildlife movement and nursery sites. BMPs applicable to this impact are identified in Table 3.5-6. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Valley Water would implement BMPs HM-8, HM-9, HM-10, WQ-11, WQ-15, and WQ-16 to minimize the potential for hazardous materials and other pollutants to impact dispersing animals, as well as pallid bats and their food sources, and HM-12 would reduce the potential for fire to affect these species and their habitats. BMP WQ-4 limits impacts from staging and stockpiling activities. BMPs BI-8 and WQ-9 will reduce impacts on these species' habitats by avoiding competition between invasive plants and native vegetation. BMP BI-11 will minimize the attraction of predators that may prey on dispersing animals and pallid bats. BMP BI-4 will minimize impacts of pesticides on nontarget species. BMP BI-10 will avoid entrapment of animals in pipes, hoses, pits, or trenches during construction.

Implementation of VHP Conditions 3, 4, 5, 7, and 11 would reduce the potential for and magnitude of impacts on dispersing animals, pallid bats, their habitats, and their prey by minimizing impacts on stream, wetland, and pond habitats. These conditions require implementation of numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact these species and their habitats, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on this species' habitats. VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants.

Maintenance of Anderson Dam facilities would occur as part of the DMP and would employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources, such as pallid bats, dispersing animals, and their habitats. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation, and **DMP Mitigation Measure Vegetation-6** requires restoration of vegetation that may have been lost due to dryback following dewatering. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes, which would avoid impacts to animals' habitat from invasive plant species. **DMP Mitigation Measure Wildlife-4** prohibits the use of herbicides that are not excluded from the applicable injunction.

Although Project activities may temporarily affect wildlife movement during construction, animals would still be able to move through the Project Area during construction, and no long-term impacts on wildlife movement would result. Post-construction operations, maintenance, and adaptive management would not substantially affect wildlife movement. Thus, the Project would not interfere substantially with wildlife movement and impacts on wildlife movement would therefore be **less than significant**. The VHP conservation program would assemble a Reserve System with landscape linkages and wildlife movement in mind to protect and, where possible, enhance movement pathways on a regional scale. Valley Water's impact fees would thus contribute to the maintenance and improvement of opportunities for movement and genetic exchange of native plants and animals within and between natural communities inside and connecting to areas outside of the VHP Reserve System.

The only regionally important wildlife nursery site in the Project vicinity is the Cochrane Road barn pallid bat maternity roost addressed in Impact TERR-1h. Implementation of **Mitigation Measures TERR-1h(1)** through **TERR-1h(4)** will reduce impacts on that roost, and thus impacts on wildlife nursery sites would be **less than significant**. If pallid bat numbers are documented to be at least 75 percent of baseline numbers (as described in Impact TERR-1h) during any survey within 3 years following completion of construction, then the impact would be **less than significant**. Nevertheless, the Project could cause the number of females at this site to drop below 75 percent of existing numbers, and a substantial proportion of the regional population would have been affected. No other mitigation would be available to reduce this impact, as **Mitigation Measures TERR-1h(1)** to **TERR-1h(4)** represent the only available measures to reduce this impact, and because pallid bats are selective about their choice of roost sites, it is unknown whether pallid bats would use any alternative roost site provided under **Mitigation Measure TERR-1h(4)**. Therefore, this impact on the pallid bat roost, and thus on wildlife nursery sites, would be **significant and unavoidable**.

Mitigation Measures

TERR-1h(1) Avoid Disturbance of the Cochrane Road Barn Roost

TERR-1h(2) Evict Pallid Bats prior to Initiating Maternity-Season Disturbance near the Cochrane Road Barn Roost

TERR-1h(3) Minimize Impacts on Pallid Bats Roosting Outside the Cochrane Road Barn

TERR-1h(4) Provide Alternative Pallid Bat Maternity Roost Structures

Impact TERR-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance (No Impact)

Seismic Retrofit Construction

As noted in the *Regulatory Setting* section above, the County, the City of San José, and the City of Morgan Hill all have tree removal regulations that protect trees of certain types and sizes and require permits before such trees are removed. The number of trees meeting the criteria for protection by those regulations was estimated for each of these three jurisdictions based on a survey of a portion of the Seismic Retrofit Area conducted in 2020 by WCA and estimates of trees in additional impact areas by H. T. Harvey & Associates in 2022 and 2023. Seismic Retrofit construction will necessitate the removal of approximately 290 trees in Morgan Hill that are large enough to meet that City's ordinance size, and approximately 40 trees in San José that meet that City's criteria for ordinance-sized trees. However, as discussed in the *Regulatory Setting* section, the City of San José tree ordinance applies only to private property, and the City of Morgan Hill tree ordinance applies only to private and City property. These ordinances by their terms therefore do not apply to the study area locations on public property where trees would be removed.

In the unincorporated county, Seismic Retrofit construction would result in the removal of approximately 270 ordinance-sized trees, particularly within coast live oak forest and woodland, foothill pine–oak woodland, and mixed riparian woodland and forest land cover types.

Valley Water is exempt from compliance with the County tree ordinance under either Government Code Sections 53091(d) and (e) (which state that County or City building and zoning ordinances do not apply to the construction of facilities for water storage or transmission), or for nonbuilding and zoning ordinances, under *Hall v. Taft* (1956) 47 Cal. 2d 177,189 (which holds that water districts are exempt from municipal police power regulation). Therefore, although the County tree ordinance by its terms would ordinarily apply to the Project, Valley Water's removal of ordinance-sized trees would not conflict with the County tree ordinance, and there would be no impact. Nevertheless, recognizing the importance of protected trees to the County and the terms of the County ordinance, Valley Water has voluntarily proposed **Mitigation Measure AES-1**, calling for the planting of replacement trees removed on County Park land.

Conservation Measures Construction

Conservation Measures such as the Ogier Ponds CM and Coyote Percolation Dam CMs~~, and the North Channel Extension improvements~~ would result in the removal of approximately 40 trees protected by County tree removal regulations. Maintenance of the North Channel Reach and Live Oak Restoration Reach would not necessitate removal of trees in conflict with the County tree ordinance. ~~Although trees within Morgan Hill would be impacted by the North Channel Extension, no~~ No trees on private property or ~~City~~ property of the cities of Morgan Hill or San Jose would be removed.

Valley Water's payment of VHP impact fees would help to offset impacts to trees and oak woodlands, as those fees would contribute to the VHP's conservation program, which includes the conservation, restoration, and management of a number of land cover types supporting trees, including oak woodlands.

Valley Water's removal of ordinance-sized trees would not conflict with the County tree ordinance, and therefore there would be no impact. Nevertheless, recognizing the importance of protected trees to the County, Valley Water has voluntarily proposed **Mitigation Measure AES-1**, calling for the planting of replacement trees removed on County Park land.

Construction Monitoring

No construction monitoring activities would result in removal of trees in conflict with the County tree ordinance.

Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Adaptive Management

Post-construction operations and maintenance of the Seismic Retrofit or the Conservation Measures, including ongoing maintenance of the North Channel Reach and Live Oak Restoration Reach, would not necessitate removal of trees in conflict with the County tree ordinance. Adaptive management activities consist primarily of monitoring and potential adaptive management actions. Monitoring would not remove ordinance-sized trees in the unincorporated county. Impacts of adaptive management actions would likely be similar to those resulting from Conservation Measures and post-construction flows.

Significance Conclusion Summary

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts on regulated trees. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**.

Valley Water will implement BMP HM-12 to reduce the potential for fire to affect trees, and BMP WQ-9 to reduce impacts on native trees by avoiding competition with invasive plants. Implementation of VHP Conditions 4, 5, and 7 would reduce the potential for and magnitude of impacts on trees by minimizing impacts on riparian habitats. These conditions require implementation of numerous AMMs summarized in **Table 3.5-8**; these AMMs include limiting the footprint of activities, reducing the potential for pollutants to impact vegetation, avoiding the encouragement of invasive plants, and avoiding erosion and sediment impacts on vegetation. VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants.

Maintenance of Anderson Dam facilities would occur as part of the DMP and will employ the BMPs and mitigation measures implemented by the DMP to avoid and minimize impacts on sensitive biological resources. DMP BMPs BI-10 and BI-11 minimize impacts to vegetation, and **DMP Mitigation Measure Vegetation-6** requires restoration of vegetation that may have been lost due to dryback following dewatering. BMP BI-13 requires use of local ecotypes of native plants and appropriate erosion control seed mixes. **DMP Mitigation Measure Wildlife-4** prohibits the use of herbicides that are not excluded from the applicable injunction.

Valley Water's payment of VHP impact fees would help to offset impacts to trees, as those fees would contribute to the VHP's conservation program, which includes the conservation, restoration, and management of a number of land cover types supporting trees.

Valley Water's removal of ordinance-sized trees would not conflict with the County tree ordinance, and there would be **no impact**. Nevertheless, recognizing the importance of protected trees to the County, Valley Water has voluntarily proposed **Mitigation Measure AES-1**, calling for the planting of replacement trees removed from County Park land.

Mitigation Measures

No mitigation is required.

Impact TERR-6: Conflict with the provisions of an adopted Habitat Conservation Plan/Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan (Less than Significant)

Valley Water is a signatory on one conservation plan: the VHP, which is an HCP and NCCP for terrestrial species and related habitats. As described in *Project Description*, the VHP explicitly included the Project in its list of covered activities, and most impacts of the Project were included in the VHP's analysis of the effects of covered activities. All VHP-covered species that may be affected by the Project are discussed in this Final ~~Draft~~ EIR, including Coyote ceanothus, Mount Hamilton thistle, Santa Clara Valley dudleya, smooth lessingia, Tiburon paintbrush, Metcalf Canyon jewel-flower, most beautiful jewel-flower, Loma Prieta hoita, and fragrant fritillary (Impact TERR-1a); Bay checkerspot butterfly (Impact TERR-1b); California tiger salamander, California red-legged frog, and foothill yellow-legged frog (Impact TERR-1c); northwestern pond turtle (Impact TERR-1d); tricolored blackbird (Impact TERR-1f); and burrowing owl (Impact TERR-1g). Similarly, impacts on sensitive habitats, such as stream, wetland, riparian, and serpentine habitats, for which the VHP requires specific impact fees, are discussed in this Final ~~Draft~~ EIR. Valley Water would apply for VHP coverage for the Project and adhere to all applicable VHP Conditions during Project implementation. Therefore, the Project would not be in conflict with the VHP.

Some impacts of the Project are not covered by the VHP, because they are explicitly excluded from VHP coverage, they exceed thresholds that the VHP set for coverage, or they affect species that occur only in areas that are outside the VHP permit area. Valley Water would address those impacts outside of the context of the VHP (e.g., through its BMPs, additional mitigation measures, and Project-specific consultation with the USFWS and CDFW as necessary), and the inclusion of these non-VHP-covered impacts do not conflict with the VHP. Therefore, this impact is less than significant.

Mitigation Measures

No mitigation is required.

3.5.5 Cumulative Impacts

The geographic study area for wildlife and terrestrial resources encompasses the Coyote Creek watershed downstream of Coyote and Anderson Dams, the Upper Penitencia Creek watershed, and the areas surrounding other relevant Valley Water and non-Valley Water projects and plans in northern Santa Clara County.

This section describes the Project's contribution to cumulative impacts on wildlife and terrestrial resources, as summarized in **Table 3.5-17**.~~**Table 3.15-16**~~

Cumulative impact thresholds for wildlife and terrestrial resources are the same as the impact thresholds presented in Section 3.5.3.5, *Thresholds of Significance*, as listed below.

Table 3.5-17 ~~Table 3.15-16~~. Summary of Project Impact Contribution to Cumulative Impacts on Biological Resources – Wildlife and Terrestrial Resources

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact TERR-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS	Yes	Yes	CC	TERR-1a(1-4) TERR-1c(1-2) TERR-1e TERR-1g TERR-1h(1-4) TERR-1j	Yes
Cumulative Impact TERR-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS	Yes	Yes	CC	TERR-1a(2)	No
Cumulative Impact TERR-3: Have a substantial adverse effect on State or federally protected wetlands through direct removal, filling, hydrological	Yes	Yes	CC	TERR-1a(2)	No

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
interruption, or other means					
Cumulative Impact TERR-4: Interfere substantially with the movement of any native resident or migratory species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	Yes	Yes	CC	TERR-1h(1-4)	Yes
Cumulative Impact TERR-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	No	No	NI	AES-1	No
Cumulative Impact TERR-6: Conflict with the provisions of an adopted Habitat Conservation Plan/Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan	No	No	NCC	N/A	No

Key: CC = cumulatively considerable; N/A = not applicable; NCC = not cumulatively considerable

***Cumulative Impact TERR-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS* (Cumulatively Considerable)**

Degradation of special-status species habitats and reductions in their diversity are existing concerns in Santa Clara County. Implementation and operation of the Project would impact Coyote ceanothus, smooth lessingia, woodland woollythreads, most beautiful jewel-flower, Mt. Hamilton thistle, and San Francisco collinsia individuals; and, if present within unsurveyed areas, may impact alkali milk vetch, Point Reyes bird's beak, Metcalf Canyon jewel-flower, Santa Clara Valley dudleya, fragrant fritillary, big-scale balsamroot, and Loma Prieta hoita. Further, the movement of earth, vegetation, water (e.g., runoff), equipment, vehicles, and personnel could spread invasive plant propagules and pathogens such as *Phytophthora*, which could degrade vegetation communities and habitat for numerous special-status species. Implementation and operation of the Project entails the potential to impact special-status insects (Bay checkerspot butterfly, monarch butterfly, and Crotch's bumble bee); amphibians (California tiger salamander, California red-legged frog, and foothill yellow-legged frog); <u>north</u>western pond turtle; bald and golden eagles; nonbreeding special-status birds (Swainson's hawk, burrowing owl, and peregrine falcon); pallid bat, other special-status mammals (San Francisco dusky-footed woodrat, mountain lion, ringtail, American badger, Townsend's big-eared bat, and western red bat); and San Francisco Bay special-status species (California Ridgway's rail, California black rail, Alameda song sparrow, San Francisco common yellowthroat, northern harrier, Bryant's savannah sparrow, salt marsh harvest mouse, and salt marsh wandering shrew) individually or in aggregations (e.g., nests, host plants, roosts, overwintering sites).

Cumulative Effects of Project with the FOCP

The FOCP would involve modifications to the existing structures surrounding Anderson Dam and Reservoir which could also impact special-status plants around the reservoir, spread invasive plant propagules and pathogens such as *Phytophthora*, and disturb special-status insects, amphibians, and mammals with construction activity. In particular, FOCP construction activities are near the Cochrane Road barn and large colony of pallid bat, which could cause disruption to the existing pallid bat colony. The construction schedules for FOCP and the Project would not overlap, reducing the potential for cumulative construction-related impacts. Also, the FOCP includes avoidance and minimization measures, and a ~~Habitat Monitoring and Mitigation Plan (~~HMMP~~)~~, designed to minimize impacts special status species and habitats. The cumulative impacts with the Project and FOCP are nevertheless significant, and the Project's contribution is cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Many of the reasonably foreseeable future projects, plans, and programs identified in Section 3.0.5, *Approach to Cumulative Impacts*, when combined with impacts of the Project (as described in Section 3.5), could affect terrestrial biological resources, including identified federally or State listed, candidate, sensitive, or special-status species. Some of these future projects, such as the South Bay Salt Ponds Restoration Project, SMP, and FAHCE, would acquire and preserve, create, restore, and/or enhance conditions for some of the terrestrial biological resources that would be impacted by the Project. Also, as discussed in further detail below, the VHP is a Natural Community Conservation Plan (NCCP) and Habitat Conservation Plan (HCP) that contributes to the recovery of listed species and the preservation of natural communities regionally, thus resulting in a net benefit (considering all VHP-covered activities that both impact and benefit species and communities) to these terrestrial biological resources. Thus, some of these future projects, in combination with the VHP, help to reduce or even counteract adverse cumulative impacts. Nevertheless, because some of the future projects, plans, and programs identified in Section 3.0.5, *Approach to Cumulative Impacts*, are not covered by the VHP and do not result in a net benefit to special-status species, the cumulative impact to special-status terrestrial biological resources resulting from the Project in combination with these other probable future projects, plans, and programs within the relevant geographic area would be significant.

Although the Project would directly or indirectly impact special-status species populations or their habitat, many of these impacts would be reduced through adherence to VHP conditions. The Project is covered under the VHP, which is intended to address cumulative impacts on biological resources from foreseeable development over the next 50 years by ensuring that conservation measures adequately offset the impacts of covered activities. Projects that are covered activities under the VHP would mitigate impacts on covered species and their habitats through the VHP's Conservation Program, and implementation of the VHP itself would help to ensure the conservation of these species and their habitats in the region.

As an NCCP, the VHP fulfills the requirements for NCCPs and HCPs, contributing both to the recovery of listed species and the preservation of natural communities at the ecosystem scale. As such, the VHP goes above and beyond addressing project-specific impacts and mitigation by providing a higher level of in-perpetuity conservation of plant and animal species and their habitats at an ecosystem level. The VHP's reserve system provides comprehensive ecosystem conservation for a wide range of natural resources and benefits numerous Santa Clara County plant and animal species (special-status and otherwise) and their habitats. Thus, although permits issued under the VHP name specific species (i.e., "covered species"), which are either listed as threatened or endangered or may be listed in the future during the permit term, the VHP contributes to the conservation of entire communities of common and rare plant and wildlife species and their habitats in Santa Clara County.

Nevertheless, the cumulative impacts of the Project on special status species and their habitat when added to the impacts of other probable future projects are considered significant.

Significance Conclusion Summary

Valley Water would reduce the Project's proportion of impacts on special-status species through payment of VHP impact fees. In addition, implementation of Valley Water BMPs would reduce the potential for dust from construction activities to mobilize *Phytophthora* to special-status species and their habitat; reduce competition between invasive plants and native plants; protect sensitive communities from hazardous materials, pesticides, and other pollutants; and require restoration of staging and stockpiling areas and channel bottoms temporarily affected by construction activities. Compliance with Valley Water BMPs, Valley Water's Dam Safety Program (DMP) MMs, applicable VHP conditions and required AMMs, in addition to payment of VHP fees for covered species, would reduce impacts on special-status species, but some impacts would still be significant and cumulatively considerable pre-mitigation.

Implementation of **Mitigation Measure TERR-1a(1)** would offset impacts from Project-related nitrogen deposition on Tiburon paintbrush by performing invasive plant management in and around two ~~the~~ Tiburon paintbrush populations located on ~~Valley Water's~~ Coyote Ridge ~~property~~. **Mitigation Measure TERR-1a(2)** would reduce the potential for introduction or spread of invasive plants or pathogens, such as *Phytophthora*, thereby preventing substantial adverse effects. **Mitigation Measure TERR-1a(3)** would require Valley Water to conduct additional special-status species surveys in areas not yet surveyed according to VHP standards and protocols. **Mitigation Measure TERR-1a(4)** would compensate for impacts on San Francisco collinsia by collecting seed from San Francisco collinsia plants; storing some of the seed in an accredited seed bank; and creating one or more new populations of the species outside the Project Area. **Mitigation Measure TERR-1c(1)** would require special-status amphibian AMMs during Year 6 construction activities. **Mitigation Measure TERR-1c(2**) would require nonnative species (bullfrogs, nonnative fish, and/or nonnative turtles) management in the Upper Penitencia Creek watershed at selected Valley Water ponds. **Mitigation Measure TERR-1e** would require avoidance of nesting eagles and **Mitigation Measure TERR-1g** would require avoidance of burrowing owls during construction. **Mitigation Measure TERR-1h(1)** through **TERR-1h(4)** would require avoidance, eviction, and establishment of alternative maternity roost structures for pallid bats. **Mitigation Measure TERR-1j** would reduce predation in Don Edwards San Francisco Bay National Wildlife Refuge through contributions to the Baylands Predator Management Program and high tide refugia enhancement. Through implementation of these mitigation measures, the Project's contribution to cumulative impacts on special-status species would **not be cumulatively considerable**, except for the impact to pallid bats when considered in conjunction with the impacts caused by FOCP. Even with the implementation of mitigation measures to reduce the impacts to pallid bats, the Project's seismic retrofit construction would have a **cumulatively considerable** contribution.

Mitigation Measures

TERR-1a(1) *Invasive Plant Management at ~~Valley Water's~~ Coyote Ridge Tiburon Paintbrush Populations*

TERR-1a(2) *Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of Phytophthora*

TERR-1a(3) *Special-Status Plant Survey in the Previously Unsurveyed Portions of the Seismic Retrofit Area*

TERR-1a(4) *San Francisco Collinsia Conservation Measures*

TERR-1c(1) *Special-Status Species Avoidance and Minimization Measures During Year 6 Reservoir Dewatering*

TERR-1c(2) *Nonnative Species Management in Upper Penitencia Creek Watershed*

TERR-1e *Nesting Eagle Avoidance and Minimization Measures*

TERR-1g *Burrowing Owl Impact Avoidance*

TERR-1h(1) *Avoid Disturbance of the Cochrane Road Barn Roost*

TERR-1h(2) *Evict Pallid Bats prior to Initiating Maternity-Season Disturbance near the Cochrane Road Barn Roost*

TERR-1h(3) Minimize Impacts on Pallid Bats Roosting Outside the Cochrane Road Barn

TERR-1h(4) Provide Alternative Pallid Bat Maternity Roost Structures

TERR-1j Contribution to Baylands Predator Management and High Tide Refugia Enhancement

***Cumulative Impact TERR-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS* (Not Cumulatively Considerable)**

Degradation of riparian habitats and other sensitive natural communities are existing concerns in Santa Clara County, and impacts on riparian habitats are regulated by CDFW and the RWQCB. The Project area supports five sensitive land cover types/natural plant communities – mixed riparian woodland and forest, willow riparian forest and scrub, coast live oak forest and woodland, foothill pine-oak woodland, and mixed serpentine chaparral. Aquatic and wetland habitats are also considered sensitive, but they are addressed in Cumulative Impact TERR-3 (mixed riparian woodland and forest and willow riparian forest and scrub are addressed in both impact sections). The Project would adversely affect riparian habitats and other sensitive natural communities by direct disturbance and removal of vegetation and underground root structures from activities such as grading, excavation, and placement of new structures and soil stockpiles. Impacts to the seedbank as well as disruption to plant growth and reproduction and introduction of pathogens, such as *Phytophthora*, could also result from the Project.

Cumulative Effects of Project with the FOCP

Construction of the Anderson Dam tunnel will directly impact riparian habitat from the construction of the tunnel under the existing dam face, particularly the extension riparian corridor along the Coyote Creek backwater and the old northern channel of Coyote Creek at the FOCP outlet. Project activities related to the Anderson Dam tunnel construction have the potential to directly impact up to 4.07 acres of mixed riparian woodland and forest communities. The Project's construction would have a significant cumulative impact to riparian habitat and other sensitive natural communities when considered together with the FOCP, and the Project's contribution would be cumulatively considerable pre-mitigation.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Many of the reasonably foreseeable future projects, plans, and programs identified in Table 3.0-5, ~~4-2~~ when combined with impacts of the Project's seismic retrofit construction; conservation measure construction; and post-construction operations, maintenance, and adaptive management activities ~~(as described in Section 3.5),~~ could affect riparian habitats and other sensitive natural communities. As discussed for Cumulative Impact TERR-1, some of these future projects, in combination with the VHP, will create, restore, and/or enhance sensitive natural communities, helping to reduce or even counteract adverse cumulative impacts. Nevertheless, because some of the future projects, plans, and programs identified in Table 3.0-5 ~~4-2~~ are not covered by the VHP and do not result in a net benefit to sensitive natural communities, the cumulative impact to riparian habitats and sensitive natural communities resulting from the Project in combination with these other probable future projects, plans, and programs within the Project area and expanded study area would be significant and the Project's contribution is cumulatively considerable without mitigation

Significance Conclusion Summary

Although the Project would result in the loss of 20.59 ~~adversely affect 25.77~~ acres of mixed riparian woodland and forest and willow riparian forest and scrub habitats, these impacts would be reduced through the restoration of 39.5 ~~40.9~~ acres of riparian habitat throughout the Project area, implementation of Valley Water BMPs and adherence to VHP conditions. Valley Water would reduce the Project's proportion of impacts on riparian habitats and other sensitive VHP-covered species through payment of impact fees. Payment of VHP impact fees would contribute to the VHP's conservation program that benefits numerous species, habitats, and natural communities in the region. Implementation of Valley Water BMPs would reduce the potential for dust from construction activities to mobilize invasive plants and pathogens, such as *Phytophthora,* to sensitive communities; reduce competition between invasive plants and native plants; protect sensitive communities from hazardous materials, pesticides, and other pollutants; and require restoration of staging and stockpiling areas and channel bottoms temporarily affected by construction activities. Compliance with applicable VHP conditions and required AMMs, in addition to payment of VHP fees for covered species, would reduce impacts on riparian habitats and other sensitive natural communities, including serpentine communities. Implementation of **Mitigation Measure TERR-1a(2)** would reduce the potential for introduction or spread of invasive plants and pathogens, thereby preventing substantial adverse effects that would otherwise be significant and cumulatively considerable. Through implementation of these measures, as well as **Mitigation Measure TERR-1a(2)** to reduce the introduction or spread of *Phytophthora*, the Project's contribution to cumulative impacts on riparian habitats and other sensitive natural communities would be **not cumulatively considerable**.

Mitigation Measures

TERR-1a(2) *Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of Phytophthora*

Cumulative Impact TERR-3: Have a substantial adverse effect on State or federally protected wetlands through direct removal, filling, hydrological interruption, or other means (Not Cumulatively Considerable)

Loss of wetlands is an ongoing issue in California, including Santa Clara County, primarily due to development pressures and water quality degradation. The Project Area supports six aquatic resource land cover types – reservoir, pond, perennial stream, intermittent stream, seasonal wetland, and coastal and valley freshwater marsh – that are regulated by the USACE and SWRCB as jurisdictional waters of the U.S. and waters of the State, respectively. The Project would result in the permanent impact to 4.16 ~~4.2~~ acres of freshwater marsh from the placement of fill, hydrological interruption, alteration of bed and bank, degradation of water quality, vegetation removal or disturbance, soil compaction, and other direct impacts on wetlands (seasonal wetland and coastal and valley freshwater marsh). The Project would also result in impacts to tidal wetlands and associated species along the lower, tidal reaches of Coyote Creek from occasional high flows. These tidal habitats and species are not covered by the VHP, and the VHP's conservation program therefore does not directly benefit these tidal resources.

Cumulative Effects of Project with the FOCP

FOCP construction activities will result in the placement of fill, hydrological interruption, alteration of bed and bank, degradation of water quality, and other direct adverse effects on wetlands and other waters. Most of these effects would be temporary, resulting from temporary access needed for construction of the Project, staging for activities and improvements to be constructed within jurisdictional waters, trampling of wetland vegetation, vegetation removal, and soil compaction from access and equipment. The Project's seismic retrofit construction would have a significant impact to wetlands and other waters when considered together with the FOCP, and the Project's contribution would be cumulatively considerable pre-mitigation.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Many of the reasonably foreseeable future projects, plans, and programs identified in Table 3.0-5 ~~4-2~~, when combined with impacts of the Project (as described in Section 3.5), could affect jurisdictional waters. Projects impacting jurisdictional waters are expected to reduce their impacts as a result of conditions of permits that would be needed from the many resource agencies that regulate those waters, thus reducing those projects' impacts. Furthermore, as discussed for Cumulative Impact TERR-1, some of these future projects, in combination with the VHP, would create, restore, and/or enhance wetlands, helping to reduce or even counteract adverse cumulative impacts. Nevertheless, because some of the future projects, plans, and programs identified in **Table 3.0-5 ~~4-2~~** are not covered by the VHP and do not result in a net benefit to jurisdictional waters, the cumulative impact to jurisdictional waters resulting from the Project in combination with these other probable future projects, plans, and programs within the study area would be significant.

Significance Conclusion Summary

Although the Project would adversely affect jurisdictional waters through hydrological interruption, bed and bank alteration water quality impacts and other direct impacts as noted above, these impacts would be reduced through the creation of 4.5 acres of emergent freshwater marsh, implementation of Valley Water BMPs and adherence to VHP conditions. Valley Water would mitigate the Project's proportion of impacts on wetlands through payment of impact fees. Payment of VHP impact fees would contribute to the VHP's conservation program that benefits numerous species, habitats, and natural communities in the region. Implementation of **Mitigation Measure TERR-1a(2)** would reduce the potential for introduction or spread of *Phytophthora* that could degrade the quality of jurisdictional waters, thereby preventing substantial adverse effects that would otherwise be significant and cumulatively considerable. Through implementation of these measures, the Project's contribution to cumulative impacts on jurisdictional waters, including state-protected and federally protected wetlands, would **not be cumulatively considerable**.

Mitigation Measures

TERR-1a(2) Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of Phytophthora

***Cumulative Impact TERR-4: Interfere substantially with the movement of any native resident or migratory species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites* (Cumulatively Considerable)**

Because US 101 impedes wildlife movement across Coyote Valley, culverts, road undercrossings, and Coyote Creek crossings are important locations for dispersing animals to be able to move under the highway. Many animals are reluctant to move through long, narrow corridors such as culverts, so the large size of the Coyote Creek undercrossing between the Seismic Retrofit area and the Ogier Ponds makes it attractive to a variety of animals. Construction of the Project has the potential to affect the movement patterns or nursery sites of the following wildlife species: special-status insects (Bay checkerspot butterfly, monarch butterfly, and Crotch's bumble bee); amphibians (California tiger salamander, California red-legged frog, and foothill yellow-legged frog); northwestern pond turtle; bald and golden eagles; nonbreeding special-status birds (Swainson's hawk, burrowing owl, and peregrine falcon); pallid bat, other special-status mammals (San Francisco dusky-footed woodrat, mountain lion, ringtail, American badger, Townsend's big-eared bat, and western red bat); and San Francisco Bay special-status species (California Ridgway's rail, California black rail, Alameda song sparrow, San Francisco common yellowthroat, northern harrier, Bryant's savannah sparrow, salt marsh harvest mouse, and salt marsh wandering shrew).

Although Project activities may temporarily affect wildlife movement during construction, BMPS and VHP conditions would reduce these impacts, animals would still be able to move through the Project Area during construction, and no long-term impacts on wildlife movement would result. Post-construction operations, maintenance, and adaptive management would not substantially affect wildlife movement. Thus, the Project would not interfere substantially with wildlife movement and impacts on wildlife movement would therefore be less than significant with the exception of pallid bat impacts. The VHP conservation program would assemble a Reserve System with landscape linkages and wildlife movement in mind to protect and, where possible, enhance movement pathways on a regional scale. Valley Water's impact fees would thus contribute to the maintenance and improvement of opportunities for movement and genetic exchange of native plants and animals within and between natural communities inside and connecting to areas outside of the VHP Reserve System.

The Project's pallid bat impacts would be significant and unavoidable, even with implementation of **Mitigation Measures TERR-1h(1)** through **TERR-1h(4)**.

Cumulative Effects of Project with the FOCP

A maternity colony of the pallid bat is located just outside of the Seismic Retrofit area, in the Cochrane Road barn, since 1998. This colony likely represents the largest and most stable colony of the species known in Santa Clara County. Noise from the traffic and general construction associated with the FOCP represent a localized increase above its respective baseline, but implementation of the FOCP would not directly impact the barn itself. Given the intensity of Project construction activities, which would include some nighttime work, and the extent to which foraging habitat on Anderson Dam would be disturbed during construction, it is possible that pallid bats may abandon the roost within the barn while construction is ongoing. Unless high-quality alternative roost sites are present in the vicinity, the population may decline before the bats can re-occupy the barn due to permanent dispersal of females away from the roost, or the FOCP may cause lower reproductive success by females using inferior roost sites (such as roosts located farther from high-quality foraging habitat), or predation of bats that are unable to find suitable roost sites. Even though the construction impacts of the FOCP and ADSRP do not overlap, the cumulative impacts created by the Project and FOCP together are significant, and the Project's contribution is cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Many of the reasonably foreseeable future projects, plans, and programs identified in **Table 42,** when combined with impacts of the Project (as described in Section 3.5), could affect species movement, wildlife corridors, and nursery sites. Of those projects listed in **Table 42**, the Residential, Commercial, Industrial, and Recreation Area Development could collectively affect the important wildlife movement pathway across Coyote Valley dependent on location, and it would be required to provide mitigation for its wildlife movement impacts. The cumulative impact to species movement resulting from the Project in combination with these other probable future projects, plans, and programs within the study area would be less than significant, except for pallid bat impacts, which would be significant, and for which the Project's contribution is cumulatively considerable.

Significance Conclusion Summary

Implementation of Valley Water BMPs, DMP MMs, and compliance with applicable VHP conditions would reduce impacts on wildlife movement and nursery sites. Implementation of Valley Water BMPs would protect dispersing animals from hazardous materials, pesticides, and other pollutants; reduce competition between invasive plants and native plants; minimize attraction of predators; limit impacts from staging and stockpiling activities; and avoid entrapment of animals during construction. Compliance with applicable VHP conditions and required AMMs, in addition to payment of VHP fees for covered species, would reduce impacts on dispersing animals, pallid bats, their habitats, and their prey. The VHP conservation program would assemble a Reserve System with landscape linkages and wildlife movement in mind to protect and, where possible, enhance movement pathways on a regional scale. While Project activities may temporarily affect wildlife movement during construction, animals would still be able to move through the Project Area during construction, and no long-term impacts on wildlife movement would persist. Post-construction operations, maintenance, and adaptive management would not substantially affect wildlife movement. Therefore, the Project would not substantially interfere with wildlife movement, and its contribution to interference of wildlife movement would **not be cumulatively considerable**, except for pallid bat impacts.

Implementation of BMPs, VHP conditions and AMMs, DMP MMs, and mitigation measures may not be adequate to reduce Project impacts on pallid bat populations to less-than-significant levels. Implementation of **Mitigation Measure TERR-1h(1)** through **TERR-1h(4)** represent the only available measures to reduce this impact. If implementation of **Mitigation Measures TERR-1h(1)** through **TERR-1h(4)** results in the maintenance of a pallid bat maternity roost consisting of at least 75 percent of the baseline population, then the Project would successfully mitigate its impacts on this species' population, and the Project would not have a cumulatively considerable contribution to cumulative impacts on biological resources. If, despite implementation of those mitigation measures, the pallid bat colony is abandoned or reduced substantially, the Project would result in an incremental contribution to this cumulative impact that would be **cumulatively considerable**.

Mitigation Measure

TERR-1h(1) *Avoid Disturbance of the Cochrane Road Barn Roost*

TERR-1h(2) *Evict Pallid Bats prior to Initiating Maternity-Season Disturbance near the Cochrane Road Barn Roost*

TERR-1h(3) *Minimize Impacts on Pallid Bats Roosting Outside the Cochrane Road Barn*

TERR-1h(4) *Provide Alternative Pallid Bat Maternity Roost Structures*

Cumulative Impact TERR-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance **(No Contribution)**

Santa Clara County, the City of San José, and the City of Morgan Hill all have tree removal regulations that protect trees of certain types and sizes and require permits before such trees are removed. However, the San José tree ordinance applies only to private property; the Morgan Hill tree ordinance applies only to private and City property; and Valley Water is exempt from compliance with the County tree ordinance that would ordinarily apply to the Project. Therefore, Valley Water's removal of ordinance-sized trees would not conflict with the County tree ordinance and would not contribute to cumulative impacts to regulated trees. Other probable future projects within the study area would be required to comply with applicable local tree ordinances. Therefore, there would be no cumulative impact.

Implementation of Valley Water BMPs and compliance with applicable VHP conditions would reduce impacts on regulated trees. Implementation of Valley Water BMPs would reduce the potential for fire to affect trees and avoid competition between native trees and invasive plants. VHP conditions would reduce the magnitude of impacts on trees by minimizing impacts on riparian habitats. DMP BMPs and mitigation measures would avoid and minimize impacts on sensitive biological resources. Valley Water's payment of fees to the VHP's conservation program would help to reduce impacts to trees. While the Project would therefore reduce its impacts on regulated trees, the Project would make **no contribution** to cumulative impacts related to local tree ordinances because the Project will not have any impacts that conflict with tree ordinances of Santa Clara County, the City of San José, or the City of Morgan Hill. Nevertheless, recognizing the importance of protected trees to the County, Valley Water has voluntarily proposed **Mitigation Measure AES-1**, calling for the planting of replacement trees in unincorporated Santa Clara County.

Mitigation Measures

AES-1 *Replacement Trees on Santa Clara County Parkland*

***Cumulative Impact TERR-6: Conflict with the provisions of an adopted Habitat Conservation Plan/Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan* (Not Cumulatively Considerable)**

Valley Water is a signatory on the VHP, which is an HCP and NCCP for terrestrial species and related habitats. The VHP explicitly included the Project in its list of covered activities, and most impacts of the Project were included in the VHP's analysis of the effects of covered activities. Similarly, Valley Water would pay specific impact fees for impacts on sensitive habitats, such as stream, wetland, riparian, and serpentine habitats. Valley Water would apply for VHP coverage for the Project and adhere to all applicable VHP conditions during Project implementation. Therefore, the Project would not be in conflict with the VHP.

Some impacts of the Project are not covered by the VHP because they are explicitly excluded from VHP coverage, they exceed thresholds that the VHP set for coverage, or they affect species that occur only in areas that are outside the VHP permit area. Valley Water would address those impacts outside of the context of the VHP (e.g., through its BMPs, additional mitigation measures, and Project-specific consultation with the USFWS and CDFW as necessary), and these non-VHP-covered impacts do not conflict with the VHP. Therefore, this impact is less than significant.

Many of the reasonably foreseeable future projects, plans, and programs identified in Table 3.0-5 ~~4-2~~ may be covered by the VHP or involve VHP-covered activities. Permanent VHP impact fees will have been paid by Valley Water for areas that will have been permanently impacted by the FOCP. Consistency with the VHP would be determined on a project-by-project basis, and the applicants for any VHP-covered activities would be obligated to comply with VHP conditions. Therefore, the Project in combination with these other probable future projects, plans, and programs within the study area would not result in a significant cumulative impact relating to VHP consistency. The Project's contribution to cumulative impacts related to consistency with adopted habitat conservation plans would be **not cumulatively considerable.**

Mitigation Measures

No mitigation is required.

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______.2022c. ~~2022d.~~ Potential flood impacts for ADSRP. August 18.

______. 2022e. ~~2022f.~~ Volumetric analysis of proposed FAHCE freshwater impact to salinity in the South San Francisco Bay estuary. January 12.

______. 2023a. WEAP Modeling Results of Groundwater Storage in Coyote Valley for ADSRP. February 21.

______. 2023b. Water Quality Services in Support of Ogier Ponds Project Planning, Draft Technical Report.

______. 2023c. ~~2022e.~~ Tidal floodplain impacts for ADSRP. April 25.

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______. 2024b. ~~2022c.~~ Anderson Dam Seismic Retrofit ~~Preliminary Delineation of Wetlands and Other Waters October~~ Regulated Habitats Report. June. Prepared by H. T. Harvey & Associates.

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3.6 Cultural Resources

This section describes cultural resources in the Project's study area. The regulatory and environmental setting is provided, as well as an analysis of impacts to cultural resources from implementation of the Project. For the purposes of this assessment, cultural resources are defined as early Native American (precontact) and historic-era, or post-contact, archaeological sites, features, and isolated finds; historic-era buildings, structures, and objects; early Native American and historic-era districts and landscapes; and traditional properties of importance to cultural groups. Tribal cultural resources are addressed in Section 3.20*, Tribal Cultural Resources***.**

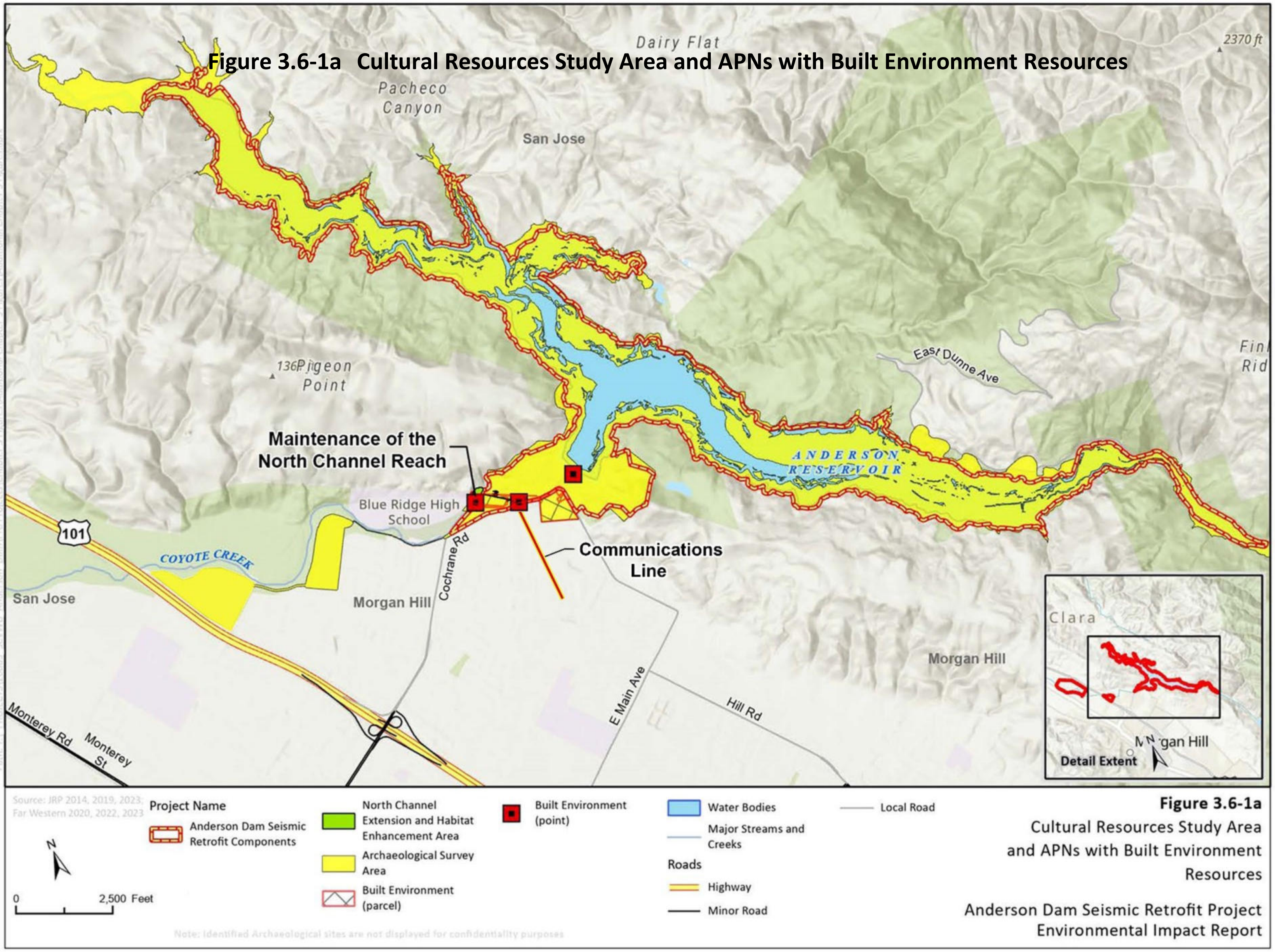
This section describes existing cultural resources conditions within the Seismic Retrofit and Conservation Measure components study areas. The analyses for Project construction are based on the existing conditions at the time of the EIR preparation as modified by the FOCP implementation, while the analyses for Project operations are based on the Pre-FERC Order Conditions Baseline. The significant impacts that could result from Project implementation and mitigation measures to reduce these impacts to less-than-significant levels are identified and described in this section.

This section relies on the information and findings presented in a series of cultural resources technical reports (see Section 3.6.2 for additional details). These reports detail the methods and results of the cultural resources studies for the Project and associated environmental, ethnographic, and historic background of the Project study area, emphasizing aspects of human occupation. ~~Of these reports, those with no archaeological site location information are provided in Appendix H, while those with archaeological~~ Archaeological site location information ~~are~~ is provided in a confidential Appendix H ~~appendix~~ ~~(not included in this EIR)~~ due to the confidential nature of archaeological site location information, as regulated by applicable state regulations (California Government Code Section 6250 et seq. and Section 6254 et seq. [implementing regulations of the California Public Records Act of 2016]). This confidential appendix is available to qualified individuals upon request to Valley Water. Information on historical resources is included in the Historic Resources Technical Appendix (Appendix I).

3.6.1 Study Area for Cultural Resources

The cultural resources study area for the Project is designed to include all elements of Project construction and operations and to encompass all archaeological and built environment resources that could be impacted, both directly and indirectly, by the Project (**Figure 3.6-1**). This includes all areas covered by the archaeological survey and land parcels identified for potential indirect impacts (on built environment resources); due to the inclusion of entire cultural resource boundaries, the study area is larger than the overall Project Area identified in Section 2, *Project Description*, and **Figure 2.2-2**. For the purpose of the impact analysis, the study area has been broken down into two regions based upon Project impacts: the Seismic Retrofit study area, and the Conservation Measures study area. The Conservation Measures study area has been further split according to each Conservation Measure: Ogier Ponds Geomorphic and Habitat Enhancement (Ogier Ponds CM), Phase 2 Coyote Percolation Dam Fish Passage Enhancements (Phase 2 Coyote Percolation Dam CM), and the Maintenance of the North Channel Reach ~~Extension~~.

Figure 3.6-1a Cultural Resources Study Area and APNs with Built Environment Resources



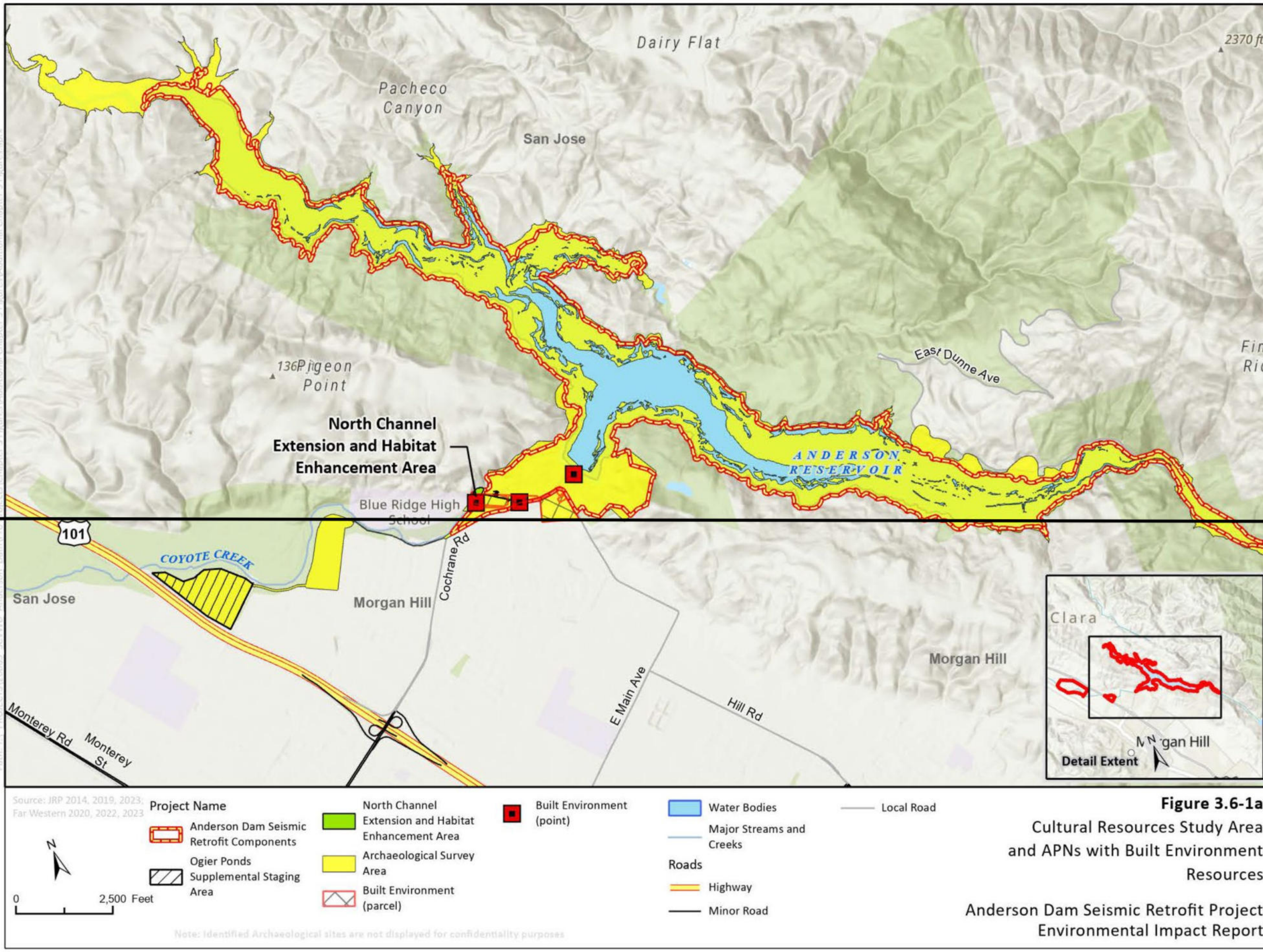


Figure 3.6-1a
Cultural Resources Study Area and APNs with Built Environment Resources

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

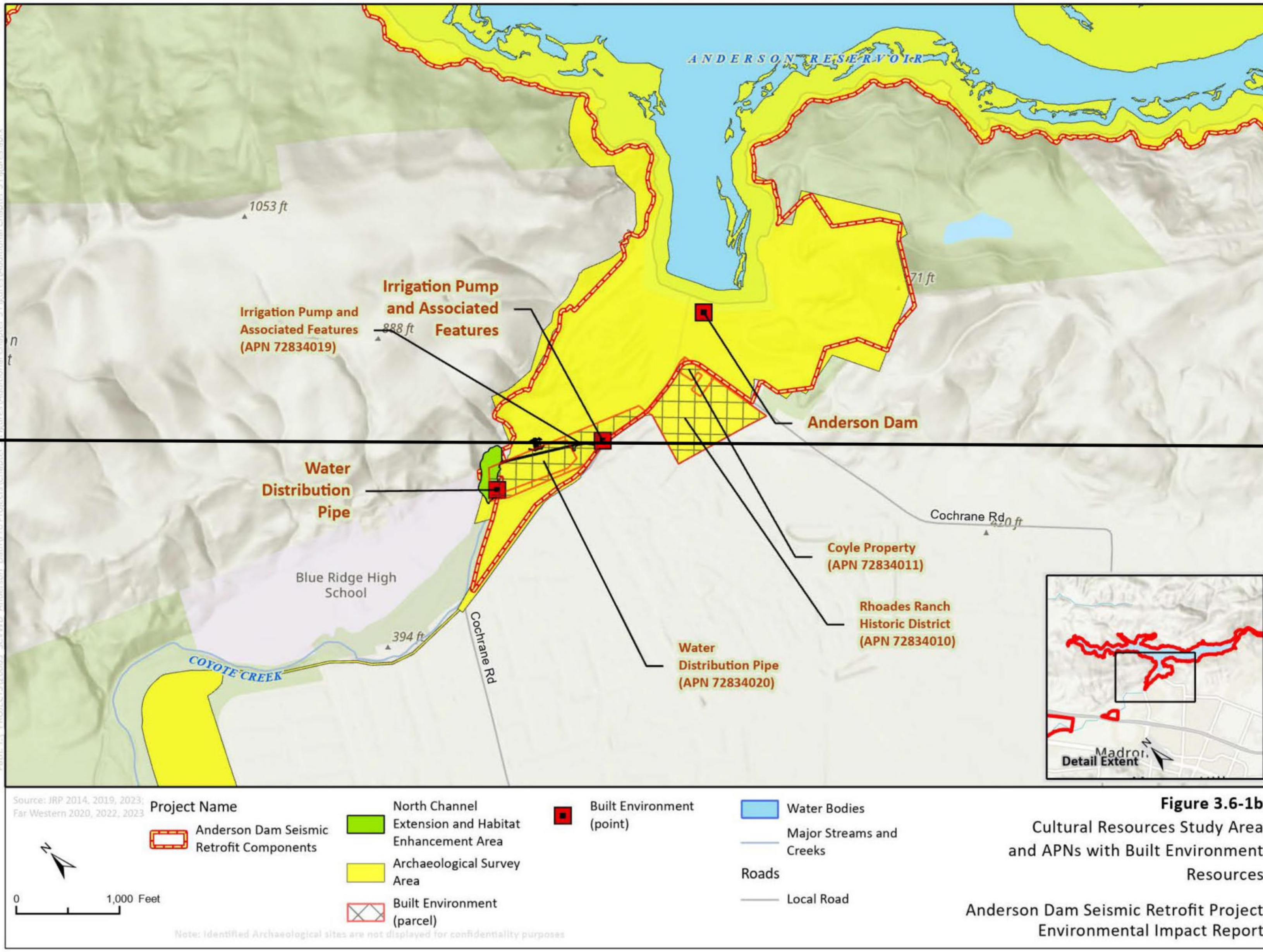


Figure 3.6-1b
Cultural Resources Study Area and APNs with Built Environment Resources

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

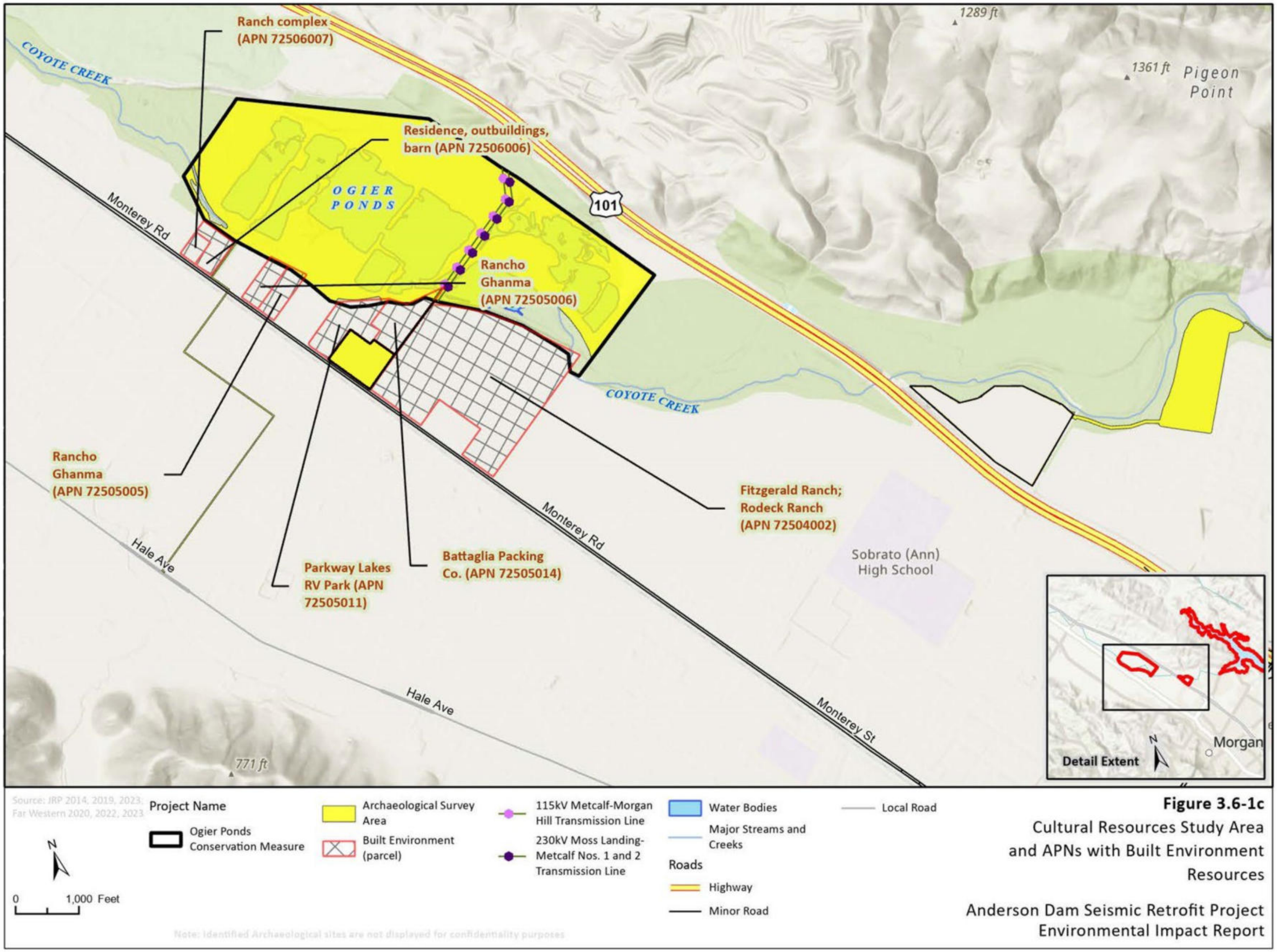


Figure 3.6-1c
Cultural Resources Study Area and APNs with Built Environment Resources
Anderson Dam Seismic Retrofit Project Environmental Impact Report

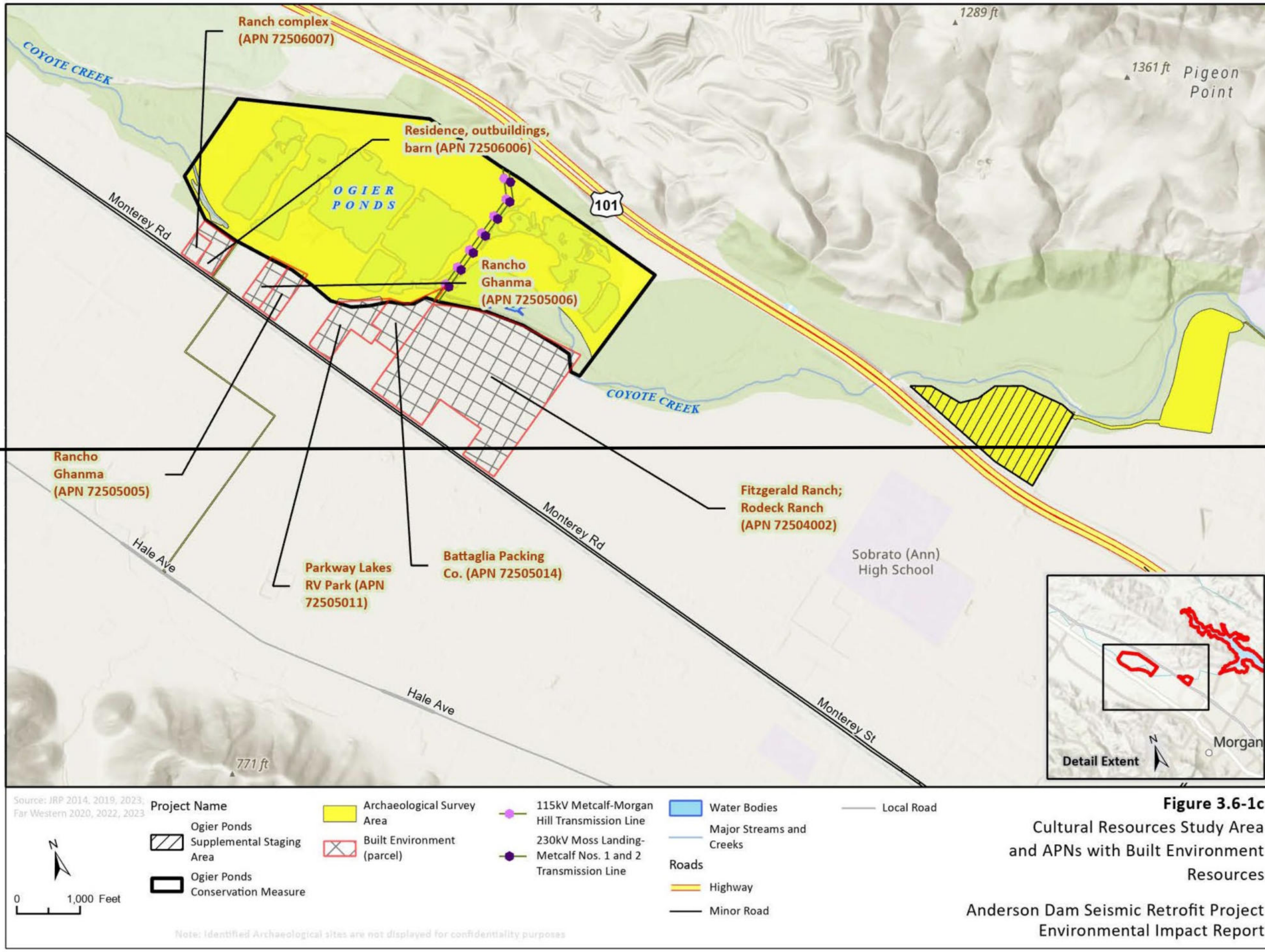


Figure 3.6-1c
Cultural Resources Study Area and APNs with Built Environment Resources

Anderson Dam Seismic Retrofit Project Environmental Impact Report

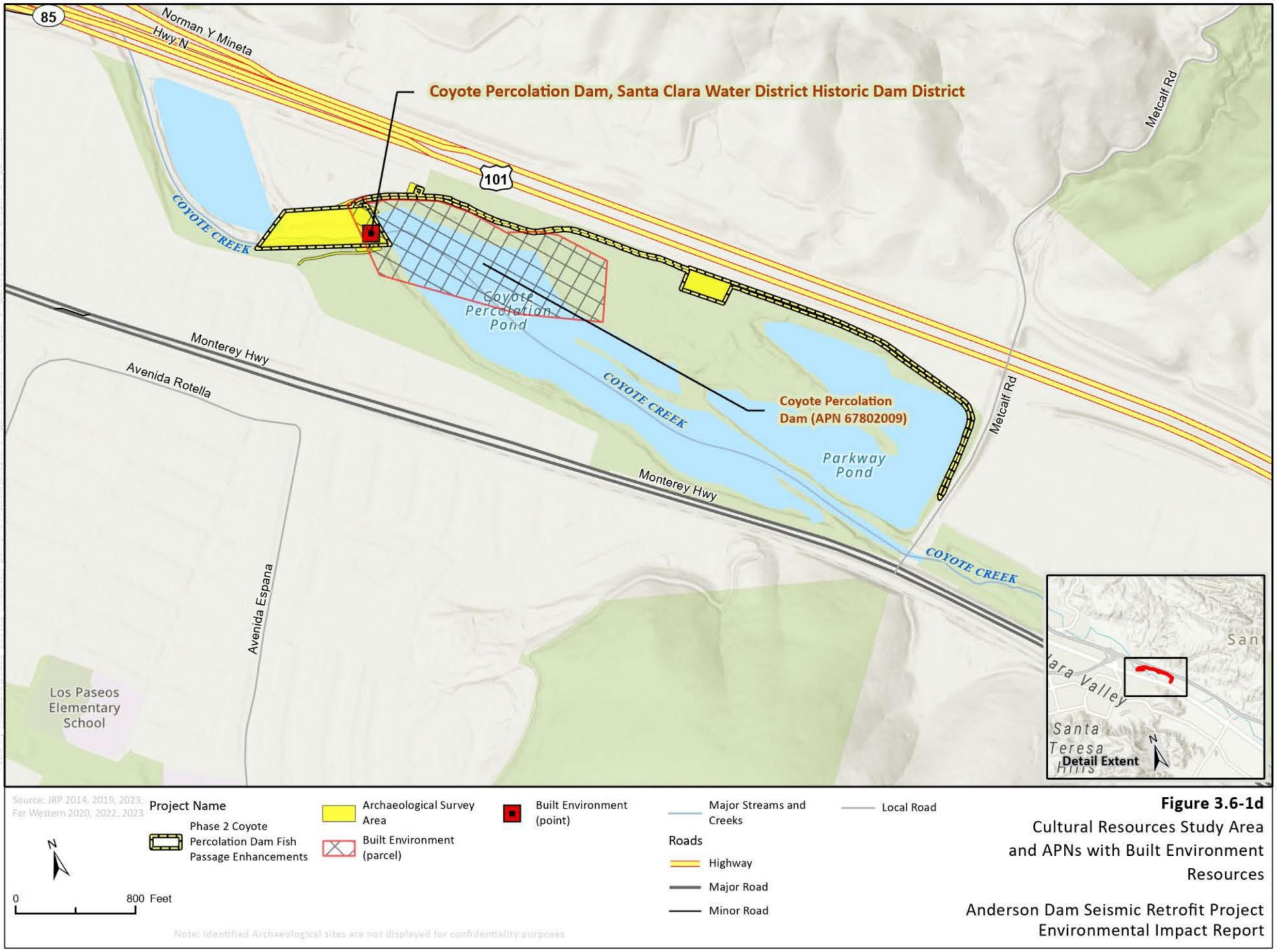


Figure 3.6-1d
Cultural Resources Study Area and APNs with Built Environment Resources

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

The Maintenance Activities at Live Oak Restoration Reach and the Sediment Augmentation Program Conservation Measures, including adaptive management, are not included in the study area, nor in the analysis, as these actions would be contained within Coyote Creek and would not include any ground disturbance that could impact cultural resources. The quarries for sediment, haul roads, and staging areas that would be used to implement the Maintenance Activities at Live Oak Restoration Reach and the Sediment Augmentation Program would also be used for both the construction of the Seismic Retrofit and the Conservation Measures. Therefore, the use of those quarries and haul roads will be analyzed under the relevant Project components. The Seismic Retrofit component study area for cultural resources contains Anderson Reservoir (to the OHWM of elev. 628 feet), all areas of ground-disturbing activities and lands outside the Project Area where activities may cause changes in the character or use of historical resources. Locations outside the Project Area identified in Section 2, *Project Description*, relate to locations subject to archaeological survey for earlier iterations of the Project or aspects of the FOCP, or specifically to built environment resources, in which the study area is expanded to include parcels that are adjacent to construction areas.

The study area for the Seismic Retrofit component covers approximately 1,530 acres, including the reservoir pool, the Anderson Dam, and those portions of the Project Area below the dam, as shown in **Figure 3.6-1**. The vertical study area is 29 feet above the existing dam to accommodate the increased crest height of the dam from 647 feet to 660 feet above mean sea level,[1] and excavation below the existing ground surface that would be required to reach the acceptable foundation to meet design requirements at elev. 370.

The study area acreages associated with individual Conservation Measures include approximately 398 ~~432~~ acres for the Ogier Ponds CM (including the staging area and Barnhart Avenue Stockpiling Area), 2 acres for the Maintenance of the North Channel Reach ~~Extension~~, and approximately 8 acres for the Phase 2 Coyote Percolation Dam CM. In addition, seven parcels adjacent to the Ogier Ponds CM are included in the study area for the Conservation Measures to include potential impacts on built environment resources. Cumulatively, the maximum vertical depth is 12 feet to account for construction of the Ogier Ponds CM.

3.6.2 Environmental Setting

This section describes the methods and results of the cultural resources records search and literature review, pedestrian survey, and Native American consultation used to gather data about the cultural resources identified within the cultural resources study area (**Figure 3.6-1**). These data are fundamental to the analyses undertaken to evaluate the Project's potential to impact cultural resources. This section also includes information on the Native American precontact period, the Native American ethnohistoric period, the historic period within the Project vicinity, and identifies known recorded cultural resources in the study area and vicinity. Information provided in this section is derived or taken directly from the following technical reports prepared in support of the Project (note, confidential appendix H in which they can be found is provided after each reference:

[1] This includes 4 feet of additional height in the central portion of the dam that would taper down to the dam abutments to accommodate post-construction settlement. The average dam height will be at elev. 656 feet above mean sea level (see Section 2.5.4.~~2.5.2~~).

- Buonasera, T., S. L. Izzi, and B. Siskin. 2022. Final Archaeological Survey and Initial Site Monitoring for the Anderson Dam Drawdown to Deadpool Project, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California. (Confidential Appendix H)
- Izzi, S. L. and B. Siskin. 2023. Archaeological Resources Inventory for the Anderson Dam Seismic Retrofit Project Conservation Measures, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California. (Confidential Appendix H)
- McMorris, C. and S. J. Melvin. 2014. Historic Resources Inventory and Evaluation Report for the Anderson Dam Seismic Retrofit Project (Project No. 91864005), Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California. (Confidential Appendix H)
- McMorris, C. and S. J. Melvin. 2019. Supplemental Historic Resources Inventory and Evaluation Report for the Anderson Dam Seismic Retrofit Project (Project No. 91864005), Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California. (Confidential Appendix H)
- McMorris, C. and S. Skow. 2022. Finding of Effect for the Coyote Percolation Dam Replacement Project Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California. (Confidential Appendix H)
- McMorris, C. and S. Skow. 2023. Historic Resources Report for the Anderson Dam Seismic Retrofit Conservation Measures Project - Conservation Measure 1: Ogier Ponds Geomorphic and Habitat Restoration Project, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California. (Confidential Appendix H)
- Scher, N., D. Hyde, and J. Rosenthal. 2022. National and California Register Evaluations of Nine Archaeological Sites for the Anderson Dam Seismic Retrofit Project, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California. (Confidential Appendix H)
- Scher, N. and S. L. Izzi. 2017. Supplemental Archaeological Survey Report for the Anderson Dam Seismic Retrofit Project, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California. (Confidential Appendix H)
- Scher, N., P. Mikkelsen, and J. Berg. 2014. Cultural Resources Study for the Anderson Dam Seismic Retrofit Project, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California. (Confidential Appendix H)
- Scher, N. and A. Younie. 2020. Initial Archaeological Study for the Anderson Dam Seismic Retrofit Project, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California. (Confidential Appendix H)
- Rincon Consultants, Inc. 2024. Cultural Resources Study for the Live Oak Restoration Reach Project. Report on file with the Santa Clara Valley Water District, San José, California. (Confidential Appendix H)

3.6.2.1 Regional Setting

The information in this section is directly derived or extrapolated from the Archaeological Inventory for the Anderson Dam Seismic Retrofit Project, Santa Clara County, California (Scher and Younie 2020) and Archaeological Resources Inventory for the Anderson Dam Seismic Retrofit Project Conservation Measures, Santa Clara County, California (Izzi and Siskin 2023).

Native American Precontact Period

Prior to colonization, Native American populations lived in the Project region for many thousands of years, as demonstrated through the archaeological record. Excavations in the San Francisco Bay region were first undertaken in the early 1900s, mostly with the intent to discover the depth, composition, and contents of the large shell mounds scattered around the bay (Gifford 1916, Nelson 1909, Schenck 1926, Uhle 1907). Later research efforts attempted to build a cultural sequence for the entire region based on changes in artifacts, mortuary practices, and shellfish remains (King 1970, Wallace and Lathrap 1975). The bay region's cultural sequence was incorporated by Beardsley (1948) into the Central California Taxonomic System (CCTS), which included three primary horizons—Early, Middle, and Late—defined largely based on stylistic variation of funerary artifacts. Revisions to the chronology have taken many forms over the years (Fredrickson 1974~~a~~), all generally employing a similar sequence of three periods.

While the CCTS continues to have utility, archaeological periods are today more commonly tied to broad environmental changes that have occurred since the Pleistocene and the end of wide-spread glaciation in North America that enabled populations to move throughout the continent. Environmental change required indigenous populations to adopt strategies for new subsistence regimes that, in turn, influenced cultural practices that are reflected in the material record observed through archaeological study. **Table 3.6-1** summarizes the archaeological record according to geologic time segments.

Table 3.6-1 Characteristics of the San Francisco Bay Chronological Sequence (Adapted from Izzi and Sisken 2023)

General Description	Specific Characteristics	Representative Artifacts
Terminal Pleistocene (13,000–11,700 cal years before present (BP[1])		
▪ Earliest entry into New World along California Coast ▪ No deposits identified in California due to landscape evolution and sea-level rise	▪ Wide-ranging, small bands of mobile hunters of large game ▪ Gatherers	▪ Fluted point
Early Holocene (11,700–8200 cal BP)		
▪ Rare in Bay Area, found in buried alluvial or colluvial contexts	▪ Semi-mobile hunter-gatherers exploiting a wide range of plant and animal foods from marine, lacustrine, and terrestrial contexts	▪ Stemmed points, crescents, and steep-edged formed flake tool ▪ Handstones and millingslabs ▪ Napa obsidian dominates

General Description	Specific Characteristics	Representative Artifacts
Middle Holocene (8200–4200 cal BP)		
▪ Surface and buried deposits ▪ Some substantial residential settlements ▪ Increased populations	▪ A series of buried sites with diverse cultural assemblages and occasional burials ▪ Isolated burials ▪ Long-distance exchange ▪ Longer seasonal occupation	▪ Ground stone (mortar and pestle by 6000 cal BP) ▪ Side-notched dart points ▪ Cobble-based tools ▪ Shell beads (Type N grooved rectangular *Olivella*) ▪ ornaments
Late Holocene (4200–170 cal BP)		
▪ Divided into three periods with subdivisions ▪ Well-documented in Bay Area (200 14C dates) ▪ Upward trends in population and social, political, and economic complexity	▪ Economic intensification territorial circumscription ▪ Active landscape management (e.g., burning) ▪ Limited inter-group violence ▪ Nonegalitarian social structure and status ascription	▪ Bow and arrow after 700 cal BP, Stockton serrated arrow point ▪ Various *Olivella* and *Haliotis* beads

Source: Izzi and Sisken 2023

Notes:

[1]Cal BP: BP means "before present." The "cal" prefix indicates that the dates are the result of radiocarbon calibration using tree ring data. The term "cal BP" means the number of years before 1950 and can be directly compared to calendar years.

Terminal Pleistocene (13,500–11,700 cal BP)

There is general agreement that humans entered the Americas via multiple migrations using both coastal and inland routes (Erlandson et al. 2007). Throughout California, Terminal Pleistocene occupation is infrequently encountered and poorly understood, and most often represented by isolated fluted points (Erlandson et al. 2007, Rondeau et al. 2007, Rosenthal and Fitzgerald 2012) likely related to the Clovis and Folsom Periods of the Great Plains and the Southwest (Haynes 2002). No fluted points or archaeological deposits dated to the Terminal Pleistocene have been documented in the Bay-Delta Area, which is likely explained by sea level rise, coastal erosion, localized subsidence, and the likelihood that initial human populations were small and highly mobile, leaving a faint and widely spaced archeological signature on the landscape.

Early Holocene (11,700–8200 cal BP)

It is typically thought that Early Holocene central California was inhabited by semi-mobile hunter-gatherers exploiting a wide range of plant and animal foods from marine, lacustrine, and terrestrial contexts (Erlandson et al. 2007, Jones et al. 2002, Meyer and Rosenthal 1995, Moratto 2002). Early Holocene assemblages often include stemmed points, crescents, and steep-edged formed flake tools, similar to contemporaneous material in the Great Basin and southern North Coast Ranges (Rosenthal et al. 2007). However, California assemblages are distinguished by the ubiquitous presence of milling tools, such as handstones and milling slabs (Rosenthal and Fitzgerald 2012).

Middle Holocene (8200–4200 cal BP)

More than 60 Bay-Delta Area archaeological sites have produced radiocarbon dates indicating occupation during the Middle Holocene. Both surface and buried deposits are present, including a number of substantial residential settlements. Notably, the Middle Holocene includes a series of buried sites with diverse cultural assemblages and occasional burials. Several isolated human burials have also been found in buried contexts in the northern Santa Clara Valley and along the edge of the bay in the Southwest region and near Coyote Point (Henn et al. 1972; Leventhal 1987; Meyer 2008, 2015; Scher and Meyer 2014). Artifact assemblages are varied and include ground stone (some only with milling slabs and handstones, some with mortars and pestles, and some with both); side-notched dart points; cobble-based chopping, scraping, and pounding implements; and shell beads and ornaments (Fitzgerald 1991 ~~1993~~, Meyer and Rosenthal 1998).

Late Holocene (4200–180 cal BP)

The Late Holocene is very well-documented in the Bay-Delta Area (Milliken et al. 2007). It is generally thought that regional human population increased over the last 4,000 years and there was an upward trend in social, political, and economic complexity, in part reflected by distinct, geographically specific cultural traditions. A number of studies indicate ongoing resource intensification—an increasing reliance on lower-ranked and more costly foods such as smaller species of marine mammals, terrestrial mammals, birds, fish, plants, and possibly dogs (Broughton 1999, 2002; Broughton et al. 2006 ~~2007~~; Byrd et al. 2013; Whitaker and Byrd 2014; Wohlgemuth 1996, 2009 ~~2002~~). Territorial circumscription, active landscape management (e.g., burning), and periodic upswings in inter-group violence are also indicated (Andrushko et al. 2010; Bartelink et al. 2013; Lightfoot et al. 2013a, 2013b; Milliken 2006; Schwitalla et al. 2014). Drawing largely on mortuary remains, a number of scholars have argued that community organization entailed nonegalitarian social structure and ascribed status (Bellifemine 1997, Gould 1975 ~~Fredrickson 1974b~~, Hylkema 2002: 258–261, King 1974, Luby 2004, Milliken et al. 2007). Most suggest that these changes took place near the beginning of the Late Period, although King (1974: 38) and Luby (2004: 18) argue that they developed earlier, during the Middle Period.

Native American Ethnographic Contact Period (180–115 cal BP)

The Santa Clara Valley falls within the territory of Ohlone-speaking Native Americans (Levy 1978). The territory of the Ohlone extended along the Pacific Coast from south of Monterey Bay all the way up the San Francisco Peninsula and inland into the Coast Ranges. The Ohlone territory included the open coast, the littoral zone of the bay, and a variety of inland settings, each with a varied range of resources. Early Spanish colonizers documented exceedingly high-population densities in the San Francisco Bay and Delta area, equaled in California only by the Santa Barbara-area Chumash (Cook and Heizer 1968; Kroeber 1939; Milliken 2006, 2010).

The Ohlone language group (also referred to as Costanoan, from Costanos, Spanish for “coastal people”) is a linguistic subfamily of the Penutian language stock (Bean 1994, Kroeber 1925, Levy 1978, Teixeria 1997). According to early linguists (Milliken et al. 2009), there are six Costanoan languages, each associated with a geographic location and the tribelet(s) that inhabited the locality. Because language and community boundaries are ill-defined, it can be surmised that the Project Area is located at the approximate boundary between two of these languages, San Francisco Bay Costanoan and Awaswas, and is largely within Awaswas territory (Milliken et al.

2009:138). Communities within the upper Coyote Creek watershed are identified at the *Auxentac* and *Matalan* tribelets.

Historical accounts by Spanish explorers and priests traveling through the area indicate that much of the lowlands within Santa Clara Valley consisted of wetland habitat during the spring, with lagoons, large lakes, streams, and rivers containing abundant fish, waterfowl, and associated vegetation. Within this environment, permanent Ohlone villages were established near the coast, the bay, and along river drainages, with temporary camps in prime resource-processing areas. Some tribes occupied a central village, while others had several villages within a few miles of each other. No named villages have been identified by the ethnographic record within the Project Area.

The most common type of housing consisted of hemispherical huts thatched with grasses and rushes (Kroeber 1925: 219). Although village organization is poorly documented, other types of village structures included sweathouses, dance enclosures or plazas, and assembly houses, with sweat houses and menstruation houses situated outside the village. Sacred places on the landscape, such as nearby Mt. Diablo and Brushey Peak, also played an important role in ceremonial activities, such as those of the secret Kuksu society (Kroeber 1932; Loeb 1932, 1933). Burial practices varied within the Ohlone area (in the South Bay) and included destroying or burying items of personal ownership; cremations were more widespread than inhumations in the Chochenyo area (in the East Bay).

For the Ohlone as a whole, the basic unit of political organization was a territory-holding group of one or more associated villages and smaller temporary encampments, often referred to as a tribe or tribelet (Kroeber 1962). These groups were generally considered independent, multi-family, landholding polities of 60 to 400 people (Levy 1978: 487). Milliken (2010) has identified 59 Ohlone tribelets. As noted above, the *Auxentac* and *Matalan* tribelets are associated with the Project Area. Territorial community organization included a chief, who could be a man or woman, although the office was generally inherited via patrilineal descent (Levy 1978: 487). The chief took a leadership role in important tasks such as hosting visitors, leading food procurement expeditions, and representing a tribal council of elders who served as advisors to the villagers. War leaders and shaman also played key roles in each community.

Prior to European contact, the Ohlone were hunters, gatherers, and fisherfolk, similar to other California indigenous peoples. Subsistence activities centered around the seasonal availability of gathered resources. Women gathered hazelnuts, strawberries, blackberries, and soaproot (Palóu 1926:209), and processed acorns into flour. Seeds, an important source of calories, were harvested on the grasslands. Men were observed by the Spanish engaging in both hunting and fishing activities, including communal drives for antelope, deer, elk, quail, rabbits, grasshoppers, and fishing from rafts. The Ohlone practiced burning on an annual basis to ensure an abundance of fall-ripening acorns, seed-bearing annuals, and forage for large game (Crespí 1927, Levy 1978: 491). Domesticated dogs (Harrington 1942) presumably served as companions and camp protectors and may have played an important dietary role when food was scarce (Byrd et al. 2013, Levy 1978: 491).

The Ohlone manufactured a variety of stone tools, including knives, arrow and spear points, handstones and milling slabs, mortars and pestles, net sinkers, anchors, and pipes. Chert was obtained from local quarries, and obsidian was acquired in trade. Balsas (canoes), mats, and baskets were made from tule, cordage, nets, baskets from plant fibers, blankets from sea otter, rabbit, and duck skins. Mortars, both bedrock and portable, were important components of acorn-processing technology. Shell beads were gaming and trading commodities, as well as ornamental items. Trade relations with neighboring villages and groups were well-established. According to Davis (1961: 23), bows, arrows, basketry materials, paints, and feather blankets were procured from the east, while the Ohlone traded mussels, dried abalone, salt, and abalone shells to the neighboring Yokut groups and provided the Sierra Miwok with *Olivella* and abalone shell beads.

The Spanish occupation of the Ohlone area lasted 46 years, from 1776 to 1822. This period involved the establishment of multiple outposts and marked the beginning of Euro-American occupation of the region that intensified over the decades and profoundly altered traditional indigenous lifeways. In January 1777, the first site of Mission Santa Clara was dedicated by the Spaniards, and by the end of the year Spanish settlers had founded the pueblo of San José 3 miles south on the Guadalupe River. This same year, native inhabitants suffered the first of several epidemics, devastating their populations and disrupting precontact lifeways. Spanish occupation of Alta California was the driving force behind tribal disintegration, with native people leaving their villages for the missions where padres controlled their daily lifestyles, work, diet, and religious expression. By 1810, all Ohlone villages had been abandoned (Milliken 1995, 2006). However, small Indian settlements were dispersed throughout the Southern Santa Clara Valley and eastern hill country through much of the Mission Period (Panich and Schneider 2015).

Historic Period Context

Gaspar de Portolá was the first Spanish explorer to enter the Santa Clara Valley, entering from the west along the shoreline of the San Francisco Bay in 1769 after traveling along the Pacific coast through Monterey, Santa Cruz, and San Mateo Counties. Pedro Fages was the next to arrive in 1770, following a similar path to that of Portolá. He returned in 1772 along a route that cut inland from Monterey, passed through the Salinas and San Juan Valleys before continuing north along the eventual route of El Camino Real (US 101), past Morgan Hill (camping on Coyote Creek), and meandered down into the Santa Clara Valley and beyond. All these explorations encountered and interacted with the Ohlone along the way. However, the historic era truly began with the establishment of Mission Santa Clara in 1777, as mentioned above.

Anderson Dam is located in a part of the county first settled in the 1830s, with the establishment of Rancho Refugio de la Laguna Seca, Rancho Ojo de Agua de la Coche, and Rancho San Felipe y Las Animas, primarily used as cattle ranches (Archives and Architecture 2012: 33, City of Morgan Hill 2006 ~~CIRCA 2006~~: 24–26, Dill Design Group 2003: 11–12). Drought in the 1860s propelled wheat cultivation to the forefront of agricultural pursuits in the Santa Clara Valley. Wheat yields began to decline in the 1880s, and dairy and fruit production became the mainstay of Santa Clara Valley agriculture for decades to come (Archives and Architecture 2012: 40–41, 60). This shift to horticulture triggered changing land ownership patterns, as large ranch owners subdivided and sold their land for highly profitable orchard plots (City of Morgan Hill 2006 ~~CIRCA 2006~~: 52–53, Payne 1987: 78).

The earliest communities in the Morgan Hill area began as stage stops along Monterey Road (El Camino Real), including Madrone, which was the primary shipping center for the railroad until a railroad station was established in Morgan Hill in 1893 (City of Morgan Hill 2006 ~~CIRCA 2006~~: 32–33). Fruit dehydrators, and canning and packing plants, were soon built near the Morgan Hill depot (City of Morgan Hill 2006 ~~CIRCA 2006~~: 32–38). Fruit production continued to grow into the twentieth century with orchards extending into the woodlands, oak savannas, and low hills of the Diablo Range. With the introduction of refrigerated rail cars, shipment of fresh fruit also became possible. A 1939 USGS topographic map and the earliest aerial photographs of the study area from 1938/1939 show extensive orchard planting downstream of the dam adjacent to Coyote Creek, as well as in a few areas now inundated beneath the south arm of Anderson Lake. Horticulture remained the principal agricultural industry in the Santa Clara Valley in succeeding decades, with irrigation aided by dam construction and groundwater development projects of Valley Water (City of Morgan Hill 2006 ~~CIRCA 2006~~: 52–53, Payne 1987: 78–79).

Agriculture in the Santa Clara Valley relied on available groundwater. Until around 1900, groundwater levels were sufficiently high that farmers could irrigate with artesian wells. By 1915, increased pumping and drought resulted in a substantial drop in groundwater levels, and by 1930, the groundwater table had dropped to alarming levels (Tibbetts 1934, American Society of Civil Engineers 1977~~: 25~~). Valley Water was established in 1929, and valley leaders and local engineers proposed a system of dams and conservation facilities to aid in recharging the valley's groundwater (~~American Society of Engineers 2003~~, Tibbetts 1936). The original main storage dams were Calero, Almaden, Guadalupe, Vasona, and Stevens Creek, built in 1935, and Coyote Reservoir, finished in 1936. Valley Water built Anderson Dam in 1950 and Lexington Dam in 1952 (McArthur 1981).

Agriculture continued to be the backbone of the Morgan Hill area economy until the 1970s when high-tech firms began locating to the city, and US 101 was built and bypassed the downtown area. The area has become a suburb of San José, triggering the construction of large residential subdivisions east and north of Morgan Hill and their annexation into the city. In recent decades, relatively dense residential development has spread east of Morgan Hill towards the vicinity of Anderson Dam, further altering the once rural and agricultural character of the area (USGS maps, City of Morgan Hill 2006 ~~CIRCA 2006:~~ 36–38).

3.6.2.2 Results of Cultural Resources Studies

Cultural Resources Records Search and Literature Review

Numerous record search requests were submitted to the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University by Far Western between November 2013 and August 2022, as the Project description and preliminary engineering designs were refined. In general, the record search areas comprised the entire Project Area with a 0.25-mile buffer. Subsequent record searches for the Seismic Retrofit component construction area included both 0.5- and 1-mile buffers in order to better understand the cultural resource types within the immediate vicinity of the Project Area. Additionally, at the request of Rincon, the NWIC conducted a records search (#24-0311) in June and September 2024, for the Live Oak Reach Restoration Project and staging areas with a 0.5-mile radius. The record searches conducted in support of the Project are listed in **Table 3.6-2**.

Table 3.6-2. California Historical Resources Information System Record Searches

NWIC File Number	Date Report Received
File No. 13-0537	November 2013
File No. 17-0218	August 2017
File No. 19-0141	July 2019
File No. 19-1183	February 2020
File No. 19-1888	May 2020
File No 20-1331	January 2021
File No. 22-0347	August 2022
File No. 23-1737	June 2024
File No. 24-0311	September 2024

Notes:

NWIC = Northwest Information Center

According to the record search data, a large number of studies have been conducted within the Seismic Retrofit study area and vicinity, primarily downstream of Anderson Dam. These include archaeological field studies (survey and excavation), many of which were linear surveys for pipelines or telecommunication lines, architectural or historic-era studies, and archaeological management or literature research studies (no field component). Despite this high volume of previous studies, large portions of the Seismic Retrofit study area were previously un-surveyed, including some areas downstream of the dam and much of the current shoreline of Anderson Lake. For the Conservation Measures, approximately 50 percent of the Ogier Ponds CM area had been studied, though the staging area for this Conservation Measure had not. Alternately, the study area for the Phase 2 Coyote Percolation Dam CM had been completely surveyed, while none of the area of North Channel Reach ~~Extension~~ had been studied. The number of reports and resources reported by the NWIC record searches for the Seismic Retrofit and Conservation Measures components areas are listed in **Table 3.6-3**.

Table 3.6-3. Record Search Results for the Project Area

Location	Reports	Cultural Resources
Seismic Retrofit		
Seismic Retrofit	5	Total: 5 Precontact: 3 Built Environment: 1 Historic District: 1 (includes built environment resources and a precontact lithic scatter)
Conservation Measures		
Ogier Ponds CM	21	Total: 2 Precontact: 1 Multi-component: 1

Location	Reports	Cultural Resources
Phase 2 Coyote Percolation Dam CM	16	Total: 3 Precontact: 2 Built Environment: 1
North Channel Reach ~~Extension~~	0	Total: 0

Source: Scher and Younie 2020; Izzi and Siskin 2022

Key: CM = Conservation Measures

Sixteen (16) ~~Fourteen (14)~~ sites were previously recorded in the Seismic Retrofit study area and records search buffer, including ten ~~eight~~ precontact archaeological sites, one historic-era archaeological site, two multi-component archaeological sites with both precontact and historic-era components (including built environment elements), two individual built environment resources, and one unknown resource. One historic district was also identified. Five ~~Eight~~ of these resources are in the Seismic Retrofit study area. These consist of: three precontact Native American lithic scatters (one with reported burials); one built environment structure; and one historic district. Previously recorded resources within the Seismic Retrofit study area. The five resources within the Seismic Retrofit study area are summarized below and in **Table 3.6-4.**

Two of the precontact sites are on the rim of Anderson Lake (P-43-001090 and P-43-001094[2]), and one (P-43-000364) is downstream of the dam. None of these sites previously had been evaluated for eligibility for listing in the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR).

The one built environment structure is Anderson Dam (P-43-004144). Anderson Dam was originally recorded in 2006 and assessed as ineligible for both the NRHP and CRHR, with concurrence from the State Historic Preservation Officer (SHPO) received in 2020 (McMorris and Melvin 2014, 2019).

The historic district is the Rhoades Ranch Historic District (P-43-000171), which consists of the Rhoades House and the Phegley House, as well as a precontact lithic scatter. The Rhoades Ranch Historic District is listed in the NRHP and CRHR, and is a County-designated landmark. The precontact lithic scatter is not listed as a contributing element to the historic district, nor are any portions of the pre-contact archaeological site within the Project Area; therefore, impacts to the precontact archaeological site portion of the district are not further addressed in this EIR.

[2] Numbers P-43-XXXXX reference primary numbers assigned by the regional Information Center of the CHRIS to cultural resources that have been identified and submitted to the Information Center. The numbers are comprised of "P," for primary, followed by a number representative of the county (e.g., 43 means Santa Clara County), followed by the assigned number. Numbers CA-SCL-XXXXX reference numbers, referred to as trinomials, are also assigned by the regional Information Center of the CHRIS to cultural resources that have been identified and submitted to the Information Center. The numbers are comprised of "CA," followed by a number representative of the county (e.g., SCL means Santa Clara County), followed by the assigned number. All resources submitted to the CHRIS receive a "P" number, but not all resources receive a trinomial. For simplification, in the text of this chapter, "P" numbers are used to identify resources; trinomials are included in tables, as appropriate, to provide complete information on the identity of resources. The addition of an "H" to the trinomial indicates the resource is of the historic era.

Table 3.6-4. Record Search Results: Previously Recorded Cultural Resources in the Study Area

Primary Number (P-43-)	Trinomial (CA-SCL-)	Age: Type	Location
Seismic Retrofit Study Area			
004144 ~~N/A~~	N/A	Historic: Built environment—Anderson Dam	At dam
000171	159/H	Multi-component: Rhodes Ranch Historic District—Precontact lithic scatter, Phegley House, Rhodes House, horse barn, water tower, office, equipment building	At downstream base of dam (precontact archaeological site portion not in Project Area)
000364	358	Precontact: Lithic scatter, human remains	At downstream base of dam
001090	727	Precontact: Lithic scatter	Reservoir footprint
001094	731	Precontact: Lithic scatter	Reservoir footprint
Conservation Measures Study Areas			
000176	165	Multi-component: Historic-era refuse; precontact flake and shell	Ogier Ponds
001001	164	Precontact: Lithic scatter and midden	Ogier Ponds
000189	178	Precontact: occupation site with human remains	Phase 2 Coyote Percolation Dam Fish Passage Enhancements
001814	953	Precontact: Buried deposit with flaked/ground stone	Phase 2 Coyote Percolation Dam Fish Passage Enhancements
003559	N/A	Built environment: Coyote Percolation Dam; Santa Clara Valley Water District Dams Historic District	Phase 2 Coyote Percolation Dam Fish Passage Enhancements

Source: ~~JRP~~ McMorris and Melvin 2014, 2019, McMorris and Skow 2023

Notes:

Not all build environment resource evaluations have been submitted to the regional CHRIS and, as a result, they do not have primary numbers. Only resources with archaeological deposits receive trinomials.

Key: N/A = Not Applicable.

The record search for the Conservation Measure study area also yielded information on previously recorded cultural resources for Ogier Ponds and the Phase 2 Coyote Percolation Dam CM study areas; no previously recorded resources were identified for the Maintenance of the North Channel Reach ~~Extension~~ study area. As listed in **Table 3.6-4**, one multi-component site (P-43-000176) and one precontact site (P-43-001001) had been previously recorded within the study area for the Ogier Ponds CM. Two precontact sites, P-43-000189 and P-43-001814, the former a large occupation site with human remains, had previously been recorded within the

Phase 2 Coyote Percolation Dam CM study area. One built environment resource, the Coyote Percolation Dam, which is a contributing element to the Santa Clara Valley Water District Dams Historic District (P-43-003559), is also within the Phase 2 Coyote Percolation Dam CM study area. Two of the previously recorded resources in the Phase 2 Coyote Percolation Dam CM study area, precontact site P-43-000189 and Santa Clara Valley Water District Dams Historic District (P-43-003559), have been determined eligible for the NRHP/CRHR. None of the other previously recorded sites within the CM study area have been evaluated for NRHP/CRHR-eligibility. Although site P-43-001814 has not been formally evaluated for NRHP/CRHR-eligibility, data from the NWIC record search indicated the site was thoroughly destroyed by excavation of one of the ponds within the Ogier Ponds CM; therefore, this resource is considered no longer extant and is not further addressed in this EIR.

Archaeological Pedestrian Survey and Results

The archaeological survey area for Seismic Retrofit component construction encompassed all the elements depicted on **Figure 2.2** *Project Area Map*, including the entire reservoir to the dead pool elevation. Altogether, the archaeological survey area for the Seismic Retrofit component encompassed a total area about 1,530 ~~1,145~~ acres, as shown on **Figure 3.6-1a**. Note that the survey area exceeded the Seismic Retrofit component Project Area in some locations to fully record archaeological sites in response to the needs of the FOCP, which also required archaeological surveys, or to earlier iterations of Project design. As described below, areas of dense vegetation, unsafe areas with steep slopes and excessive mud, and paved or artificially constructed areas, all of which were in the Project study area, were not subject to pedestrian survey.

Far Western conducted initial pedestrian survey in the Seismic Retrofit component Project Area on October 2, 2013, and April 23, 2014, with additional survey in August 2017, and August 2019 (Scher and Izzi 2017, Scher and Younie 2020, Scher et al. 2014). The 2019 work included a survey of the reservoir rim from the high-water level at the time of elev. 578 feet, to the reservoir's maximum operating elevation of 628 feet above mean sea level. A final survey was conducted during the spring and summer of 2020 at the reservoir between 578 feet and the deadpool elevation (Buonasera et al. 2022). All newly identified cultural resources were recorded on standard California Department of Parks and Recreation (DPR) forms. Previously recorded sites within the survey areas were re-located, and original DPR site forms were updated. Site boundaries were defined using surface indicators, such as artifact and feature distributions, or the presence of organic-rich anthropogenic sediments (midden). Site boundaries were mapped with a submeter Global Positioning System. Artifacts and features were mapped, described in detail, and photographed. Isolated finds were recorded and photographed where warranted.

Ground visibility varied considerably throughout the study area, with some areas completely covered with vegetation and others fully exposed. Varied levels of survey were conducted. Intensive pedestrian survey was conducted where feasible, including the majority of accessible portions of the Seismic Retrofit study area (i.e., not inundated beneath the reservoir or on private property without access permission). It consisted of systematic transect coverage at intervals of no more than 60–75 feet, depending on conditions. In some locations, shallow surface scrapes were excavated to improve ground visibility and assist with site boundary definition. Mixed-strategy survey was conducted in areas with limited access due to very steep slopes or dense brush and poison oak. Surveyors covered as much of the area as was practical by surveying the upper and lower edges of steep slopes and gaps in dense vegetation. The

Coyote Creek channel was visually inspected from the top of the creek bank where there was no pedestrian access for crossing. In 2019, approximately 2,000 linear feet of channel through the Live Oak Group Picnic Area, was specifically inspected to satisfy a request made by the Ohlone Indian Tribe, during Native American consultation; water in the creek was high with a fast flow at the time of survey, and creek bank views were limited. No survey occurred in inaccessible areas. This included areas just above the 488-foot water line that were too muddy to safely survey, some overly steep slopes, or where the landscape had already been significantly altered.

Additionally, Rincon conducted a field survey of the Live Oak Reach Restoration project area along with Staging Areas 2, 5, and 6, and the Barnhart Avenue Stockpiling Area, and Communication lines/fiber optic lines area on July 10 and September 9 and 10, 2024. Ground visibility was variable ranging from zero to 100 per cent. No artifacts or cultural soils were identified in the Live Oak Restoration Reach, Staging Areas 5 or 6, Barnhart Avenue Stockpiling Area, or Communication lines/fiber optic lines project areas. One archaeological resource (AD-HS-01) was identified within Staging Area 2 and is a historic-period refuse scatter consisting of glass fragments (colorless, aqua, green and brown), ceramic fragments, and metal flatware dating to the 1940s/1950s. AD-HS-01 measures approximately 70 feet by 30 feet and has a sub-surface component. AD-HS-01 has not been evaluated for the CRHR or NRHP.

The results of the archaeological studies ~~study~~ for the Seismic Retrofit Project Area are depicted in **Table 3.6-5,** which lists all the previously recorded (n=3) and newly recorded (n=13 ~~14~~) archaeological sites in the Seismic Retrofit study area. In addition to the 16 ~~17~~ archaeological sites recorded within the Seismic Retrofit Project Area, 35 isolated artifacts[3] were recorded. The isolates were overwhelmingly comprised of precontact flaked or ground stone tools and were located within the reservoir pool. Six of the isolates recorded in the reservoir were of the historic era, as were the only two isolates located downstream of the dam. While isolated artifacts can be useful for identifying land use patterns, they are rarely considered eligible for the NRHP or CRHR due to their limited data potential. As a result, isolated artifacts will not be considered further in this EIR.

Table 3.6-5. Archaeological Resources in the Seismic Retrofit Study Area*

Resource Identifier	Description	NRHP/CRHR Eligibility	Location	Comments/ Potential Impacts
P-43-001090	Multi-component; lithic scatter, water trough	Not Eval	Reservoir Inundation footprint	In construction zone, within stockpile area. Reservoir fluctuation during Project operations.
P-43-001094	Multi-component Ground and flaked stone scatter, midden, sparse historic-era refuse	E**	Reservoir Inundation footprint	Not in construction zone. Reservoir fluctuation during Project operations.

[3] Isolated finds are defined as three or fewer artifacts within a 270-square-foot (25-square-meter) area. A single artifact, such as a ceramic plate, broken into multiple pieces, constitutes a single artifact.

Resource Identifier	Description	NRHP/CRHR Eligibility	Location	Comments/ Potential Impacts
P-43-004082	Precontact Quarry	NE	Reservoir Inundation footprint	Not in construction zone. Reservoir fluctuation during Project operations.
P-43- 004083	Precontact midden, lithic scatter, human remains	E	Reservoir Inundation footprint	Not in construction zone. Reservoir fluctuation during Project operations.
P-43-004084	Precontact Flaked and ground stone scatter	NE	Reservoir Inundation footprint	Not in construction zone. Reservoir fluctuation during Project operations.
P-43-004085	Multi-component ranching, midden, lithic scatter, human remains	E	Reservoir Inundation footprint	In construction zone, adjacent to stockpile area. Reservoir fluctuation during Project operations.
P-43-004086	Multi-component lithic scatter with two rock clusters, sparse historic-era artifacts	NE	Reservoir Inundation footprint	In construction zone. Reservoir fluctuation during Project operations.
P-43-004087	Historic Refuse deposit	NE	At downstream base of dam	In construction zone, within staging area.
P-43-004089	East Dunne Avenue/Cochrane Bridge abutment	NE	Reservoir Inundation footprint	Not in construction zone. Constructed 1951, demolished 1987.
AD-2022-02	Historic; Structure remnants	Not Eval	Reservoir Inundation footprint	Not in construction zone. Reservoir fluctuation during Project operations.
AD-2022-03	Multi-component; Historic-era and precontact artifacts	Not Eval	Reservoir Inundation footprint	In construction zone, within stockpile area. Reservoir fluctuation during Project operations. May be the Pomeroy Adobe.
AD-2022-04	Precontact; Quarry	Not Eval	Reservoir Inundation footprint	Not in construction zone. Reservoir fluctuation during Project operations.
AD-2022-05	Precontact; Ground stone and flaked lithics	Not Eval	Reservoir Inundation footprint	In construction zone. Reservoir fluctuation during Project operations.

Resource Identifier	Description	NRHP/CRHR Eligibility	Location	Comments/ Potential Impacts
AD-2022-06	Precontact; Quarry	Not Eval	Reservoir Inundation footprint	In construction zone, slight overlap of stockpile area. Reservoir fluctuation during Project operations.
	Anderson Dam Bridge	NE	Encased existing dam	In construction zone. Will be disposed of during construction of replacement dam. Likely constructed 1905 to 1908, decommissioned 1950.
AD-HS-01	Historic-period refuse scatter with glass and ceramic fragments and metal flatware	Not Eval	Staging Area 2	In Staging Area 2

** Shaded rows indicate archaeological sites considered historical resources for the purpose of this EIR.*

*** Site P-43-001094 was originally evaluated as not eligible, but the 2022 study (Buonasera et al. 2022) suggests evaluation should be reconsidered due to discovery of midden deposit.*

Key: CRHR = California Register of Historical Resources; E = Eligible; NE = Not Eligible; Not Eval = Not Evaluated; NRHP = National Register of Historic Places

The complete study areas for the Phase 2 Coyote Percolation Dam CM and Maintenance of the North Channel Reach ~~Extension Conservation Measures~~ were inspected for archaeological resources. All the Ogier Ponds CM area was surveyed with the exception of 21 acres south of Coyote Creek in an area planned for restoration that was not accessible due to high water in the creek. As with the Seismic Retrofit area, all identified cultural resources in the Conservation Measures areas were recorded on DPR forms, and previously recorded sites were visited and recorded with DPR site record updates.

Archaeological survey of the Ogier Ponds CM resulted in the identification and recordation of three new historic-era archaeological resources. Two of the resources (ADKS02 and ADKS03) are within the area of Ogier Ponds CM, and the third (ADKS01) is within the staging area identified for the construction of this Conservation Measure. Of the two previously recorded archaeological sites in the area, one was not observed during the field effort (P-43-001001), and the second was in the area inaccessible to survey (P-43-000176). For the Phase 2 Coyote Percolation Dam CM, the two previously recorded sites (P-43-000189 and P-43-001814[4]) in the study area could not be relocated during the pedestrian survey; no new archaeological resources were identified. Archaeological resources had not previously been recorded in the Maintenance of the North Channel Reach ~~Extension~~ study areas, nor were any identified during the pedestrian survey. **Table 3.6-6** lists all previously recorded and newly identified archaeological resources associated with the Conservation Measure study areas.

[4] Note that it was previously stated that site P-43-001814 had been destroyed. It is, therefore, not listed in **Table 3.6-3**, nor discussed further in this EIR.

Table 3.6-6. Archaeological Resources in the Conservation Measure Study Areas*

Resource Identifier	Description	NRHP/CRHR Eligibility	Conservation Measure	Comments/Potential Impacts
P-43-000176/ CA-SCL-165	Multi-component	Not Eval	Ogier Ponds	Site area not accessible for survey; development of floodplain along Coyote Creek.
P-43-001001/ CA-SCL-164	Precontact	Not Eval	Ogier Ponds	No surface evidence of site during survey; in conservation area but no impacts identified.
ADKS01	Historic: dense and extensive historic-era domestic refuse deposit; 1940s-1950s	Not Eval	Ogier Ponds	Evidence of looting noted; in staging area.
ADKS02	Historic: two concrete foundation slabs and artifact scatter	Not Eval	Ogier Ponds	Near proposed berm.
ADKS03	Historic: 1950s sparse refuse scatter	Not Eval	Ogier Ponds	Adjacent to existing road and trail.
P-43-000189	Precontact with human remains	E	Phase 2 Coyote Percolation Dam	No surface evidence of site during survey; under access road.

Source: S. L. Izzi and B. Siskin. 2023

** Shaded rows indicate archaeological sites considered historical resources for the purpose of this EIR.*

Key: CRHR = California Register of Historical Resources; E = Eligible; NE = Not Eligible; Not Eval = Not Evaluated; NRHP = National Register of Historic Places

Archaeological Trenching and Results

Because a high percentage of identified archaeological sites in the Santa Clara Valley are buried and much of the Project Area downstream of the dam has been rated as high to highest for buried archaeological site sensitivity, a series of backhoe trenches were excavated where Project elements could have an impact on buried archaeological resources (Scher and Younie 2020). Backhoe trenches were also used to explore the presence of buried cultural materials at the recorded location of archaeological resource P-43-000364 within the Seismic Retrofit Project Area, which was not relocated during the pedestrian survey (Scher and Younie 2020). Twenty-two trenches were excavated within the recorded portion of P-43-000364 located north of Cochrane Road and in the Seismic Retrofit construction area.[5] Only one of the backhoe trenches revealed a buried deposit. The identified resource was a historic-era refuse deposit within the previously recorded boundaries of site P-43-000364. The historic refuse site (P-43-004047) was

[5] A total of 31 backhoe trenches were excavated within the downstream portion of the seismic retrofit construction Project study area; however, some of these were in locations that were later excluded from the Project seismic retrofit construction area.

recorded as a separate site from P-43-000364, and because no precontact materials were identified in the area, the boundary of P-43-000364 was redrawn to restrict the site to the south of Cochrane Road and outside of the Project limits. Because the site was determined to be outside of the Project Area, it has been eliminated from further analysis.

Archaeological Site Evaluations

Archaeological site evaluations for NRHP/CRHR eligibility[6] were conducted for eight archaeological sites and one historic-era archaeological feature (Anderson Dam Bridge) within the Seismic Retrofit study area by Far Western in the summer of 2020 (Scher et al. 2022). Far Western prepared research designs to define research issues for both Native American precontact and post-contact sites and historic-era sites prior to implementing the evaluations (Scher and Hyde 2020). Archaeological sites were evaluated by excavating a program of surface transect units (STU) and control units (CU). Archival research was also conducted for the historic-era elements of the multi-component sites, the one historic-era site, and the Anderson Dam Bridge. Note that the Anderson Dam Bridge is encased in the core of the existing Anderson Dam, and because it is buried in soil, it was not evaluated as a built environment resource. The Anderson Dam Bridge was identified and evaluated solely based on archival research. The evaluated resources are listed in **Table 3.6-7**; the resultant NRHP/CRHR eligibility status of each resource is listed in **Table 3.6-2**.

Table 3.6-7. Evaluated Archaeological Resources in Seismic Retrofit Study Area

Resource Identifier	Description	Surface Recording	STUs	CUs	Feature Exposures	Archival Research
P-43-001094	Multi-component	X	7		1	X
P-43-004082	Precontact	X	1			
P-43-004083	Precontact	X	4	2		
P-43-004084	Precontact	X	1			
P-43-004085	Multi-component	X	8	5	1	X
P-43-004086	Multi-component	X		3		X
P-43-004087	Historic-era	X				X
P-43-004089 (East Dunne Avenue Bridge Remains)	Historic-era	X				X
Anderson Dam Bridge	Historic-era					X

Source: Scher et al. 2022

Key: H – Historic; M – Multi-component; P – Precontact; CU – Control Unit – 1 by 1 or 2 by 1 meters, excavated in 10-centimeter levels, screened through 1/4-inch or 1/8-inch mesh; STU – Surface Transect Unit – 1 by 0.5 meters, excavated in 20-centimeter levels, screened through 1/4-inch mesh; Feature Exposure – Exposure of a feature identified at the surface, excavated with greater attention to stratigraphy, screened through 1/4-inch or 1/8-inch mesh.

[6] All archaeological sites evaluated for NRHP/CRHR eligibility were also evaluated against the criteria for unique archaeological resources under PRC 21083.2(g). Very rarely do archaeological sites meet these criteria without also being found eligible for the NRHP/CRHR. Such is the case for the Project's evaluated sites; sites found ineligible for the NRHP/CRHR were also determined not to meet the unique archaeological resource criteria. Therefore, for the purposes of this EIR, archaeological sites determined ineligible for the NRHP/CRHR can be assumed to be nonunique archaeological resources pursuant to PRC 21083.2(h) though it may not be explicitly stated in the text.

As previously discussed, one other archaeological site (P-43-000189) in the Phase 2 Coyote Percolation Dam CM area, had previously been evaluated and found eligible for the NRHP/CRHR.

Archaeological Resources Setting Summary

Altogether, ten of the 22 ~~21~~ known archaeological resources within the study areas (Seismic Retrofit and Conservation Measures components) have been evaluated for NRHP/CRHR eligibility, leaving 12 ~~13~~ of the sites unevaluated. These 12 ~~13~~ archaeological sites are considered CEQA-defined historical resources for the purpose of the impact analyses presented in Section 3.6.5, along with the four other sites that have been determined NRHP/CRHR-eligible. Impacts to sites that are determined ineligible, which are not listed in a local register of historic resources and are not unique archeological resources, do not require further consideration under CEQA and therefore, they are not analyzed further.

Built Environment Survey and Results

JRP Historical (JRP) initially conducted a study of built environment resources within the Seismic Retrofit study area in 2014 (McMorris and Melvin 2014); a follow-up study was conducted in 2019 as the Project evolved (McMorris and Melvin 2019). Surveys for the Conservation Measures took place in 2021 and 2023 (McMorris and Skow 2022, 2023). A total of 13 resources were identified, recorded on DPR forms, and analyzed for NRHP/CRHR eligibility. Five of the resources are located in the Seismic Retrofit study area (construction area and immediately adjacent parcels), and eight are in the Conservation Measure study areas (construction area and immediately adjacent parcels). Seven of the resources in the Conservation Measure study areas are in the Ogier Ponds CM study area, and one is in the Phase 2 Coyote Percolation Dam CM study area. Recorded resources (see **Table 3.6-8**) included a variety of structures (residences, out buildings, barns, warehouses) and irrigation features.

Two previously recorded historic districts, the Rhoades Ranch Historic District and the Santa Clara Valley Water District Dams Historic District, are located in the Seismic Retrofit area and the Phase 2 Coyote Percolation Dam CM, respectively. Both historic districts were revisited for the purposes of the EIR, and are the only CEQA-defined built environment historical resources in the Project Area. All of the newly-identified built environment resources were recommended as not eligible for listing in the NRHP/CRHR, and none are listed as significant resources on any local registry; therefore, they will not be analyzed further in this EIR.

Table 3.6-8. Built Environment Resources within the Project Study Areas*

Name or Type of Resource	APN/Address	NRHP/CRHR Eligibility	Description	Direct/Indirect Footprint
Seismic Retrofit Component Study Area				
Anderson Dam	N/A	NE	Existing dam. Built in 1950.	Direct
Rhoades Ranch Historic District;	728-34-010 / 2290 Cochrane Road	E Listed on NRHP 2013, Reference No.	Ranch complex. Phegley House (1860s); Rhoads House (1920); residence/office (1945);	Direct

Name or Type of Resource	APN/Address	NRHP/CRHR Eligibility	Description	Direct/Indirect Footprint
Phegley House, Rhoades House; P-43-000171		13000158; Listed Santa Clara County Designated Landmark No. CL11-001;	residence (ca1948); residence (ca 1961); barn (1860s); equipment shed (ca 1945).	
Coyle Property	728-34-011/2390 Cochrane Road	NE	Built in 1951. This residence is a wood-frame, single-story building with a medium pitched cross-gable roof covered in composition shingles.	Direct
Irrigation pump	728-34-019	NE	Built ca. 1900	Direct
Water Distribution Pipe	728-34-020	NE	Built ca. 1910	Indirect
Conservation Measures Component Study Areas				
Residence, outbuildings, barn	725-06-006 & 725-06-007/559 Monterey Road	NE	Ranch complex. Residence built in the 1940s; outbuildings built variously between 1940-1998; one building 2019-2021.	Indirect Ogier Ponds
Battaglia Packing Co., fruit-processing plant	725-05-014/550 Monterey Road	NE	Warehouses built between 1956 and 1963; other warehouses and a residence added at various times between 1963 and 1982.	Direct Ogier Ponds
Parkway Lakes Recreational Vehicle Park	725-05-011/100-550 Ogier Avenue	NE	Residence built sometime between 1917 and 1931; one outbuilding built sometime between 1968 and 1980; mobile homes moved in between 1982 and the present.	Direct Ogier Ponds
Fitzgerald Ranch; Rodeck Ranch; cherry ranch	725-04-002	NE	Residence built sometime before 1917, with portions potentially built earlier than 1876; barn ca. 1981; other buildings post 2018.	Direct Ogier Ponds
Rancho Ghanma; residence, outbuildings,	725-05-005 & 725-05-	NE	Ranch complex. Residence built ca. 1916; one outbuilding, barn, commercial building built	Direct Ogier Ponds

Name or Type of Resource	APN/Address	NRHP/CRHR Eligibility	Description	Direct/Indirect Footprint
barn, commercial building	006/10000 Monterey Road		between 1968 and 1980; other buildings constructed between 2014 and 2020.	
115 kV Metcalf-Morgan Hill Transmission Line	N/A	NE	Built 1950. Circuits are carried on parallel vertical planes by double-circuit, lattice metal towers with top cages, cross arms, and concrete stub footings.	Direct Ogier Ponds
230 kV Moss Landing-Metcalf Nos. 1 and 2 Transmission Line	N/A	NE	Built 1929. Circuits are carried on parallel vertical planes by double-circuit, lattice metal towers with top cages, cross arms, and concrete stub footings.	Direct Ogier Ponds
Santa Clara Valley Water District Dams Historic District; P-43-003559	678-02-009/ Percolation Dam Location	E Santa Clara Valley Water District Dams Historic District	Coyote Percolation Dam built in 1934. The dam is a contributor to the Historic District but is not individually eligible	Direct Phase 2 Coyote Percolation Dam

Source: ~~JRP~~ McMorris and Melvin 2019, 2022, McMorris and Skow 2023

**Shaded rows indicate built environment resources considered historical resources for the purpose of this EIR.*

Key: kV = kilovolt; N/A = Not Applicable; NE = Not Eligible for the NRHP/CRHR; E = Eligible for the NRHP/CRHR; Listed = Listed on the NRHP

Rhoades Ranch Historic District

This historical resource is located at 2290 Cochrane Road (APN 728-34-010), directly downstream of the existing Anderson Dam. The APN parcel containing the Rhoades Ranch Historic District crosses to just north of Cochrane Road for a maximum of 30 feet and, thus, into the Seismic Retrofit construction area (see **Figure 3.6-1b**). This portion of the Project, north of Cochrane Road, is within the construction area of the extant dam and currently contains a parking area for access to the Coyote Creek Trail. The boundary of the Rhoades Ranch Historic District, however, is entirely south and west of Cochrane Road (McMorris and Melvin 2014). The NRHP nomination form, completed in 2012, noted that "[t]he property today is located in a rural environment as it has been since established in the 1860s, although Anderson Dam, built in 1949-1950 is clearly visible to the northeast" (Maggi and Winder 2012). Thus, construction of the extant dam did not impact the characteristics of the Rhoades Ranch Historic District that contributed to its significance. Furthermore, the area has lost some of its rural character, as the area directly west of the property has since been developed as a housing tract.

The Rhoades Ranch Historic District was listed in the NRHP[7] in 2013. It was determined significant under NRHP Criterion A, for its association with agricultural development of the region; NRHP Criterion B, for its association with Harold E. Thomas; and NRHP Criterion C, for distinctive architecture. This ranch was developed in the 1860s during the county's Early American Period as a 248-acre portion of the Rancho La Laguna Seca. La Laguna Seca was established in 1834 when Mexican Governor José Figueroa granted four leagues of land in Coyote Valley to Juan Alvires. During 100 years of agricultural production, this site evolved from a cattle ranch to a horticultural farm where prunes, apricots, and walnuts were grown. By the mid-twentieth century, the site, reduced to its present size, became the location of an experimental strawberry facility where propagation work took place that created many disease-resistant varieties now grown throughout the world. A number of significant people have been involved in this ranch: early owner James F. Phegley, a South County rancher who served on the County's Board of Supervisors, Ira Osborne Rhoades, a railroad purchasing agent who retired to the ranch and became involved in a leadership role in the statewide California Prune and Apricot Growers Association, and Dr. Harold E. Thomas, a plant pathologist who helped found, and was Director of, the nonprofit Strawberry Institute of California.

The property contains two residences that are architecturally significant. The Phegley House is a unique and rare two-story board-wall house (National folk style) that was constructed in the 1860s during California's Early American Period. The Phegley House was renovated during the early-twentieth century but retains its distinctive 1860s character and composition that is expressed through its preserved materials, workmanship, and early National-style construction technology.

The Rhoades house is a distinguished example of Spanish Eclectic architecture for 1917, an innovative design by two important local architects, Andrew Hill Jr. and Howard Higbie. The Rhoades House has changed little since its construction and continues (through its massing and detailing) to illustrate its associations with local architect-designed work.

Harold E. Thomas is known as the "Father of the California Strawberry Industry." Thomas' major contributions were the development of disease-resistant strawberry varieties, which changed the character and scope of strawberry production in California and opened the potential of strawberries as a fresh market fruit. Thomas acquired the property that contains the Rhoades Ranch Historic District in 1945 and established the Strawberry Institute to further his research, which lasted until 1966.

Santa Clara Valley Water District Dams Historic District/Coyote Percolation Dam

The Santa Clara Valley Water District Dams Historic District was evaluated and recommended eligible for the NRHP/CRHR in 2006 (JRP 2006). The Santa Clara Valley Water District Dams Historic District is a discontinuous district that consists of seven dams and appurtenant structures that comprise the original and integral components of the Santa Clara Valley Water Conservation District's system. The dams, which were constructed between 1934 and 1936, included in the district are Coyote Dam, Coyote Percolation Dam, Almaden Dam, Guadalupe Dam, Vasona Dam, Stevens Creek Dam, and Calero Dam. The Santa Clara Valley Water District Dams Historic District was found eligible for listing in the NRHP/CRHR under Criterion A/1 as an

[7] Resources eligible for or listed on the NRHP are automatically eligible for or listed on the CRHR pursuant to PRC 5024.1(d)(1) and CCR 4851(a)(1).

important aspect of the economic development of the Santa Clara Valley. The construction of the seven dams as a unified system provided a steady, reliable, and consistent supply of water for municipal, industrial, and agricultural uses. It was also found eligible under Criterion C/3 as the dams and their associated features can be considered the work of a master, Fred H. Tibbetts. The Coyote Percolation Dam is a contributing element to the Santa Clara Valley Water District Dams Historic District but is not considered an individually eligible resource (McMorris and Skow 2022).

The Coyote Percolation Dam was among the first structures of the historic district to be built. Tibbetts designed the dam in 1932 and it was constructed two years later by Macco Construction Co. It was built with removable flashboards which, when installed, created a pond to hold the natural flow of Coyote Creek at medium river stages that allow for water to percolate into the aquafer. Once Anderson Dam was built upstream and east of Morgan Hill in 1950, the Coyote Percolation Dam also began to serve as storage for Anderson Dam flows when they naturally decrease.

3.6.3 Regulatory Setting

3.6.3.1 Federal Laws, Regulations, and Policies

National Historic Preservation Act

Projects that require federal permits, receive federal funding, or are located on federal lands must comply with 54 USC Section 306108, formally known as Section 106 of the National Historic Preservation Act (NHPA). To comply with Section 106, a federal agency must “take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places”. The implementing regulations for Section 106 are found in Title 36 CFR, Part 800, as amended (2004).

The implementing regulations of the NHPA require that cultural resources be evaluated for NRHP eligibility if they cannot be avoided by an undertaking or a project. Resources listed or eligible for NRHP listing are called *historic properties*. To determine if a site, district, structure, object, and/or building is significant, the NRHP Criteria for Evaluation are applied. A resource is significant and considered a historic property when it:

- Is associated with events that have made a significant contribution to the broad patterns of our history
- Is associated with the lives of persons significant in our past
- Embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction
- Yields, or may be likely to yield, information important in prehistory or history

In addition, 36 CFR Section 60.4 requires that, to be considered significant and historic, resources must also exhibit the quality of significance in American history, architecture, archaeology, engineering, or culture, and must possess integrity of location, design, setting, materials, workmanship, feeling, and association.

FERC would be the lead federal agency for Project Section 106 consultation.

3.6.3.2 State Laws, Regulations, and Policies

California Register of Historical Resources

The CRHR is established in PRC Section 5024.1. The register lists all California properties considered to be significant historical resources, including all properties listed in, or determined to be eligible for listing, in the NRHP. The criteria for listing in the CRHR include resources that:

- Are associated with the events that have made a significant contribution to the broad patterns of California's history and cultural heritage
- Are associated with the lives of persons important in our past
- Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values
- Have yielded, or may be likely to yield, information important in prehistory or history

CCR section 4852 sets forth the criteria for eligibility, as well as guidelines for assessing historical integrity and resources that have special considerations.

California Environmental Quality Act

Under CEQA, a project will have a significant effect if it causes a “substantial adverse change” in the significance of an “historical resource.” An “historical resource” is defined as a resource that is (*CEQA Guidelines* Section 15064.5[a]):

- Listed in or determined by the State Historical Resources Commission to be eligible for listing in the CRHR
- Listed in a local register of historic resources
- Determined to be eligible for California Register-listing, based on an historical resource survey meeting defined requirements; or determined by the Lead Agency’s exercise of discretion, based on substantial evidence in the record, to be an historical resource

The *CEQA Guidelines* also provide guidance on how to mitigate significant impacts on historical resources (*CEQA Guidelines* Section 15126.4(b)).

In addition, Section 21083.2 of CEQA (PRC Section 21000 et seq.) requires that the lead agency determine whether a project may have a significant effect on unique archaeological resources. A unique archaeological resource is defined in CEQA as an archaeological artifact, object, or site where 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
- Is directly associated with a scientifically recognized important prehistoric or historic event or person

Measures to conserve, preserve, or mitigate and avoid significant effects on unique archaeological resources are also provided under CEQA Section 21083.2.

Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the County Coroner can determine whether the remains are those of a Native American. If the remains are determined to be a Native American, the Coroner must then contact the California Native American Heritage Commission (NAHC). When human remains are discovered or recognized in any location other than a dedicated cemetery, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains may take place until the County Coroner has been informed and has determined that no investigation of the cause of death is required. If the Coroner determines, or has reason to believe, the remains to be those of a Native American, the Coroner shall contact the NAHC by telephone within 24 hours. If the remains are of Native American origin, the descendants of the deceased Native American(s) may make a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98. This excludes instances where the NAHC was unable to identify a descendant, or the descendant failed to make a recommendation within 24 hours after being notified by the commission. Similar procedures are required by *CEQA Guidelines* Section 15064.5(e).

3.6.3.3 Local Laws, Regulations, and Policies

Santa Clara County General Plan

The Santa Clara County General Plan (County 1994) provides a comprehensive approach to identifying and addressing cultural resources (referred to as heritage resources), which is found under the Resource Conservation Element. The General Plan identifies three strategies for protecting heritage resources:

Strategy #1. Inventory and Evaluate Heritage Resources

Strategy #2. Prevent, or Minimize, Adverse Impacts on Heritage Resources

Strategy #3. Restore, Enhance, and Commemorate Resources as Appropriate

The General Plan also acknowledges the challenges for preserving heritage resources in urban settings versus rural settings and provides policies for each setting. There are two General Plan policies that guide implementation of the strategies in rural settings:

R-RC 81: Heritage resources within the rural unincorporated areas of Santa Clara County shall be preserved, restored wherever possible, and commemorated as appropriate for their scientific, cultural, historic and place values.

R-RC 82 The following strategies should provide overall direction to efforts to preserve heritage resources:

1. Inventory and evaluate heritage resources.
2. Prevent, or minimize, adverse impacts on heritage resources.

3. Restore, enhance, and commemorate resources as appropriate.

City of Morgan Hill 2035 General Plan

In lieu of discussing cultural resources in the City of Morgan Hill 2035 General Plan, the City of Morgan Hill address Cultural and Historic Resources under their Healthy Community element. One goal is defined: GOAL HC-8 Historic identity and cultural resources that are preserved for future generations. Of the seven policies listed under the goal, the two listed below are the only ones somewhat applicable to the Project:

- Policy HC-8.4 Tribal Consultation. Consult with Native American tribes that have ancestral ties to Morgan Hill regarding proposed new development projects and land use policy changes.
- Policy HC-8.5 Mitigation. Require that if cultural resources, including tribal, archaeological, or paleontological resources, are uncovered during grading or other on-site excavation activities, construction shall stop until appropriate mitigation is implemented.

Most of the City's regulations for cultural resources are deferred to their Historic Resources Code that is within Section 18.60 of the Municipal Code (City of Morgan Hill 2021). The code is comprehensive but largely emphasizes the protection, restoration, and treatment of historic structures rather than archaeological sites. Section 18.60.090, however, addresses archaeological resources. The City maintains an archaeological sensitivity map and the Municipal Code requires that developers request a record search to determine if known archaeological sites are in or near a proposed development. If a known archaeological site is within or adjacent to a project area, appropriate mitigation measures must be developed. If a known archaeological site is not within or adjacent to a project area, an archaeological survey must be conducted, and the applicant must comply with standard conditions developed by the City. These standard conditions include having an archaeologist present onsite to monitor all ground-disturbing activities and treating any discovered archaeological resources appropriately. If human remains are discovered during construction, the project would comply with all applicable state and federal laws, including California Health and Safety Code Section 7050.5 and *CEQA Guidelines* Section 15064.5(e).

The City has also produced an Historic Context Statement that provides an extensive history of the city (City of Morgan Hill 2006 ~~CIRCA: Historic Property Development 2006~~). The document discusses historic themes and property types to assist in the NRHP/CRHR evaluation of cultural resources recorded within city limits.

Envision San José 2040 General Plan

The City of San José addresses archaeological resources (paired with paleontological resources) under the Environmental Leadership Element of the Envision San José 2040 General Plan (City of San José 2023 ~~2011~~) with the following goal, policies, and actions:

Goal ER-10 – Archaeology and Paleontology

Preserve and conserve archaeologically significant structures, sites, districts and artifacts in order to promote a greater sense of historic awareness and community identity.

Policies – Archaeology and Paleontology

ER-10.1 For proposed development sites that have been identified as archaeologically or paleontologically sensitive, require investigation during the planning process in order to determine whether potentially significant archeological or paleontological information may be affected by the project and then require, if needed, that appropriate mitigation measures be incorporated into the project design.

ER-10.2 Recognizing that Native American human remains may be encountered at unexpected locations, impose a requirement on all development permits and tentative subdivision maps that upon their discovery during construction, development activity will cease until professional archaeological examination confirms whether the burial is human. If the remains are determined to be Native American, applicable state laws shall be enforced.

ER-10.3 Ensure that City, State, and Federal historic preservation laws, regulations, and codes are enforced, including laws related to archaeological and paleontological resources, to ensure the adequate protection of historic and prehistoric resources.

Action – Archaeology and Paleontology

ER-10.4 The City will maintain a file of archaeological and paleontological survey reports by location to make such information is retrievable for research purposes over time.

The Historic Preservation section under the Land Use and Transportation Element of the General Plan, which identifies historic landmarks, historic districts, and conservation districts, emphasizes built environment resources. The City recognizes that “Historic sites and structures provide an educational link to San José’s past and foster a sense of place and community identity for San José. The preservation of appropriate remnants of a city’s past provides multiple benefits important to the health and progress of the city” (City of San José 2023 ~~2020~~, Chapter 6: 19).

3.6.4 Methodology and Approach to Impact Analysis

The impact analysis considers whether implementation of the Project would result in significant impacts to cultural resources pursuant to the applicable significance criteria in Appendix G of the *CEQA Guidelines* (see Section 3.6.3.2). Specifically, the impact analysis considers the effects of Seismic Retrofit Project construction, as well as the effects of Seismic Retrofit Project post-construction operations and maintenance. The analysis also considers the effects of Conservation Measures incorporated into the Project, including both construction and post-construction operations and maintenance. As described in Section 3.0, *Introduction*, the baseline for evaluating Seismic Retrofit and Conservation Measures construction is the existing conditions at the time of the EIR preparation modified by the FOCP implementation. However, for both the Seismic Retrofit and the Conservation Measures components, the baselines for evaluating post-construction operations and maintenance effects include the Pre-FERC Order Conditions Baseline (based on the 2015 WEAP model) which is also described in Section 3.0, *Introduction*.

Construction monitoring impacts are not analyzed, as monitoring is focused on water temperature and quality, groundwater, fisheries, and various other biological species, as discussed in Chapter 2, *Project Description*. Such activities would not cause any ground disturbance or result in direct or indirect adverse impacts to cultural resources under baseline conditions.

Similarly, adaptive management strategies under the FAHCE program are not analyzed, because resources subject to adaptive management are within Coyote Creek and such strategies would largely comprise non-ground-disturbing activities or would be in areas analyzed for other Project components. Geoarchaeological studies (Scher and Younie 2020) for the Project indicated that areas along Coyote Creek where these Conservation Measures would be implemented are not sensitive for buried cultural resources; however, should unknown archaeological materials be uncovered during Conservation Measures components implementation, these would be addressed according to mitigation measures included herein. Should the results of future adaptive management studies lead to infrastructure improvements, these improvements could require additional CEQA assessment and other regulatory approvals, and additional cultural resources studies would take place at that time, as necessary.

3.6.4.1 Seismic Retrofit Construction

This analysis considers the potential direct and indirect impacts on cultural resources that would result from constructing the Seismic Retrofit components, as described in Chapter 2, *Project Description*. Project implementation would require a significant amount of ground-disturbing activities necessary for the construction of the Seismic Retrofit components. While a significant amount of the disturbance would be in locations that have either been previously disturbed (e.g., the spillway) or in places with artificial fill (e.g., the dam), many other locations could affect original ground (e.g., temporary and permanent road construction; preparation for staging, stockpiling, and borrow areas) where surface or subsurface archaeological remains could be located (see Impact CR-2 and Impact CR-3). In some cases, built environment resources could also be affected by Project construction activities (see Impact CR-1). The potential for significantly impacting known and unknown cultural resources within the Seismic Retrofit component of the Project study area is discussed below.

3.6.4.2 Conservation Measures Construction

This impact analysis considers the potential for construction of the Conservation Measures component to cause significant adverse impacts to cultural resources. Conservation Measures that involve construction and/or physical improvements may result in impacts to built environment resources (see Impact CR-1), or surface or buried archaeological resources, including human burials (see Impact CR-2 and Impact CR-3). The location and nature of Conservation Measure components construction activities are considered in the context of known cultural resources and the potential to discover buried cultural resources. The potential for Conservation Measure components construction to result in significant impacts to cultural resources is evaluated. Conservation Measures requiring construction activities that are evaluated in the impact analysis include:

- Ogier Ponds CM
- Maintenance of the North Channel Reach ~~Extension~~
- Phase 2 Coyote Percolation Dam CM

The Maintenance Activities at Live Oak Restoration Reach and Sediment Augmentation Program areas, including adaptive management actions, are not analyzed, as the measure actions would be contained within Coyote Creek and would not include any ground disturbance that could impact cultural resources. Adaptive management actions identified under the FAHCE program are also not addressed as they would not result in any ground-disturbing activities that could impact cultural resources for similar reasons. Should the results of future adaptive management actions lead to infrastructure improvements that require additional CEQA assessment and other regulatory approvals, additional cultural resources analyses would take place, as necessary.

3.6.4.3 Post-Construction Anderson Dam Facilities Operations and Maintenance

This analysis considers the direct and indirect impacts to cultural resources that would result from operational changes proposed for nonemergency flow releases following completion of the FOCP and Anderson Dam facility upgrades and improvements, as described in Chapter 2, *Project Description*. The baseline for evaluating post-construction operation effects for the Seismic Retrofit Project is the Pre-FERC Order Conditions Baseline. Thus, Project operations would impact those sites within the reservoir that would be subject to wave action caused by the fluctuating water levels from reservoir operations and power boating activities. These effects would be primarily to those sites located along the reservoir shoreline (see Impact CR-2). The potential for significantly impacting archaeological resources through Seismic Retrofit Project operations is discussed below.

Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. DMP activities were evaluated previously in the DMP Final Program EIR prepared in January 2012 (SCH No. 2007022052 ~~2011082077~~; Valley Water 2012). Dam maintenance activities would be restricted to built environment features that are either newly constructed or have previously been determined ineligible for the NRHP/CRHR and would not impact cultural resources. For these reasons, post-construction dam facility maintenance activities are not discussed further for built environment resources in this section.

3.6.4.4 Post-Construction Conservation Measure Operations and Maintenance

The baseline for evaluating post-construction operation and maintenance effects for the Seismic Retrofit component and Conservation Measures component is the Pre-FERC Order Conditions Baseline. Conservation Measures post-construction operations and maintenance impacts are not addressed, because they would not impact cultural resources once these facilities are constructed. This is because all areas of post-construction operations and maintenance would occur in areas impacted by construction of the Conservation Measure elements, and no ongoing disturbance would be required; therefore, any potential impacts to cultural resources would have occurred at that time.

3.6.4.5 Post-Construction Project and FAHCE Adaptive Management

The Project and FAHCE AMP would guide post-construction adaptive management of Project flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform a selection of adaptive management measures to implement in response to management triggers and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because they are not the types of activities that would reasonably be anticipated to have the potential to impact cultural resources, as they would not include ground-disturbing activities or activities associated with potential alterations to built environment resources.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts of these adaptive actions are not evaluated in the impact analysis because, as noted above, such actions would occur within Coyote Creek and largely comprise non-ground-disturbing activities or be in areas analyzed for other Project components. These areas are not sensitive for buried cultural resources; however, should unknown archaeological materials be uncovered during Conservation Measures components implementation, these would be addressed according to mitigation measures included herein.

3.6.4.6 Applicable Best Management Practices and VHP Conditions

There are two ~~is one~~ Valley Water BMPs that are ~~is~~ applicable to the protection of cultural resources, including historical and archaeological resources, and human burials, and that are ~~is~~ described below.

BMP AQ-1: Use Dust Control Measures

The following 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[8];
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.

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 a 30-foot radius. A "no work" zone will 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 PRC, and Section 15126.4 of the CCR. 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 an action plan within 48 hours which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with PRC 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. The field crew supervisor will take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent. No further excavation or disturbance within 30 feet of the site or any nearby area reasonably suspected to contain adjacent remains may be made except as authorized by the County Coroner, California NAHC, and/or the County Coordinator of Indian Affairs.

[8] The 15 miles per hour speed limit would apply to all vehicles and equipment only in areas containing naturally occurring asbestos. Outside of these areas, a 25 mile per hour speed limit would be observed for haul trucks on unpaved roads (light duty pick-up trucks would observe the 15 mile per hour limit), such as the in-reservoir access roads to Stockpile Areas K and L. Limiting haul truck speeds to 15 miles per hour on all unpaved access roads would not be feasible to construct the Project interim dam to its full height, as the interim dam at the proposed height could not be reconstructed in a single work season.

There are no relevant VHP conditions that would apply to cultural resources.

3.6.4.7 Thresholds of Significance

For the purposes of this analysis, the Project would result in a significant impact on cultural resources if it would:

- CR-1: Cause a substantial adverse change in the significance of a historical resource
- CR-2: Cause a substantial adverse change in the significance of an archaeological resource
- CR-3: Disturb any human remains

No topics related to cultural resources that are included in the significance criteria listed above were eliminated from further consideration. All relevant topics are analyzed below.

3.6.5 Impact Analysis

***Impact CR-1: Cause a substantial adverse change in the significance of a built environment historical resource* (Less than significant)**

Seismic Retrofit Construction

One built environment resource, the NRHP/CRHR-listed Rhoades Ranch Historic District, is within the Seismic Retrofit component area (**Figure 3.6-1b**). The parcel that contains the Rhoades Ranch Historic District minimally overlaps the Seismic Retrofit area but the boundary of the Rhoades Ranch Historic District is not within the Seismic Retrofit construction area. Therefore, the Project would not result in any direct impacts on the historical resource. Activities related to construction of the Seismic Retrofit component would not be significantly different from those implemented during the construction of the Anderson Dam in the 1950s. Although the Rhoades Ranch Historic District would be subjected to atmospheric and audible elements (i.e., dust and noise), and vibration from construction, these impacts would be temporary and would not significantly alter the elements that contribute to the significance of the historical resource. Similar elements were also present during the construction of the ADTP as part of the FOCP and did not impact the Historic District. Therefore, the construction of the Seismic Retrofit component would have a less-than-significant impact on the Rhoades Ranch Historic District. Additionally, BMP AQ-1 would ensure that dust and air quality management measures are implemented, including implementation of BAAQMD's BMPs for dust suppression, thereby reducing any potential impact on the Historic District from dust related to Project construction.

Conservation Measures Construction

There are no built environment historical resources located within or adjacent to the disturbance areas of the Ogier Ponds CM and Maintenance of the North Channel Reach ~~Extension~~. However, one historical resource, the Santa Clara Valley Water District Dams Historic District (P-43-003559), is within the Phase 2 Coyote Percolation Dam CM area. Through the FOCP, the existing flashboard dam was replaced by an inflatable bladder dam, and mitigation was implemented by Valley Water to document ~~preserve~~ the historical significance ~~of this~~

~~feature~~ to commemorate this historical resource. The mitigation plan was developed in consultation with the SHPO and USACE, in accordance with the FOCP Programmatic Agreement. Therefore, this resource would no longer be extant by the time the Conservation Measure is constructed. Therefore, there will be no impact to this resource.

Significance Conclusion Summary

There are two built environment historical resources that could be impacted by the construction of the Project components: the Rhoades Ranch Historic District and the Santa Clara Valley Water District Dams Historic District. The parcel that contains the Rhoades Ranch Historic District minimally overlaps the Seismic Retrofit area that was previously disturbed by construction of the existing dam. The boundary of the Rhoades Ranch Historic District does not, however, include the Seismic Retrofit construction area, and there would be no direct impact on the historical resource. Atmospheric and audible elements (i.e., dust and noise) from construction would cause some impacts; however, they would be temporary and would not significantly alter the elements that contribute to the significance of the resource.

For Conservation Measure construction, the Ogier Ponds CM area and the Maintenance of the North Channel Reach ~~Extension~~ area contain no built environment resources. The Coyote Percolation Dam, which is a contributing element to the Santa Clara Valley Water District Dams Historic District, is located in the construction limits of the Phase 2 Coyote Percolation Dam CM. However, implementation of this Conservation Measure would have no impact on the dam because, prior to Project implementation, the resource will have been demolished and replaced by an inflatable bladder dam as part of FOCP.

Therefore, the Project will have a **less-than-significant impact** to built environment historical resources, and no mitigation measures are required.

Impact CR-2: Cause a substantial adverse change in the significance of an archaeological resource (Less than significant with mitigation)

Seismic Retrofit Construction

Twelve archaeological resources (P-43-001090, P-43-001094, P-43-004082, P-43-004083, P-43-004084, P-43-004085, P-43-004086, AD-2022-02, AD-2022-03, AD-2022-04, AD-2022-05, AD-2022-06) are located within the reservoir inundation area of the Seismic Retrofit Project Area (**Table 3.6-5** ~~**Table 3.6-2**~~). Three of the resources (P-43-001094, P-43-004083, P-43-004085) have been formally evaluated and determined eligible for the NRHP/CRHR and, thus, are considered historical resources; two of these resources (P-43-004083, P-43-004085) contain midden deposits and human remains, while the third (P-43-001090) is a midden deposit without human remains. Three of the archaeological resources (P-43-004082, P-43-004084, P-43-004086) in the reservoir inundation area of the Seismic Retrofit Project Area have been formally evaluated and determined not eligible for the NRHP/CRHR and, thus, do not qualify as historical resources or unique archaeological resources. The additional six archaeological resources (P-43-001090, AD-2022-02, AD-2022-03, AD-2022-04, AD-2022-05, AD-2022-06) within the reservoir inundation area of the Seismic Retrofit Project Area have not been formally evaluated for NRHP/CRHR-eligibility for the purpose of this analysis, these six resources are considered eligible for listing in the NRHP and CRHR and are, therefore, considered historical resources.

~~Five~~ Six archaeological historical resources (P-43-001094, P-43-004085, AD-2022-03, AD-2022-05, AD-2022-06, AD-HS-01) are in the Seismic Retrofit component construction Project Area[9] and have the potential to be impacted by construction activities, while four archaeological historical resources (P-43-001094, P-43-004083, AD-2022-02, AD-2022-04) within the reservoir inundation area of the Seismic Retrofit Project Area are outside the construction area and would not be impacted by construction activities.

~~Three~~ Four of the six ~~five~~ archaeological historical resources (P-43-001090, AD-2022-03, AD-2022-06, AD-HS-01) in the construction area are in areas identified for stockpiling soil during construction or within a staging area would be directly impacted by the Project. The placement of stockpile areas, which require ground preparation such as grading, on these historical resources, in addition to other related impacts from Seismic Retrofit component construction activities (i.e., access or haul roads), may cause substantial adverse changes to the significance of these resources.

One archaeological historical resource (P-43-004085) is located in the reservoir footprint adjacent to a proposed soil stockpile area that has been designed to avoid the resource; thus, the Project will have no impact on this historical resource. AD-2022-05, while located in the Project construction area, is located outside of any construction-related activities and would not be impacted by the Project.

Not all archaeological sites are visible on the ground surface and can be discovered during construction activities. The entire Seismic Retrofit component would result in a large area of ground disturbance for a duration of 5 years over a large area at the dam site, just downstream of the dam, and within the reservoir, as demonstrated by the list of Seismic Retrofit components found in **Table 2-1** and detailed in Section 2.5. Ground-disturbing activities would include preparation of construction staging/stockpiling/borrow areas and access roads, dam excavation and reconstruction, road realignments, and installation of infrastructure such as pipelines, electric power lines, and fiber optic telecommunication lines. Previously undiscovered archaeological sites, including midden deposits and human burials, may be unearthed during Project construction. BMP CU-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) would reduce this impact, but the inadvertent discovery of such resources could result in a substantial adverse change in the significance of archaeological resources that could meet the criteria for NRHP/CRHR-eligibility or qualify as unique archeological resources.

Based on the above analysis, impacts to known and undiscovered archaeological resources would be significant. Implementation of **Mitigation Measures CR-1, CR-2,** and **CR-3** would reduce these impacts to archaeological resources during construction activities in the Seismic Retrofit study area. **Mitigation Measure CR-1**, Preconstruction Cultural Resources Awareness Training, will require that construction personnel are made aware of the potential for disturbing archaeological remains and provide training on how to identify archaeological remains if they are uncovered during ground-disturbing activities. Although archaeological and tribal monitors will be present in areas considered sensitive for buried remains, they will not be present at all locations at all times. Application of **Mitigation Measure CR-1** requires that discovered archaeological remains be treated appropriately by construction personnel. **Mitigation Measure CR-2**, Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be

[9] The Seismic Retrofit construction area within Anderson Reservoir (579 acres) is smaller than the overall Seismic Retrofit Project Area (1142 acres).

Avoided, requires that archaeological historical resources that cannot be avoided by construction are treated according to each site's significant characteristics and according to the requirements of CEQA. **Mitigation Measure CR-3**, Prepare a Monitoring and Unanticipated Discoveries Plan, will provide for archaeological and Native American monitors in areas sensitive for buried cultural deposits to ensure that any materials discovered during construction are treated and evaluated appropriately. The mitigation measure will also detail the protocols to be followed by onsite personnel should buried materials be unearthed. Application of these mitigation measures would therefore reduce impacts in the Seismic Retrofit area to less than significant with mitigation.

Conservation Measures Construction

Five archaeological sites (described in Section 3.6.3.2) considered to be historical resources are present within the Ogier Ponds CM area. Two of the sites (P-43-000176, P-43-001001) are pre-contact Native American sites, and the remaining three sites (ADKS01, ADKS02, ADKS03) are of the post-contact historic era. None of the sites have previously been evaluated for NRHP/CRHR-eligibility and are considered historical resources for the purpose of the EIR. All but one of the sites (P-43-001001), which is outside any areas of planned construction, could be impacted by construction activities for this Conservation Measure, ranging from floodplain development to berm and trail/road development and construction staging. Any of these actions, all of which would require ground disturbance, could cause substantial adverse changes to the significance of these archaeological historical resources.

Two archaeological sites are located within the area of the Phase 2 Coyote Percolation Dam CM. Both sites are precontact deposits; one site (P-43-000189) has been determined eligible for the NRHP/CRHR, while the second site (P-43-001814) has not yet been evaluated for NRHP/CRHR-eligibility, though no surface evidence of either site was observed during archaeological pedestrian surveys and P-43-001814 was previously recorded as being destroyed by construction of the Coyote Percolation Dam and will, thus, not be impacted by Project activities. P-43-000189 is largely recorded outside the Conservation Measure boundary. Furthermore, the portion of the site within the Conservation Measure limits is below an existing access road and will not be further disturbed by construction activities. Because P-43-000189 is buried beneath an access road, there will be a less-than-significant impact on this resource by construction of the Phase 2 Coyote Percolation Dam CM.

Because archaeological resources are not always visible on the ground surface, ground-disturbing construction activities that involve ground disturbance at any of the Conservation Measure sites (Ogier Ponds CM, Phase 2 Coyote Percolation Dam CM, and the Maintenance of the North Channel Reach ~~Extension~~) could uncover cultural resources that meet the criteria for NRHP/CRHR-eligibility or qualify as unique archaeological resources. Examples of such construction activities include, but are not limited to, grading for haul roads and staging areas, excavation and grading for infrastructure construction, and clearing and grubbing of vegetation for channel restoration. BMP CU-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) would reduce this impact, but the inadvertent discovery of such resources could result in a substantial adverse change in the significance of archaeological resources that could meet the criteria for NRHP/CRHR-eligibility or qualify as unique archeological resources.

Based on the above analysis, impacts to known and undiscovered archaeological resources would be significant. Potential impacts to archaeological historical resources within the Conservation

Measure construction areas would be less than significant with the implementation of **Mitigation Measures CR-1, CR-2,** and **CR-3**. Implementation of **Mitigation Measure CR-1** (Preconstruction Cultural Resources Awareness Training) will require construction crews to receive awareness training for identifying archaeological materials uncovered during ground disturbance. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that Cannot be Avoided) will require that a Data Recovery and Treatment Plan be prepared for those historical resources that cannot be avoided by construction. **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will require that work stop in the vicinity of any archaeological materials discovered during Project construction, and that a Monitoring and Unanticipated Discoveries Plan will provide protocols for monitoring and treating archaeological deposits discovered during construction. Application of these mitigation measures would therefore reduce impacts in the Conservation Measure area to less than significant with mitigation.

Post-Construction Anderson Dam Facilities Operations

Overall, post-construction operations of the reservoir would be largely similar to the Pre-FERC Order Conditions Baseline, with the addition of FAHCE rule curves and pulse flows and a higher reservoir elevation due to lifting of Pre-FERC Order ~~seismic~~ restrictions. Operations of the reservoir could impact the nine archaeological sites that are considered historical resources within the reservoir inundation area. The initial re-filling of the reservoir and future fluctuating water levels resulting from reservoir operations would cause sheet erosion, shoreline erosion, siltation, and the decomposition of exposed organic remains contained in some archaeological sites. As water levels rise and fall, erosion would also cause artifacts within the soil matrix of archaeological sites to move. The location of the resources within the fluctuation zone would determine how frequently the site is inundated, exposed, or subject to both inundation and exposure on an annual basis. Archaeological sites at higher elevations are inundated only when the reservoir is near capacity, while archaeological sites at lower elevations are exposed when the reservoir is drawn down below normal levels. Archaeological sites at middle elevations are often inundated and exposed during the same year as those at low levels. Archaeological sites containing organic material are highly susceptible to the effects of inundation, exposure, and wave action, whereas sites containing isolated bedrock mortars remain reasonably intact in spite of regular inundation. At lower elevations, some archaeological sites have conceivably been buried under silt accumulating in the reservoir.

The return of recreational power boating to the reservoir would also cause wave action that would similarly impact archaeological sites. This may significantly impact the archaeological historical resources that are known to be within Anderson Reservoir.

All of these actions could cause substantial adverse effects on the significance of historical resources archaeological sites that are located in the reservoir inundation area.

The flow regime in Coyote Creek downstream of Anderson Dam would be modified from the Pre-FERC Order Conditions Baseline but would not result in substantial increases in erosion and related geomorphic processes (See Section 3.8, *Geology and Soils*) that would result in substantial adverse changes to archaeological historical resources. As a result, there would likely be a less-than-significant impact to both known and unknown archaeological resources that are historical resources in the downstream region of the Seismic Retrofit area.

The implementation of a Monitoring and Unanticipated Discoveries Plan prepared under **Mitigation Measure CR-3** will require that archaeological sites that are historical resources within the reservoir fluctuation zone be routinely monitored, and appropriate treatments will be applied, as necessary. Implementation of **Mitigation Measure CR-3** would, thus, reduce impacts to archaeological historical resources caused by Project operations to less than significant with mitigation.

Significance Conclusion Summary

Archaeological resources that have been determined to be eligible for listing for the NRHP/CRHR through formal evaluation, or that have not been formally evaluated but are assumed eligible for the purpose of this analysis, are located in the Project's Seismic Retrofit Project Area, and within the boundaries of the Ogier Ponds CM and the Phase 2 Coyote Percolation Dam CM. Ground disturbance during construction at archaeological resources in both the Seismic Retrofit construction area and the Ogier Ponds CM areas could have significantly impact elements of sites that contribute to their NRHP/CRHR-eligibility.

In addition, even with implementation of BMP CUL-1, undiscovered archaeological historical resources could be significantly impacted by Seismic Retrofit or Conservation Measure construction. Erosion and recreational power boating within Anderson Reservoir related to the operation of the Seismic Retrofit component of the Project could create wave action along the exposed shoreline of the reservoir as the reservoir is refilled after Project completion, during the regular rise and fall of the reservoir due to Project operation and the resumption of recreational boating. These actions may erode archaeological historical resources and displace the artifacts within them.

For these reasons, the Project may cause substantial adverse changes to the significance of both known and undiscovered archaeological resources that are considered historical resources, and, therefore, these impacts are significant. BMP-CUL-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) will require that work will cease in areas where archaeological materials are discovered during construction until the finds can be analyzed and evaluated for NRHP/CRHR-eligibility, if appropriate, and that any eligible resources will either be avoided or subject to data recovery studies. **Mitigation Measure CR-1** (Preconstruction Cultural Resources Awareness Training) will provide construction workers with awareness training about the nature of archaeological materials that might be discovered during ground disturbing activities and the protocols to be followed, should they be found. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided) will develop and implement a Data Recovery and Treatment Plan for archaeological resources that cannot be avoided. Lastly, **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will require an archaeological and tribal monitor in areas sensitive for cultural resources during Project construction, the monitoring of sensitive areas during Project operations, and will implement protocols of the Monitoring and Unanticipated Discoveries Plan should archaeological materials be discovered. With implementation of these mitigation measures, substantial adverse changes in the significance of an archaeological resource would not occur, and significant impacts to archaeological historical resources within the Project Seismic Retrofit and Conservation Measure areas would be reduced to **less than significant with ~~through~~ mitigation**.

Mitigation Measures

CR-1 Preconstruction Cultural Resources Awareness Training

Valley Water will provide a cultural resources awareness training program to all construction personnel within the various construction areas during earth moving activities throughout the duration of Project construction. The training will be conducted in person, or via a video or PowerPoint presentation to be viewed by all construction personnel involved in ground-disturbing activities prior to working on the Project. The training will be developed and conducted in coordination with a qualified archaeologist who meets the U.S. Secretary of the Interior Professional Qualifications Standards for Archeology, as well as a representative from culturally affiliated California Native American Tribe(s) who have participated in consultations with Valley Water. The program will include relevant information regarding sensitive cultural resources (including human remains and burials), applicable regulations, protocols for avoidance, and consequences of violating state laws and regulations. The worker cultural resources awareness program will also describe appropriate avoidance and minimization measures for resources that have the potential to be located within the Project construction area and will outline what to do and whom to contact if any potential archaeological resources, human remains and burials, or artifacts are encountered. The program will emphasize the requirement of confidentiality and culturally appropriate treatment of any finds of significance to Native Americans, and behaviors consistent with Native American Tribal values.

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

The preferred treatment for impacts to archaeological sites, including those identified as Tribal cultural resources, is avoidance, as directed under *CEQA Guidelines* 15126.4(b)(3)(b)(1) and PRC 21084.3. Valley Water has designed the Project to avoid archaeological sites that are historical resources, where feasible; however, not all archaeological sites could be avoided by design. As a result, a Data Recovery and Treatment Plan will be prepared by a qualified archaeologist who meets the U.S. Secretary of the Interior Professional Qualifications Standards for Archeology, to address impacts to those archaeological historical resources that cannot be avoided by Project construction. The Data Recovery and Treatment Plan will be developed consistent with requirements in PRC Section 21083.2 and Section 15126.4(b) of the *CEQA Guidelines*. The Data Recovery and Treatment Plan will include a research design to identify research questions as the focus of data recovery efforts, as well as detail the field and laboratory methods to address the questions. The Data Recovery and Treatment Plan will also include a specific discussion of the methods and level of effort at each site for data recovery excavations, which are an acceptable form of mitigation under Section 15126.4(b)(3)(c) of the *CEQA Guidelines*. Specific plans for Native American sites will be prepared in consultation with Native American Tribes who participated in EIR Tribal consultation. Valley Water will require that data recovery and treatment be scheduled such that the actions will be completed in advance of construction involving impacted sites. The Data Recovery and Treatment Plan protocols will also be used for addressing accidental discoveries, as discussed in **Mitigation Measure CR-3**.

The Plan will specify that if human remains are discovered, procedures for notification of the County Coroner and for the disposition of Native American human remains under Health and Safety Code Section 7050.5 and PRC Section 5097.5 will be followed.

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

Valley Water will prepare a Monitoring and Unanticipated Discoveries Plan in consultation with participating Native American Tribes prior to the initiation of Project construction. The Monitoring and Unanticipated Discoveries Plan will provide that a qualified archaeologist will monitor ground disturbance (e.g., grading, trenching, vegetation clearing and grubbing with a backhoe or other mechanical methods, etc.) in all areas sensitive for archaeological sites, such as those adjacent to Coyote Creek or other water sources. Valley Water will coordinate with participating Native American Tribes to retain a tribal monitor to work in tandem with the archaeological monitor. Monitoring will take place at locations within 50 feet of known archaeological historical resources and at locations identified as cultural resource environmentally sensitive areas in the Plan. Monitoring will also occur in areas identified by the archaeological principal investigator as sensitive for buried archaeological deposits. Protocols for monitoring, such as scheduling, personnel responsibilities, chain of command, and reporting, will be detailed in the Monitoring and Unanticipated Discoveries Plan.

The Monitoring and Unanticipated Discoveries Plan will also address the accidental discovery of archaeological resources and incorporate the guidelines of BMP CU-1(accidental discovery of archaeological artifacts or burial remains), including issuance of a stop work order and establishment of a no work zone in the immediate vicinity of the find. The area of the discovery will be flagged to delineate the boundary of the sensitive zone. If either an archaeological or Tribal monitor are not present at the time of the discovery, a qualified archaeologist, who meets the U.S. Secretary of the Interior Professional Qualifications Standards for Archeology, will visit the discovery site, as soon as practicable for identification and evaluation pursuant to Section 21083.2 of the PRC and Section 15064.5 of the *CEQA Guidelines*. If the archaeologist determines that the archaeological find is not a “historical” or “unique archaeological” resource and thus not significant, construction may resume. If the archaeologist determines that the archaeological find is significant, the archaeologist will determine if the find can be avoided and, if so, will detail avoidance procedures. If the archaeological find cannot be avoided, the archaeologist will develop an Action Plan within 48 hours which will include provisions to minimize impacts and, if required, a Data Recovery and Treatment Plan that will follow the protocols outlined in the Data Recovery and Treatment Plan described in **Mitigation Measure CR-2**.The Plan will specify that if human remains are discovered, procedures for notification of the County Coroner and for the disposition of Native American human remains under Health and Safety Code Section 7050.5 and PRC Section 5097.5 will be followed.

Valley Water will also retain a qualified archaeologist to implement monitoring every five years of the vicinity of the nine archaeological sites that are historical resources within the reservoir fluctuation zone, including the two sites that are known to contain human remains (P-43-004083, P-43-004085). A Data Recovery and Treatment Plan will be prepared for any sites exposed by reservoir fluctuations. The Plan will specify that any remains exposed during reservoir fluctuations will be treated consistent with Health and Safety Code Section 7050.5 and PRC Section 5097.5 procedures, and in accordance with the desires of the culturally affiliated California Native American Tribes. The specifics of the monitoring and treatment protocols will be developed in consultation with participating Tribes and also detailed in the Monitoring and Unanticipated Discoveries Plan.

Impact CR-3: Disturb human remains **(Less than significant with mitigation)**

Seismic Retrofit Construction

Two archaeological sites (P-43-004083, P-43-004085) within the reservoir pool portion of the Seismic Retrofit construction area are known to contain human remains. The two known sites contain midden deposits and were evaluated as NRHP/CRHR-eligible. P-43-004083 is within the reservoir fluctuation zone but outside the delineated construction area and would not be impacted by construction of the dam. P-43-004085 is located directly adjacent to a stockpile area. A third site, P-43-001094, contains a midden deposit and, therefore, may also contain human remains. This site, while in Anderson Reservoir, is outside the construction area and would not be impacted by Seismic Retrofit construction activities.

As previously discussed, archaeological deposits, including human remains, may not be visible on the ground surface. The large amount of earth movement required for the Seismic Retrofit construction element of the Project could uncover unknown locations that contain human burials. Such an inadvertent discovery in the Seismic Retrofit construction area could result in a disturbance of human remains.

BMP CU-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) would be implemented to require that construction be halted at the specific location in the event that human remains are discovered, and that the County Coroner and NAHC be notified to identify a most likely descendent per PRC Section 5097. **Mitigation Measures CR-1** (Preconstruction Cultural Resources Awareness Training) will provide training for construction workers about how to respectfully treat human remains, if discovered during construction. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided) will outline the treatment of human remains in the Data Recovery and Treatment Plan, while **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will provide clear and detailed protocols, beyond the legislated requirements of PRC Section 5097.98, for addressing discovered human remains in the Monitoring and Unanticipated Discoveries Plan. Both the Data Recovery and Treatment Plan and the Monitoring and Unanticipated Discoveries Plan will include guidance from the California Native American Tribes who have participated in EIR Tribal consultation about how to treat Native American human remains. Mitigation measures will therefore reduce impacts to human remains to less than significant with mitigation.

Conservation Measures Construction

One site, P-43-000189, within the Phase 2 Coyote Percolation Dam CM site is known to contain human remains. A majority of this site is located outside of the Conservation Measure boundary and is underneath US 101, where a number of burials were removed during excavations in the early 1980s to support the construction of the then-new highway alignment (Izzi and Sisken 2023). The portion of the site within the Phase 2 Coyote Percolation Dam CM area is beneath an existing access road. No evidence of human remains, or the site itself, was observed during the archaeological pedestrian survey. The site area would not be disturbed by construction activities, and therefore there would be a less-than-significant impact to known human remains at site P-43-000189 from construction of the Phase 2 Coyote Percolation Dam CM.

Unknown human remains could be uncovered during the course of ground-disturbing construction activities at any of the Conservation Measure locations (Ogier Ponds CM, Phase 2

Coyote Percolation Dam CM, and Maintenance of the North Channel Reach ~~Extension~~). Examples of such construction activities include, but are not limited to, grading for haul roads and staging areas, excavation and grading for infrastructure construction, and clearing and grubbing of vegetation for channel restoration.

Impacts to human remains within the Conservation Measure construction areas would be reduced by implementation of BMP CU-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains). These impacts will be further reduced, to less-than-significant levels, by **Mitigation Measures CR-1** (Preconstruction Cultural Resources Awareness Training), **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided), and **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan). These measures will each require that excavation stop if human remains were discovered and that the County Coroner and NAHC are contacted. In addition, under **Mitigation Measure CR-1**, the construction crew will receive awareness training regarding the respectful treatment of human remains uncovered during ground disturbance. Furthermore, a Data Recovery and Treatment Plan will be prepared and executed under **Mitigation Measure CR-2**, which would detail protocols for treatment of human remains discovered during data recovery. Finally, a Monitoring and Unanticipated Discoveries Plan prepared under **Mitigation Measure CR-3** will provide protocols for monitoring and treating human remains discovered during construction of the Conservation Measures.

Post-Construction Anderson Dam Facilities Operations

Overall, post-construction operations of the reservoir would be largely similar to the Pre-FERC Order Conditions Baseline, with the addition of FAHCE rule curves and pulse flows and a higher reservoir elevation due to lifting of Pre-FERC Order ~~seismic~~ restrictions. The filling of the reservoir and future water level fluctuations could impact the two archaeological sites within the reservoir known to contain human remains (P-43-004083, P-43-004085) and the one archaeological site with midden that has a high potential to contain as-yet undiscovered human remains (P-43-001094). The erosional impacts of fluctuating reservoir levels would generally be similar to the Pre-FERC Order Conditions Baseline, as has been described under Impact CR-2. The return of recreational power boating would also cause wave actions that could cause significant erosion and displacement of exposed human remains.

One site with human remains, P-43-004083, is located at the highest elevations of the fluctuation zone with only a small portion of the site directly within the reservoir pool; thus, the site would be impacted only when the reservoir is at maximum capacity. The second site, P-43-004085, is similarly situated but extends much further into the reservoir pool and would have a greater potential to be exposed to erosion impacts by annually fluctuating water levels and power boating. Site P-43-001094 is fully within the reservoir pool and would also be subject to these operational impacts. As a result, Seismic Retrofit operations could disturb archaeological deposits with known human remains and deposits with a potential to contain human remains.

Furthermore, erosion from reservoir operations, including power boating, could uncover currently buried archaeological sites with unknown human remains that could significantly impact these resources.

No human remains are known to exist along Coyote Creek in the Project Area downstream of Anderson Dam. As a result, there would be no impact to known human remains in the downstream region of the Seismic Retrofit area due to operation of the reservoir. Although the area downstream of Anderson Dam has a high potential for containing buried archaeological resources, changes to the flow regime in Coyote Creek would not result in substantial increases to erosion and related geomorphic processes (See Section 3.8, *Geology and Soils*) after implementation of the FOCP that would result in substantial adverse changes to the significance of human remains. As a result, there would likely be no impact to human remains in the downstream region of the Seismic Retrofit Project Area. The implementation of a Monitoring and Unanticipated Discoveries Plan prepared under **Mitigation Measure CR-3** requires Valley Water to install a program for regular monitoring of sites in the fluctuation zone of the reservoir, which is known to contain human remains, and treat any finds consistent with the protocols detailed in the Monitoring and Unanticipated Discoveries Plan. Should archaeological resources containing human remains be uncovered by erosion through releases of water due to post construction operations of the reservoir as a result, implementation of **Mitigation Measure CR-3** would reduce impacts caused by reservoir operations to human remains to less than significant.

Significance Conclusion Summary

Two archaeological sites with human remains and one with a high potential to contain as-yet unidentified human remains are known to exist within Anderson Reservoir. All three of these sites in the reservoir could be damaged by erosion from fluctuating water levels during Seismic Retrofit operations, as well as by wave action caused by power boating. In addition, both construction activities anywhere in the Seismic Retrofit area and erosion in Anderson Reservoir through Project operations have the potential to uncover sites with burials and significantly impact those resources. Therefore, Project impacts on disturbance of human remains would be significant.

An archaeological site with human remains has also been recorded within the boundaries of the Phase 2 Coyote Percolation Dam CM. However, this site is currently under an access road and construction of this Conservation Measure will not impact the site.

Compliance with Health and Safety Code Section 7050.5 and PRC Section 5097.98 would reduce impacts related to disturbance of human remains.

Mitigation Measure CR-1 (Preconstruction Cultural Resources Awareness Training) will require that workers on the Project are made aware of the extreme sensitivity of exposed human remains and how to treat them appropriately, if encountered. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided) will also require that a Data Recovery and Treatment Plan be implemented for sites that cannot be avoided. Erosion due to fluctuations from the operation of the reservoir cannot be avoided, but application of the **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will monitor erosion at in the vicinity of known sites with the potential for human remains and treat exposed human remains appropriately. These mitigation measures will reduce impacts to disturbing human remains to **less than significant with mitigation**.

Mitigation Measures

CR-1 Preconstruction Cultural Resources Awareness Training

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

3.6.6 Cumulative Cultural Resources Impacts

The geographic study area for the cumulative impact analysis for Cultural Resources encompasses Project Areas where ground-**Table 3.6-9**.

Cumulative impact thresholds for aesthetics are the same as the impact thresholds presented above in Section 3.6.4.7, *Thresholds of Significance*.

Table 3.6-9. Summary of Project Impact Contribution to Cumulative Aesthetic Impacts

Impact	Cumulatively Considerable with FOCP?	Cumulatively Considerable with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact CR-1: Cause a substantial adverse change in the significance of a built environment historical resource	No	No	NCC	None	No
Cumulative Impact CR-2: Cause a substantial adverse change in the significance of an archaeological resource	Yes	Yes	CC	MM CR-1 MM CR-2 MM CR-3	No
Cumulative Impact CR-3: Disturb Human Remains	Yes	Yes	CC	MM CR-1 MM CR-2 MM CR-3	No

Key: CC = cumulatively considerable; FOCP = FERC Order Compliance Project; MM = Mitigation Measure; N/A = not applicable; NCC = not cumulatively considerable; S = significant

Cumulative Impact CR-1: Cause a substantial adverse change in the significance of a built environment historical resource **(Not Cumulatively Considerable)**

There are two built environment historic resources that could be impacted by the construction of the Project components. The parcel that contains the Rhoades Ranch Historic District minimally overlaps the Seismic Retrofit. The boundaries of the Rhoades Ranch Historic District are, however, outside the Seismic Retrofit construction area, and there will be no direct impact to the historic resource. The Coyote Percolation Dam, which is a contributing element to the Santa Clara Valley Water District Dams Historic District, is in the construction limits of the Phase 2 Coyote Percolation Dam CM. However, implementation of this Conservation Measure would have no impact to the dam, because, prior to Project implementation, the resource will have been demolished and replaced an inflatable bladder dam as part of FOCP.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they create impacts in a manner that progressively reduces the significance of the resource.

Cumulative effects of Project with the FOCP

As noted in the analysis, the Project would result in indirect impacts to the Rhoades Ranch Historic District, such as noise and dust. The FOCP also caused similar indirect impacts on the resource and used a staging area on a lot on the opposite side of Cochrane Road similar to the Project. However, these impacts are temporary and would not alter the elements that contribute to the significance of the resource. There would be no cumulative impact when Project impacts are added to FOCP impacts.

Cumulative effects of Project with Probable Future Projects, Programs, and Plans

The Cochrane–Borello Residential Development Project constructed single-family residences on a 122-acre parcel west and south of the Rhoades Ranch Historic District between 2017 and 2021. The Cochrane–Borello parcel had historically been used for agricultural purposes, most recently as orchards. Development of this residential project altered the agricultural setting of the historic district that contributed to the character-defining features of the historical resource.

The Draft EIR for the Cochrane–Borello Project discussed the proximity of the project to the historic district and concluded that the space between the development and the primary buildings of the Rhoades Ranch created a sufficient buffer “to maintain the rural setting of the landmark property” and hence, that project had a less-than-significant impact on the Rhoades Ranch Historic District (City of Morgan Hill 2012~~b~~). This analysis assumed that other elements of the Rhoades Ranch’s agricultural and natural setting would remain following construction of the Cochrane–Borello project. There would be a less-than-significant cumulative impact when Project impacts are added to Cochrane–Borello Project impacts.

Significance Conclusion Summary

Construction of the new dam would not significantly alter the current viewshed of the historical resource and would not alter the physical characteristics of the Rhodes Ranch Historic District such that its historic integrity and ability to convey significance would be diminished. Realignment of Cochrane Road would not impact the parcel. Establishment of a staging area adjacent to the property, but on the opposite side of Cochran Road at Anderson Lake County Park, would likely increase noise and dust levels, but these impacts will be temporary and will not permanently alter the integrity of the site. Overall, the cumulative impact on built environment historic resources would not be significant, and the Project's contribution would be **not cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Cumulative Impact CR-2: Cause a substantial adverse change in the significance of an archaeological resource **(Not Cumulatively Considerable)**

Ground disturbance during construction at the Seismic Retrofit construction area and the Ogier Ponds CM areas could impact elements of sites that contribute to their NRHP/CRHR eligibility. Erosion and recreational power boating within Anderson Reservoir could erode archaeological resources buried along the shoreline of the reservoir. In addition, construction activities and future use of reservoir could expose undiscovered resources.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they create impacts in a manner that progressively reduces the significance of the resource.

Cumulative effects of Project with the FOCP

The reservoir was drawn down, as part of the FOCP, which could expose archaeological resources and make them vulnerable to damage. The Project would extend the period that the reservoir is drained and exposed resources in the reservoir are vulnerable to loss or damage. This impact is cumulatively significant.

Both projects create similar risks to the loss or destruction of undiscovered archaeological resources through ground disturbance and construction activities that would result in a cumulatively significant impact.

Cumulative effects of Project with Probable Future Projects, Programs, and Plans

Other projects that take place along Coyote Creek, such as the SMP, Coyote Creek Flood Protection Project, and the County Parks Planning Projects and Natural Resource Management, where ground-disturbing activities may take place in or near the creek bed, could result in similar impact to undiscovered archaeological resources as the Project. Cumulative impacts would be significant.

Significance Conclusion Summary

The Project may cause considerable impacts to the significance of both known and undiscovered archaeological resource that are considered historical resources. BMP-CUL-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) will reduce these impacts by requiring that work will cease in areas where archaeological materials are discovered during construction until the finds can be analyzed and evaluated for NRHP/CRHR-eligibility, if appropriate, and that any eligible resources will either be avoided or subject to data recovery studies.

Mitigation Measure CR-1 (Preconstruction Cultural Resources Awareness Training) will provide construction workers with awareness training about the nature of archaeological materials that might be discovered during ground-disturbing activities and the protocols to be followed, should they be found. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided) will develop and implement a Data Recovery and Treatment Plan for archaeological resources that cannot be avoided. Lastly, **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) would require an archaeological and Tribal monitor in areas sensitive for cultural resources during Project construction, the monitoring of sensitive areas during Project operations, and will implement protocols of the Monitoring and Unanticipated Discoveries Plan should archaeological materials be discovered.

Implementation of these mitigation measures would reduce the Project's incremental contribution to cumulative impacts on archaeological resources to **not cumulatively considerable**.

Mitigation Measures

CR-1 Preconstruction Cultural Resources Awareness Training

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

Cumulative Impact CR-3: Disturb Human Remains (Not Cumulatively Considerable)

Three archaeological sites within the reservoir pool portion of the Seismic Retrofit construction area have the potential to contain human remains. These sites have the potential to be damaged by erosion and fluctuating water levels during operation of the reservoir. A site with human remains is recorded in the boundaries of the Phase 2 Coyote Percolation Dam CM, but this site would not be impacted by the Project.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they disturb human remains in the same area as the Project.

Cumulative effects of Project with the FOCP

The reservoir was drawn down, as part of the FOCP, which could expose known sites with human remains. The Project would extend the period that the reservoir is drained and exposed resources in the reservoir are vulnerable to loss or damage. This impact is cumulatively considerable.

Both projects create similar risks to the disturbance of undiscovered remains through ground disturbance and construction activities that would result in a cumulatively significant impact.

Cumulative effects of Project with Probable Future Projects, Programs, and Plans

Other projects that take place along Coyote Creek, such as the SMP, Coyote Creek Flood Protection Project, and the County Parks Planning Projects and Natural Resource Management, where ground-disturbing activities may take place in or near the creek bed, could result in similar disturbance to undiscovered remains. The combined impacts of probable future projects and the Project are cumulatively significant.

Significance Conclusion Summary

Cumulative impacts of the Project and other projects on human remains would be significant, the Project's contribution would be cumulatively considerable. **Mitigation Measure CR-1** (Preconstruction Cultural Resources Awareness Training) will require that workers on the Project are made aware of the extreme sensitivity of exposed human remains, and how to treat them appropriately if encountered. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided) would require that a Data Recovery and Treatment Plan be implemented for sites that cannot be avoided. Erosion due to fluctuations from the operation of the reservoir cannot be avoided, but application of the **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will monitor erosion at in the vicinity of known sites with the potential for human remains and treat exposed human remains appropriately.

Implementation of these mitigation measures would reduce the Project's incremental contribution to cumulative impacts on disturbance of human remains to **not cumulatively considerable**.

Mitigation Measures

CR-1 Preconstruction Cultural Resources Awareness Training

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

3.6.7 References

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3.7 Energy

This section evaluates the Project's impacts related to energy. The discussion included herein evaluates the Project's energy demands; provides input on construction- and operation-related energy use; and considers the Project's size, location, equipment use, and renewable energy features that could be incorporated into the Project.

The study area for energy focuses on the portions of the county, San José, and Morgan Hill that comprise the Project Area, including the construction limits of the Seismic Retrofit and Conservation Measures components.

3.7.1 Environmental Setting

3.7.1.1 Statewide and Regional Setting

Energy is generally transmitted either in the form of electricity, measured in kilowatts (kW) or megawatts (MW), or natural gas measured in British thermal units (BTU), cubic feet, or therms. Fuel, such as gasoline or diesel, is measured in gallons or liters.

With a relatively mild Mediterranean climate and strict energy efficiency and conservation requirements, California has lower energy consumption rates on a per person basis than most other parts of the country.

California relies on a regional power system composed of a diverse mix of natural gas, and renewable, hydroelectric, and nuclear generation resources. Approximately 70 percent of the electrical power needed to meet California's demand is produced in California; the balance, approximately 30 percent, is imported from the Pacific Northwest and the Southwest. In 2021, California's in-state electricity use was derived from natural gas (50 percent), coal (0.2 percent), large hydroelectric resources (6 percent), nuclear sources (9 percent), and renewable resources that include geothermal, biomass, small hydroelectric resources, wind, and solar (35 percent) (California Energy Commission [CEC] 2022a ~~2022b~~).

Electricity and natural gas in California are generally consumed by stationary users, such as residential, commercial, and industrial facilities, whereas petroleum-based fuel is generally consumed by mobile users such as vehicles (U.S. Energy Information Administration [USEIA] 2022a).

Gasoline and Diesel Fuel Generation, Demand, and Use

Fuel is used primarily for powering off-road equipment (construction and operational) and vehicles (commercial trucks and other vehicles). The typical fuel types used are diesel and gasoline.

The Northern California region produced an annual average of 6,138,527,000 ~~thousand~~ gallons of gasoline and 2,363,161,000 ~~thousand~~ gallons of diesel over the 5-year period of 2018-2022 (CEC 2023a ~~2023c~~). The energy consumed by the transportation sector accounts for roughly 85 ~~83~~ percent of California's refined petroleum products (i.e., gasoline and diesel) demand (USEIA 2022b ~~2022d~~). According to the CEC, the state relies on gasoline and diesel fuels for 98 percent of its transportation needs (USEIA 2022a, 2022b ~~2022d~~). In 2022, taxable gasoline sales (including aviation gasoline) in California accounted for approximately 12.5 billion gallons of gasoline (California State Board of Equalization [CBE] 2023a), and taxable diesel fuel sales accounted for approximately 2.8 billion gallons of diesel fuel (CBE 2023b).

The CEC forecasts show that the demand for gasoline in California will range from 12.1 billion to 12.6 billion gallons in 2030, with most of the demand generated by light-duty vehicles. While the models show an increase in light-duty vehicles along with population and income growth over the forecast horizon, total gasoline consumption is expected to decline, primarily due to increasing fuel economy (stemming from federal and state regulations) and gasoline displacement from the increasing market penetration of zero-emission vehicles (ZEV). For diesel, demand is forecast to increase modestly by 2030, following the growth of California's economy, but would be tempered by an increase in fleet fuel economy and market penetration of alternative fuels, most prominently by natural gas in the medium- and heavy-duty vehicle sectors (CEC 2018).

According to the CEC, 2021 sales of gasoline and diesel fuel in the county were 599 million gallons and 50 million gallons, respectively (CEC 2022b~~d~~). Note that the CEC only tracks fuel sales at the retail level, which allows for data to be collected on a county-by-county basis, whereas the CBE tracks all fuel sales, retail and non-retail, but only at the statewide level. Thus, the impact calculations presented in the impact analysis rely on separate data sets for comparison to the county and statewide transportation fuel consumption figures.

Electricity Generation, Demand, and Use

Electricity is used primarily for lighting, equipment, and other uses associated with building, structures, and vehicle operations. Electricity sources range from renewable (hydroelectric, solar, wind, geothermal, biomass) to nonrenewable (natural gas, petroleum, nuclear, coal).

In 2021, total system electric generation for California was 277,764 gigawatt-hours (GWh), up 2 percent from 2020's total generation of 272,576 GWh (CEC 2021a ~~2022b~~). Electricity from non-carbon dioxide (CO_2) emitting electric generation categories (i.e., nuclear, large hydroelectric, and renewable generation) accounted for 49 percent of total in-state generation.

Total system electric generation in California is predicted to increase in coming years. Factors contributing to the projected increase include greater numbers of light duty electric vehicles, increased manufacturing electricity consumption, and decreases in savings from energy efficiency programs as population increases. With regard to total consumption of electricity across all sectors, California consumed 247,250 GWh of electricity in 2021 (USEIA 2022c~~e~~). PG&E provides electrical services to most residential, commercial, industrial, and agricultural consumers in much of Northern California, including the Bay Area. In 2021, PG&E generated and/or procured a total of 33,149 GWh of electricity (PG&E 2022a). PG&E has established contracts and commitments to ensure there is adequate electricity generation and natural gas capacity to meet its current and future energy loads (PG&E 2022b). **Table 3.7-1** shows the mix of sources for PG&E's electrical supply (PG&E 2022c).

Table 3.7-1. PG&E 2021 Power Content Label

Energy Resources	PG&E 2021 Power Mix				(For Comparison)
	Base Plan	50% Solar Choice	100% Solar Choice	Green Saver	2021 California Power Mix
Eligible Renewable[1]	47.7%	70.9%	93.9%	89.9%	33.6%
Biomass & Biowaste	4.2%	2.1%	0%	0%	2.3%
Geothermal	5.2%	2.6%	0%	0%	4.8%
Eligible Hydroelectric	1.8%	0.9%	0%	0%	1%
Solar	25.7%	59.8%	93.9%	89.9%	14.2%
Wind	10.9%	5.5%	0%	0%	11.4%
Coal	0%	0%	0%	0%	3%
Large Hydroelectric	4%	2%	0%	0%	9.2%
Natural Gas	8.9%	7.4%	0%	0%	37.9%
Nuclear	39.3%	19.7%	0%	0%	9.3%
Other	0%	0%	0%	0%	0.2%
Unspecified sources of power[2]	0%	0%	6.1%	10.1%	6.8%
Total[3]	**100%**	**100%**	**100%**	**100%**	**100%**

Source: PG&E 2022c

Notes:

[1] The eligible renewable percentage above does not reflect Renewables Portfolio Standard compliance, which is determined using a different methodology.

[2] Unspecified power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.

[3] Numbers may not add to 100% due to rounding.

In the county, electric utility companies include PG&E, the City of Palo Alto, and Silicon Valley Power (CEC 2021b ~~2022e~~). The Project site is located within PG&E's electric service area (CEC 2021b ~~2022e~~). Silicon Valley Clean Energy (SVCE) is the official electricity provider for Morgan Hill and Unincorporated Santa Clara County, among other communities (SVCE 2020).

Table 3.7-2 provides a summary of electricity consumption in the county by residential and non-residential uses. **Table 3.7-3** provides a more detailed summary of electricity consumption by PG&E customers, sorted by sector type.

Table 3.7-2. Electricity Consumption in Santa Clara County

	Electricity Consumption by Year (GWh)							
	2014	2015	2016	2017	2018	2019	2020	2021
Non-residential	12,829	12,957	13,023	13,067	12,857	12,703	12,043	12,632
Residential	3,851	3,857	3,810	3,965	3,856	3,983	4,392	4,273
Total	**16,680**	**16,814**	**16,832**	**17,031**	**16,713**	**16,687**	**16,436**	**16,905**

Source: CEC 2022d ~~2022f~~

Notes:

The most recent year of published data is 2021.

Totals may not equal the sum of the parts due to rounding.

Key: GWh = gigawatt hours = 1 million kilowatt hours.

Table 3.7-3. Electricity Consumption by PG&E's Customers Sorted by Sector Type

	Electricity Consumption by Year (GWh)							
	2014	2015	2016	2017	2018	2019	2020	2021
Agriculture & Water Pump	7,715	7,581	6,692	5,100	5,832	4,567	6,638	7,446
Commercial Building	31,423	31,180	30,661	30,753	30,148	30,069	26,247	26,009
Commercial Other	4,245	4,551	4,546	4,353	4,266	4,424	3,949	3,869
Industry	10,881	10,818	10,619	10,515	10,519	9,877	9,814	9,959
Mining & Construction	2,226	2,139	1,909	1,765	1,594	1,670	1,748	1,764
Residential	29,823	29,166	28,625	29,138	27,700	27,485	29,834	29,230
Streetlight	397	372	355	321	311	298	290	311
Total	**86,710**	**85,807**	**83,408**	**81,945**	**80,369**	**78,390**	**78,519**	**78,588**

Source: CEC 2022e ~~2022g~~

Notes:

The most recent year of published data is 2021.

Totals may not equal the sum of the parts due to rounding.

Key: GWh = gigawatt hours = 1 million kilowatt hours.

California law requires load-serving entities, such as PG&E, to gradually increase the amount of renewable energy they deliver to their customers to at least 33 percent of their total annual retail sales by 2020, 44 percent by 2024, 52 percent by 2027, 60 percent by 2030, 90 percent by 2035, 95 percent by 2040, and 100 percent by 2045. This program, known as the Renewables Portfolio Standard (RPS), became effective in December 2011, and has since been enhanced with the passage of Senate Bill (SB) 350, SB 100, and SB 1020. Renewable generation resources, for purposes of the RPS program, include bioenergy, small hydroelectric facilities (30 MW or less), wind, solar, and geothermal energy, and in 2021 PG&E obtained almost 50 percent of its electricity from renewable sources (PG&E 2022d).

Natural Gas Use

Natural gas is used primarily for heating and water heating and is typically associated with building operations.

One third of energy consumed in California is natural gas, which is largely imported from other regions (CEC 2019b). Californians consumed 21,728 million therms of natural gas in 2021, which is equal to approximately 2,172,800,000 million BTU (MMBTU) (USEIA 2022d ~~2022f~~). Nearly 31 percent of the natural gas burned in California is used for electricity generation, and most of the remainder is consumed in the residential (21 percent), industrial (34 percent), and commercial (11 percent) sectors.

PG&E provides natural gas service to industrial, large commercial, natural gas-fired electric generation facilities, and residential users that are connected to the gas system throughout much of Northern California, including the Bay Area. In 2021, the total consumption of natural gas in the county was 417 million therms, or 41,728,162 MMBTU (CEC 2022f ~~2022h~~), which was approximately 2 percent of California's total gas consumption.

3.7.1.2 Valley Water and Anderson Dam

Electricity Generation

Valley Water participates in the Power and Water Resources Pooling Authority (PWRPA), which consists of publicly owned electric utilities that coordinate pooling of energy resources and supplement wholesale power purchasing. PWRPA coordinates construction and maintenance of intervening facilities (e.g., transmission and distribution systems, substations, and other infrastructure) and negotiates agreements. Ninety-five (95) percent of Valley Water's purchased electricity is sourced from PWRPA, which enables Valley Water to source carbon-free electricity from utility-scale solar and hydroelectric projects (Valley Water 2021a). Since some of the sources of this carbon-free electricity are based on hydroelectric projects, it is subject to variability, especially during drought conditions. The 2021 Power Content Label for PWRPA is shown in **Table 3.7-4**.

Table 3.7-4. PWRPA 2021 Power Content Label

	PWRPA 2021 Power Mix		(For Comparison)
Energy Resources	**Standard Water Portfolio**	**Zero Carbon Water Portfolio**	**2021 California Power Mix**
Eligible Renewable[1]	11.3%	26.8%	33.6%
Biomass & Biowaste	0.0%	0.0%	2.3%
Geothermal	0.0%	0.0%	4.8%
Eligible Hydroelectric	0.5%	0.2%	1%
Solar	10.8%	26.6%	14.2%
Wind	0.0%	0.0%	11.4%
Coal	0%	0%	3%
Large Hydroelectric	19.4%	73.2%	9.2%
Natural Gas	10.6%	0%	37.9%

Energy Resources	PWRPA 2021 Power Mix		(For Comparison)
	Standard Water Portfolio	**Zero Carbon Water Portfolio**	**2021 California Power Mix**
Nuclear	0%	0%	9.3%
Other	0%	0%	0.2%
Unspecified sources of power[2]	58.7%	0%	6.8%
Total[3]	**100%**	**100%**	**100%**

Source: PWRPA 2022

Notes:

[1]The eligible renewable percentage above does not reflect Renewables Portfolio Standard compliance, which is determined using a different methodology.

[2]Unspecified power is electricity that has been purchased through open market transactions and is not traceable to a specific generation source.

[3]Numbers may not add to 100% due to rounding.

[4]Water portfolio is the portfolio of energy resources provided by PWRPA to its members to power operations related to water such as pumping, water delivery, etc.

Key: PWRPA = Power and Water Resources Pooling Authority

The Anderson Hydroelectric Facility was constructed in 1987 to generate energy from water released from Anderson Dam through its outlet pipe. The Anderson Hydroelectric Facility consists of two 500-kW Francis turbines and two 470-kW induction generators. ~~The potential capacity of the system is approximately 800 kW.~~ Valley Water entered into a 30-year Qualifying Facilities Power Purchase Agreement (PPA) with PG&E to sell electricity generated from the hydroelectric facility to the utility grid. Valley Water's PPA with PG&E ended in 2018, and in 2019, Valley Water opted into PG&E's Renewable Energy Self-Generation Bill Credit (RESBCT) program. This program allowed generated renewable energy to be credited towards other Valley Water accounts. Prior to opting into RESBCT, the power generated was sold to the grid. Operation of the facility stopped in 2019 and was recommended by Valley Water for decommissioning in January 2021.

Throughout the lifetime of the hydroelectric facility, the facility~~s~~ generated approximately 39,700,000 kWh of renewable energy, valued at approximately $3,000,000 ~~$2,910,000~~, with cost of operations and maintenance totaling $3,450,000 (Valley Water 2021b). The potential capacity of the system is approximately 800 kW. However, the facility has been inactive since 2019 ~~2018~~. Since 2019 ~~2018~~, there have been no plans to reactivate the hydroelectric facility given that nearly all of Valley Water's current energy use if from carbon-free sources at competitive costs; revenues from the hydroelectric facility are expected to continue to decline; and operations and maintenance costs for the facility are expected to continue to rise. Historic electricity generation from this hydroelectric facility is shown in **Table 3.7-5**.

Table 3.7-5. Anderson Hydroelectric Facility Historical Annual Production

Calendar Year	Production (kWh)	Revenue ($)	Value of Energy ($/kWh)
1988	92,500	$6,321	$0.068
1989	1,219,500	$89,498	$0.073
1990	2,245,734	$175,826	$0.078

Calendar Year	Production (kWh)	Revenue ($)	Value of Energy ($/kWh)
1991	916,000	$75,631	$0.083
1992	1,238,500	$110,742	$0.089
1993	2,091,500	$202,592	$0.097
1994	2,319,076	$241,198	$0.104
1995	2,067,959	$233,352	$0.113
1996	2,569,733	$314,152	$0.122
1997	2,435,839	$317,774	$0.130
1998	2,390,145	$291,109	$0.122
1999	757,208	$20,161	$0.027
2000	1,383,756	$83,344	$0.060
2001	1,850,864	$138,337	$0.075
2002	2,205,110	$80,061	$0.036
2003	583,422	$34,287	$0.059
2004	420,434	$24,255	$0.058
2005	0	$0	-
2006	1,262,551	$79,785	$0.063
2007	594,679	$42,743	$0.072
2008	56	$4	$0.064
2009	740,829	$27,951	$0.038
2010	265,988	$11,154	$0.042
2011	2,213,252	$89,956	$0.041
2012	1,092,690	$36,656	$0.034
2013	615,317	$27,398	$0.045
2014	120,756	$6,426	$0.053
2015	0	$0	-
2016	1,158,598	$33,540	$0.029
2017	1,953,509	$65,500	$0.034
2018	1,217,959	$43,095	$0.035
2019	1,684,699	$103,523	$0.061
Total	**39,708,163**	**$2,902,848** **~~$2,794,254~~**	**$0.067** **~~$0.069~~**

Source: Valley Water 2021b

Key: kWh = kilowatt-hour

In 2021, Valley Water staff recommended pursuing FERC decommissioning of the Anderson Hydroelectric Facility as part of the Project due to its aging infrastructure, cost of operations, and maintenance. Valley Water determined that future energy investments are better used in other green energy projects with a better cost-benefit outlook (Valley Water 2021b). The hydroelectric facility primarily supplied electricity for Valley Water's own use from 1988 to 2019 ~~2018~~, which was replaced with other Valley Water owned electricity generation facilities, such as large-scale solar complexes and cooperative agreements with other facilities under PWRPA.

Electricity Use

Valley Water prepared an Energy Audit Report in February 2013 that focused on electrical energy use at key load centers within Valley Water (~~SCVWD~~ Valley Water 2013~~a~~). The audit included a review of energy consumption and production data for 2009, 2010, and 2011, as these years were considered to be representative of typical years and did not include extreme wet or dry years. The Advanced Water Purification Facility was not included in the audit, since it did not start operation until 2013 and did not have any historical operating data. The Advanced Water Purification Facility was estimated to utilize 8 million kWh of electrical energy per year if operated at its intended production capacity. Valley Water's annual average electricity consumption for water treatment plants and pumping plants is shown below in **Table 3.7-6**. As shown in **Table 3.7-6**, annual electricity consumption for Valley Water facilities is 49,605,362 kWh. The Pacheco Pumping Plant utilized the highest amount of electricity among the pumping plants, and the Rinconada Water Treatment Plan utilized the highest amount of electricity among the water treatment plants. The Rinconada Water Treatment Plan utilized the highest amount of electricity because it has treated water pumping, while the Penitencia Water Treatment Plan and Santa Teresa Water Treatment Plan have no booster pumping.

Table 3.7-6. Valley Water Facilities Annual Electricity Consumption

Facility	Annual Average Electricity Consumption (kWh)[1]
Penitencia Water Treatment Plant	1,727,104
Santa Teresa Water Treatment Plant	2,082,826
Rinconada Water Treatment Plant	6,593,342
Pacheco Pumping Plant	30,564,327
Coyote Pumping Plant (Project Power)[2]	3,436,160
Coyote Pumping Plant (PWRPA Power)[3]	259,509
Vasona Pumping Plant	257,170
Non-Process Buildings	4,684,925
Total	**49,605,362**

Source: Valley Water 2013

Notes

[1] The annual average electricity consumption for all Valley Water facilities, except for non-process buildings, is the average annual consumption based on total electricity consumption from 2009 to 2011.

[2] Project power is when pumping raw water from San Luis reservoir to Santa Clara County.

[3] PWRPA power is when pumping raw water to and from Anderson reservoir.

Gasoline and Diesel Use

Valley Water prepared a Liquid Fuels Analysis in February 2013 that assessed Valley Water's mobile equipment use of gasoline and diesel fuel (~~SCVWD~~ Valley Water 2013~~b~~). Valley Water consumed approximately 66,300 gallons of gasoline and 2,100 gallons of diesel in 2012, or 68,700 gallons of gasoline equivalent. Based on the cost of gasoline and diesel, Valley Water spent approximately $212,000 on gasoline and $7,000 on diesel, for a total cost of $219,000.

Natural Gas Use

According to Valley Water's Energy Audit Report, during the three-year period from 2009 to 2011, natural gas represented approximately four percent of total energy costs for Valley Water's water treatments plants and pumping plants. Non-process buildings utilized an average of 96,102 therms of natural gas at an average annual cost of $90,665.

3.7.2 Regulatory Setting

3.7.2.1 Federal Laws, Regulations, and Policies

Federal Vehicle Emissions Standards

In 1975, Congress enacted the Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the USEPA and NHTSA are responsible for establishing additional vehicle standards. In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. Notably, the State of California harmonized its vehicle efficiency standards through 2025 with the federal standards through the Advanced Clean Cars Program.

In March 2022, CAFE standards were finalized for model years 2024 through 2026. The final rule establishes standards that require an industry-wide fleet average of approximately 49 miles per gallon (mpg) for passenger cars and light trucks. Current rulemaking is working on establishing (NHTSA 2022):

- standards for model years 2027 and beyond for passenger cars and light trucks
- fuel efficiency standards for model years 2029 and beyond for heavy-duty pickup trucks and vans
- fuel efficiency standards for model years 2030 and beyond for medium and heavy-duty on-highway vehicles and work trucks

Federal Power Act

The FERC has the power to regulate hydroelectric facilities and dams under the Federal Power Act (FPA). The FPA was enacted in 1920 to establish a regulatory framework for the development of hydropower in the United States. FERC's responsibilities include authorizing the construction of hydroelectric facilities and overseeing these facilities' operation and safety.

Energy Policy Act of 2005

The Energy Policy Act of 2005 seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the Energy Policy Act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products. Businesses are eligible for tax credits for buying hybrid vehicles, building energy-efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are given for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment. The Energy Policy Act of 2005 also established the first renewable fuel volume mandate in the United States. The original Renewable Fuel Standard program required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012.

Under the Energy Independence and Security Act of 2007, the Renewable Fuel Standard program was expanded to include diesel and to increase the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.

USEPA and NHTSA Joint Rulemaking for Vehicle Standards

In April 2010, the USEPA and NHTSA issued a final rulemaking establishing new federal GHG and fuel economy standards for model years 2012 to 2016 passenger cars, light-duty trucks, and medium-duty passenger vehicles. In addition, on August 9, 2011, the USEPA and NHTSA finalized regulations to reduce GHG emissions and improve fuel efficiency of medium- and heavy-duty vehicles, including large pickup trucks and vans, semi-trucks, and all types and sizes of work trucks and buses. In subsequent rulemakings the agencies extended the national program of fuel economy standards to passenger vehicles and light-duty trucks of model years 2017-2025, culminating in fuel economy of 54.5 mpg by model year 2025 (USEPA 2012), as well as to medium- and heavy-duty vehicles of model years 2014-2018, including large pickup trucks and vans, semi-trucks, and all types and sizes of work trucks and buses (USEPA and U.S. Department of Transportation [USDOT] 2011).

The USEPA and NHTSA updated CAFE and GHG emissions standards for passenger cars and light trucks and established new standards, covering model years 2021 through 2026, under the Safer Affordable Fuel Efficient (SAFE) vehicles final rule (SAFE Rule Part Two). This rule, which went into effect on June 29, 2020, rolled back some of the fuel efficiency mandates that had been in effect. SAFE Rule Part Two was judicially challenged, but the litigation has been placed in abeyance while undergoing review by the Biden Administration.

Earlier, in 2019, NHTSA and USEPA had also issued a regulation revoking CCAA's waiver, which had allowed the State to set its own emissions standards, asserting that the waiver was preempted by federal law. On December 21, 2021, NHTSA published its CAFE Preemption Rule, which finalizes its repeal of the SAFE Rule Part One. USEPA rescinded SAFE Rule Part One on March 9, 2022, and reinstated California's authority under the CCAA to implement its own GHG emission standards and ZEV sales mandate.

3.7.2.2 State Laws, Regulations, and Policies

Warren-Alquist Act

The 1975 Warren-Alquist Act established the California Energy Resources Conservation and Development Commission, now known as the CEC. The act established a state policy to reduce wasteful, uneconomical, and unnecessary uses of energy by employing a range of measures.

Integrated Energy Policy

In 2002, the Legislature passed SB 1389, which required the CEC to develop an integrated energy plan biannually for electricity, natural gas, and transportation fuels, for the California Energy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for ZEVs and their infrastructure needs, and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

The latest update is the 2022 Update to the Integrated Energy Policy Report (CEC 2023b~~a~~).The 2022 Integrated Energy Policy Report (IEPR) Update identifies actions the State and others can take to ensure a clean, affordable, and reliable energy system. The 2022 IEPR Update covers a broad range of topics, including energy reliability and western electricity integration, decarbonizing the electricity sector, and transportation electrification.

Renewables Portfolio Standard

The State of California adopted standards to increase the percentage of energy from renewable resources that retail sellers of electricity, including investor-owned utilities and community choice aggregators, must provide in their portfolio. The RPS was established in 2002 under SB 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2. The standards are referred to as the RPS. Qualifying renewables under the RPS include bioenergy such as biogas and biomass, small hydroelectric facilities (30 MW or less), wind, solar, and geothermal energy. The California Public Utility Commission (CPUC) and the CEC jointly implement the RPS program.

In November 2008, then-Governor Schwarzenegger signed Executive Order (EO) S-14-08, which expanded the State's RPS to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the RPS by signing EO S-21-09, which directed the CARB under its AB 32 authority to enact regulations to help the State meet its RPS goal of 33 percent renewable energy by 2020.

Senate Bill 350 - Clean Energy and Pollution Reduction Act (SB 350).

SB 350, also known as the Clean Energy and Pollution Reduction Act of 2015, was enacted on October 7, 2015, and provides a new set of objectives in clean energy, clean air, and pollution reduction by 2030. The objectives include the following:

1. To increase from 33 percent to 50 percent by December 31, 2030, the procurement of California's electricity from renewable sources.

2. To double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

100 Percent Clean Energy Act (SB 100)

On September 10, 2018, then-Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS goals that were established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor owned utilities and publicly owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers are also required to have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

Clean Energy, Jobs, and Affordability Act (SB 1020)

SB 1020, also known as The Clean Energy, Jobs, and Affordability Act of 2022, establishes the requirement that eligible renewable energy resources and zero-carbon resources supply 90 percent of all retail sales of electricity to California end-use customers by December 31, 2035; 95 percent of all retail sales of electricity to California end-use customers by December 31, 2040; 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045; and 100 percent of electricity procured to serve all State agencies by December 31, 2035.

Low Carbon Fuel Standard (Executive Order S-1-07)

The Low Carbon Fuel Standard (LCFS), established in 2007 through EO S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products that started with a 0.25 percent reduction in 2011 and culminated in a 10 percent total reduction in 2020.In September 2018, CARB extended the LCFS program to 2030, making significant changes to the design and implementation of the program, including a doubling of the carbon intensity reduction to 20 percent by 2030.

Petroleum importers, refiners, and wholesalers can either develop their own low carbon fuel products or buy LCFS credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen.

Pavley Alternative Fuel Standards (AB 1007)

AB 1007 (Pavley, Chapter 371, Statutes of 2005) required the CEC to prepare a state plan to increase the use of alternative fuels in California (State Alternative Fuels Plan).The CEC prepared the State Alternative Fuels Plan in partnership with CARB and in consultation with other state, federal, and local agencies. The final State Alternative Fuels Plan, published in December 2007, attempts to achieve an 80 percent reduction in GHG emissions associated with personal modes of transportation, even as California’s population increases.

CARB Emission Standards for In-use Off-road Diesel Vehicles

In 2007, CARB adopted a regulation to reduce DPM and NO_X emissions from in-use, off-road, heavy-duty diesel vehicles in California. The regulation imposes limits on vehicle idling and requires fleets to reduce emissions by retiring, replacing, repowering, or installing exhaust retrofits to older engines. In December 2011, the regulation was amended to modify the compliance dates for performance standards and establish requirements for compliance with verified diesel emission control strategy technologies that reduce PM and/or NO_X emissions. The regulation is in the process of finalizing additional amendments that will require the phase out of the oldest and highest emitting off-road engines and would restrict the addition of vehicles with Tier 3 and Tier 4 interim engines. The rules would be implemented starting in 2024 and would require contracting entities to obtain and retain a fleet's valid Certificate of Reported Compliance prior to awarding a contract or hiring a fleet, mandate the use of R99 or R100 Renewable Diesel for all fleets with some limited exceptions, and provide additional requirements to increase enforceability and provide flexibility for permanent low-use vehicles.

ZEV Executive Orders

In March 2012, then-Governor Brown issued EO B-16-12 establishing a goal of 1.5 million ZEVs on California roads by 2025.In addition to the ZEV goal, the executive order stipulated that by 2015 all major cities in California will have adequate infrastructure and be "zero-emission vehicle ready"; that by 2020 the State will have established adequate infrastructure to support 1 million ZEVs; and that by 2050, virtually all personal transportation in the state will be based on ZEVs, and GHG emissions from the transportation sector will be reduced by 80 percent below 1990 levels.

On January 26, 2018, then-Governor Brown issued EO B-48-18 establishing a goal of 5 million ZEVs on California roads by 2030 and spurred the installation and construction of 250,000 plug-in electric vehicle chargers, including 10,000 direct current fast chargers, and 200 hydrogen refueling stations by 2025.

In September 2020, Governor Newsom signed EO N-79-20, which sets a new State goal that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035; that 100 percent of medium- and heavy-duty vehicles in the state be zero-emission by 2045 for all operations, where feasible, and by 2035 for drayage trucks; and that 100 percent of off-road vehicles and equipment will be zero emission by 2035, where feasible. This order calls upon state agencies, including CARB, the CEC, the CPUC, the Department of Finance, and others to develop and propose regulations and strategies to achieve these goals.

CARB Clean Cars Programs

The Advanced Clean Cars emissions-control program (referred to as Pavley) was approved by CARB in 2012 pursuant to AB 1493 (CARB 2017a). The program requires a greater number of ZEV models for years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the Low-Emissions Vehicle regulations to reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles; and the ZEV regulations require manufactures to produce an increasing number of pure ZEV's (meaning battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles between 2018 and 2025.

California recently adopted the new Advanced Clean Car II in August 2022, which dramatically reduces emissions from passenger vehicles for model years 2026 through 2035. Advanced Clean Cars II will require more aggressive tailpipe emission standards for gasoline cars and heavier passenger trucks and require all new vehicles sold by 2035 be ZEVs (CARB 2023).

CARB 2022 California Climate Change Scoping Plan

AB 1279, "The California Climate Crisis Act," was passed on September 16, 2022, and declares the State is to achieve net-zero GHG emissions as soon as possible, but no later than 2045, and will achieve and maintain net-negative GHG emissions thereafter. In addition, the bill states that the State would reduce GHG emissions by 85 percent below 1990 levels no later than 2045. CARB adopted the Final 2022 Scoping Plan in December 2022 as an update to the 2017 Scoping Plan to assess the progress towards the 2030 target, as well as to outline a plan to achieve carbon neutrality no later than 2045. The 2022 Scoping Plan focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities (CARB 2022). The 2022 Scoping Plan aims to encourage the build out of renewable energy to displace fossil-fuel fired electrical generation and to electrify energy demand in all sectors.

California Code of Regulations Title 24 (California Building Code)

Updated every three years through a rigorous stakeholder process, Title 24 of the California Code of Regulations requires California buildings and structures to meet strong energy efficiency measures, thereby lowering their energy use. Title 24 contains numerous subparts, including Part 1 (Administrative Code), Part 2 (Building Code), Part 3 (Electrical Code), Part 4 (Mechanical Code), Part 5 (Plumbing Code), Part 6 (Energy Code), Part 8 (Historical Building Code), Part 9 (Fire Code), Part 10 (Existing Building Code), Part 11 (Green Building Standards Code), Part 12 (Referenced Standards Code). The California Building Code is applicable to all development of buildings and structures in California. (Health and Safety Code §§ 17950 and 18938(b).) The regulations receive input from members of industry, as well as the public, with the goal of "[r]educing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy." (Pub. Res. Code § 25402.) These regulations are scrutinized and analyzed for technological and economic feasibility (Pub. Res. Code § 25402(d)) and cost effectiveness (Pub. Res. Code § 25402(b)(2) and (b)(3)).

Part 6 – Building Energy Efficiency Standards

CCR Title 24 Part 6 is the Building Energy Efficiency Standards. This code, originally enacted in 1978, establishes energy-efficiency standards for buildings and structures in order to reduce California's energy demand. The Building Energy Efficiency Standards is updated periodically to incorporate and consider new energy-efficiency technologies and methodologies as they become available. New construction and major renovations must demonstrate their compliance with the current Building Energy Efficiency Standards through submission and approval of a Title 24 Compliance Report to the local building permit review authority and the California Energy Commission.

The 2022 Building Energy Efficiency Standards became effective on January 1, 2023. The Standards focus on four key areas: 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements. Under the 2019 Standards, non-residential buildings will be 30 percent more energy-efficient compared to the 2016 Standards.

Part 11 – California Green Building Standards

The California Green Building Standards Code, referred to as CALGreen, was added to CCR Title 24 as Part 11 first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 CBC). Current CALGreen institutes mandatory minimum environmental performance standards for all ground-up new construction of non-residential and residential structures. It also includes voluntary tiers (I and II) with stricter environmental performance standards for these same categories of residential and non-residential buildings. Local jurisdictions must enforce the minimum mandatory Green Building Standards and may adopt additional amendments for stricter requirements.

Mandatory standards require:

- 20 percent reduction in indoor water use relative to specified baseline levels;
- 50 percent construction/demolition waste diverted from landfills;
- Inspections of energy systems to ensure optimal working efficiency; and
- Low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring, and particleboards.

Similar to the compliance reporting procedure for demonstrating Building Energy Efficiency Standards compliance in new buildings and major renovations, compliance with the CALGreen water-reduction requirements must be demonstrated through completion of water use reporting forms for new low-rise residential and non-residential buildings. Buildings must demonstrate a 20 percent reduction in indoor water use by either showing a 20 percent reduction in the overall baseline water use as identified in CALGreen or a reduced per-plumbing-fixture water use rate.

3.7.2.3 Regional and Local Laws, Regulations, and Policies

Valley Water Climate Change Action Plan

Valley Water's Climate Change Action Plan (CCAP) provides goals, strategies, and possible actions to address the ways that Valley Water is vulnerable to climate change impacts in each of Valley Water's mission areas, including water supply, flood protection, ecosystem stewardship, and emergency preparedness (Valley Water 2021a). The CCAP sets seven goals to guide Valley Water's response to climate change, three of which focus on reduction of operational GHG emissions, and four of which focus on climate change resilience and adaptation. Applicable policies from the CCAP to the Project's energy impacts include:

- **Action 1.2.3:** Develop a Valley Water-wide soil management plan to reduce truck hauling trips and encourage more efficient use of sediment/soil/spoils;
- **Action 1.2.7:** Promote fuel-saving policies and protocols such as, when safe, limiting hard braking while driving Valley Water vehicles, etc.
- **Action 1.3.3:** Continue to replace less efficient equipment with more fuel-efficient Class 4 equipment or devices that are powered by renewable energy.
- **Action 1.3.5:** Promote use of renewable energy for Valley Water field monitoring equipment.

- **Action 1.4.1:** Incorporate new energy, water, and fuel efficient technologies into capital project planning and design. Minimize construction-related vehicle miles traveled.
- **Action 1.4.5:** Incorporate process-based geomorphic channel designs into capital projects and utilize natural energy and local materials.
- **Action 2.1.1:** Continue to procure carbon-free and renewable energy from the Power and Water Resources Pooling Authority.
- **Action 2.1.2**: Examine and pursue opportunities to increase renewable energy in Valley Water's energy portfolio, in accordance with the latest Energy Optimization Plan.
- **Action 2.1.3**: Participate in the Community Choice Aggregation Program or other green power purchasing options.
- **Action 2.2.1**: Update or expand the Energy Optimization Plan and other energy efficiency efforts. Regularly track the implementation of this plan and Valley Water's progress towards energy efficiency.
- **Action 2.2.2**: Continue to maintain status as a Certified Green Business. Expand associated energy and water saving measures.
- **Action 2.2.3**: Develop and implement a Valley Water LEED and/or Building Sustainability Policy, building on prior efforts.
- **Action 2.2.4**: Conduct regular energy assessments and encourage use of energy efficient technologies (including at the treatment plants, the Advanced Water Purification Center, and water pumping equipment).
- **Action 2.2.5**: Expand energy efficient lighting systems (e.g.: automatic light shutdowns, motion sensor lights, attaching task lights to timers, install more efficient bulbs).
- **Action 2.2.6**: Set office equipment such as multifunction printers to automatically enter Power Save Mode after inactivity. Switch to secure printing (printers require passwords) rather than individual printers for sensitive documents. Reduce office equipment when possible (such as physical servers).
- **Action 2.2.7**: Promote sustainable workplace behavior (i.e. turning off computers and other devices at night).
- **Action 2.2.8**: Engage in outreach and information sharing at the local, regional, state, and national levels to promote energy efficiency both internally and in the water industry.

Santa Clara County General Plan

The Santa Clara County General Plan (County 1994) contains the following policies relevant to energy:

General Policies

- **Policy C-RC 77**: Energy efficiency and conservation efforts in the transportation, industrial, commercial, residential, agricultural and public sectors shall be encouraged at the local, county (subregional), and regional level.
- **Policy C-RC 78**: The objectives of the state energy plan should be implemented at the local and regional level through an overall strategy consisting of a) reducing transportation energy demand and oil-dependency; b) conserving energy in residential,

commercial, agricultural, and industrial sectors; and c) increasing consumer and general public awareness through education.

Strategy #1: Reduce Transportation Energy Demand and Oil-Dependency

- **Policy C-RC 79:** Energy use and fossil fuel dependency in the transportation sector should be reduced by the following general means: a) growth management policies and implementation to minimize increases in the extent of the urbanized area and to promote balanced, compact urban development; b) land use and development standards which support alternative transportation modes; c) travel demand management (TDM) and transportation system operational efficiency; d) expanded transit service; and e) increased availability and use of alternative fuels.
- **Policy C-RC 80:** Sub-regional/countywide planning for Santa Clara County should place major emphasis on the inter-related goals, strategies, and policies for improving energy efficiency in transportation, air quality, and reducing traffic congestion.

Strategy #2: Conserve Energy in Residential and Other Sectors

- **Policy C-RC 82**: Alternatives to non-renewable energy sources should be encouraged and implemented in the design of new buildings and incorporated in the redesign and reconstruction of older buildings.
- **Policy C-RC 83:** Industrial and agricultural processes should be modified wherever feasible to take advantage of energy savings, to reduce operational costs, and to enhance competitiveness.

The Santa Clara County General Plan's Health Element (County 2015) contains the following policies relevant to energy:

- **Policy HE-G.10**: Conservation. Promote energy conservation and efficiency in homes, businesses, schools, and other infrastructure to reduce energy use and criteria pollutant and greenhouse gas emissions.
- **Policy HE-G.11**: Renewable energy. Encourage renewable energy, such as solar and wind turbines, on commercial, industrial, and residential buildings.
- **Policy HE-G.12**: Energy technologies. Support regional and local initiatives that promote integrated building systems, distributed generation, demand response programs, smart grid infrastructure, energy storage and backup, and electric transportation infrastructure.

Santa Clara County Sustainability Master Plan

The Santa Clara County Sustainability Master Plan (County 2021) contains the following programs relevant to energy:

- **Strategy 1.1. Clean Energy**: The County has set a target of a 100 percent renewable energy system by 2045 which aligns with the State's Policies and Regulations. This strategy will evaluate opportunities to transition gas-powered equipment to electric. It will look to expand and incentivize the installation of solar photovoltaic systems at County sites and private land owners. Evaluate opportunities to expand wind-powered energy generation in the County. The County will also conduct a cost-benefit analysis of energy-related climate solutions.

- **Strategy 1.2 Decarbonization of Buildings and Facilities:** The County has set the target for all new County-owned buildings to meet CALGreen Tier 1 requirements and for large projects to be Leadership in Energy and Environmental Design (LEED) certified. The County will also evaluate strategies and implement pilot projects for zero-net energy retrofits, solar hot water, boiler efficiency measures or biogas procurement that contribute toward County facility decarbonization over the next five years. The County will ensure that the most energy-efficient lighting is installed where the savings will cover the cost of the lighting investments. The County will increase the number of electric vehicle chargers at County facilities and work to decarbonize all healthcare facilities and operations. The County also includes a target to reduce per capita energy use by at least 50 percent. The County will increase the overall energy savings achieved through Bay Area Regional Energy rebate programs.
- **Strategy 1.3. Clean, Safe, and Active Transportation**: The County will ensure that 100 percent of public fleet vehicles are electric, hybrid-electric, or run on alternative fuels where alternatives exist. The County will establish telecommuting policies and targets to reduce greenhouse gas emissions from employee commutes. The County will decrease the percentage of single-occupancy vehicles employee commutes by at least 10 percent below the 2020 Employee Commute Survey levels by calendar year 2022. The County will adopt Complete Streets policies into the General Plan Circulation and Mobility Element by 2024. The County will also adopt a County Active Transportation Plan and identify targets to track progress. Finally, the County will increase the percentage of people age 16 and over who walk, bike, or take public transportation to work.

City of Morgan Hill 2035 General Plan

The City of Morgan Hill General Plan (City of Morgan Hill 2016) contains the following goals, policies, and actions relevant to energy:

Natural Resources and Environment (NRE)

Goal NRE-16: Conservation of energy resources.

Policy NRE-16.1: Energy Standards for New Development. New development, including public buildings, should be designed to exceed State standards for the use of energy.

Policy NRE-16.2: Energy Conservation. Promote energy conservation techniques and energy efficiency in building design, orientation, and construction.

Policy NRE-16.5: Energy Efficiency. Encourage development project designs that protect and improve air quality and minimize direct and indirect air pollutant emissions by including components that promote energy efficiency.

Policy NRE-16.7: Renewable Energy. Encourage new and existing development to incorporate renewable energy generating features, like solar panels and solar hot water heaters.

Envision San José 2040 General Plan

The Envision San José 2040 General Plan (City of San José 2023 ~~2011~~) contains the following policies/actions relevant to energy:

Goal MS-2: Energy Conservation and Renewable Energy Use: Maximize the use of green building practices in new and existing development to maximize energy efficiency and conservation and to maximize the use of renewable energy sources.

> **Policy MS-2.4:** Promote energy efficient construction industry practices.
>
> **Policy MS-14.3**: Consistent with the California Public Utilities Commission's California Long Term Energy Efficiency Strategic Plan, as revised, and when technological advances make it feasible, require all new residential and commercial construction to be designed for zero net energy use.
>
> **Policy MS-14.4**: Implement the City's Green Building Policies so that new construction and rehabilitation of existing buildings fully implements industry best practices, including the use of optimized energy systems, selection of materials and resources, water efficiency, sustainable site selection, passive solar building design, and planting of trees and other landscape materials to reduce energy consumption.

3.7.3 Methodology and Approach to Impact Analysis

This impact analysis considers the potential for the Project to result in the wasteful use of energy or energy resources during Project construction and operation, consistent with PRC 21100(b)(3) and section 15126.2(b) and Appendices F and G of the *CEQA Guidelines*. This section also includes an evaluation of the potential for Project implementation to conflict with or obstruct a State or local plan for renewable energy or energy efficiency, consistent with Appendix G of the *CEQA Guidelines*. The analysis evaluates impacts related to energy that could occur as a result of the following activities:

- Seismic Retrofit Construction
- Conservation Measures Construction
- Construction Monitoring
- Post-Construction Anderson Dam Facilities Operations and Maintenance
- Post-Construction Conservation Measures Operations and Maintenance
- Post-Construction Project and FAHCE Adaptive Management

The analysis includes quantification of electricity, natural gas, gasoline, and diesel fuel that would be required to construct and operate the Project. Energy use includes off-road equipment and on-road mobile sources. Specifically, the analysis provides construction energy use estimates for the Project. Construction energy use estimates and operational energy assumptions are used to determine whether energy use from construction and operation of the Project would be considered wasteful, inefficient, or unnecessary, taking into account available energy supplies and existing use patterns, the Project's energy efficiency features, and compliance with applicable standards and policies aimed to reduce energy consumption.

3.7.3.1 Seismic Retrofit Construction

As described in Section 3.0, *Introduction*, the baseline for evaluating Seismic Retrofit components construction effects is the existing conditions at the time of EIR preparation modified by FOCP implementation (referred to as the existing conditions baseline).

The energy analysis is based on default values in the latest versions the CalEEMod, the CARB's Emission Factor Model version 2021 (EMFAC2021), and the CARB's equipment offroad inventory (OFFROAD2017) (CARB 2017b, 2017c). EMFAC2021 has not been updated for the most recent executive orders, specifically EO N-79-20, which bans the sale of gasoline-powered cars in California by 2035; and AB 1279 of 2022, which sets as a target carbon neutrality in California by 2045. EO N-79-20 and AB 1279 would alter the energy mix in California related to the Project by substantially decreasing fossil fuel usage and increasing electricity usage. Energy consumption estimates for the Project, including fuel and electricity consumption, do not account for the effects of EO N-79-20 and AB 1279 on available energy supplies, which would increase the supply of renewable energy sources in the future. Thus, energy consumption estimates are conservative, since at the time of construction, there would be a greater supply of renewable energy sources available. Accordingly, this energy analysis has been conducted with the most recent tools available at the time of Draft EIR preparation.

Construction Energy Estimates

For the purposes of estimating construction energy, primary construction activities for the Seismic Retrofit component include the following: site mobilization and preparation, including clearing and preparing staging and stockpile areas, reservoir dewatering and cofferdam construction, constructing the temporary water diversion system, dam excavation and fill (including excavation of embankment materials from borrow areas and disposal of excess materials at spoils disposal areas), constructing the new outlet works and spillway, construction of other ancillary facilities, decommissioning the hydroelectric facility, related fisheries improvements, and site restoration. Construction is planned to start in Year 1 and continue for approximately 7 years.

Off-Road Equipment

Off-road equipment is the most significant source of the Project's construction fuel usage. Fuel consumption associated with onsite off-road construction equipment was estimated based on the construction schedule, equipment list, and CARB estimated fuel consumption rate for off-road equipment from the OFFROAD2017 model (CARB 2017a, 2017b). Further details on the construction schedule and equipment list are provided in the Air Quality, Greenhouse Gas, and Health Risk Assessment Technical Report (see Appendix E).

It was conservatively assumed that all off-road equipment would be powered by diesel. Fuel consumption was calculated based on annual CO_2 emissions from construction activities and the USEIA's CO_2 emissions coefficients by fuel type (USEIA 2022e ~~2022g~~). CO_2emissions coefficients for gasoline and diesel are provided in **Table 3.7-7**.

On-Road Vehicles

On-road construction vehicles such as light-duty automobiles, shuttles, and trucks that would be used by workers for commuting to and from the construction site are assumed to be fueled by gasoline; and on-road trucks, such as vendor and haul trucks for demolition debris, soil, and other material hauling, are assumed to be fueled by diesel fuel. Similar to off-road equipment, fuel consumption required for on-road vehicle travel during construction was calculated based on annual CO_2 emissions from worker, vendor, and hauling trips during construction and the USEIA's CO_2 emissions coefficients by fuel type. CO_2emissions coefficients for gasoline and diesel are provided in **Table 3.7-5** ~~**Table 3.7-5**~~ (USEIA 2022e ~~2022g~~).

Table 3.7-7. Carbon Dioxide Emissions Coefficients by Fuel

Fuel Type	Pounds of CO_2 per Gallon
Gasoline[a]	17.87
Diesel[b]	22.46

Source: USEIA 2022e
Notes:
[a] *Emission coefficient is selected for finished motor gasoline, which includes fuel ethanol blended into motor gasoline.*
[b] *Emission coefficient is selected for the diesel and home heating fuel (distillate fuel oil) category.*
Key: CO_2 = Carbon Dioxide

Electricity Use

Construction of the Seismic Retrofit component is expected to use minimal electric equipment. However, electric equipment would be powered by diesel-fueled generators (diesel use is included in the diesel consumption estimates in **Table 3.7-8**) at the construction site, instead of electricity from the local power grid. Therefore, electricity used during the Seismic Retrofit component construction was not quantified.

3.7.3.2 Conservation Measures Construction

As described in Section 3.0, *Introduction*, the baseline for evaluating Conservation Measure components construction effects is the existing conditions at the time of EIR preparation modified by FOCP implementation (existing conditions baseline). Conservation measures requiring construction activities that are evaluated in the impact analysis include:

- Ogier Ponds Conservation Measure
- Maintenance of the North Channel Reach ~~Extension~~
- Maintenance Activities at the Live Oak Restoration Reach
- Sediment Augmentation Program[1]
- Phase 2 Coyote Percolation Dam Conservation Measure

The energy impacts from the construction of the Conservation Measure components were analyzed using the same methodologies as construction of the Seismic Retrofit components.

[1] Energy demand was only quantified for the initial placement of gravel, assumed to occur in Year 8. While energy demand associated with future gravel augmentation is assumed to be minor, its scale, timing, and duration are speculative and energy demand was not quantified.

3.7.3.3 Construction Monitoring

Construction monitoring activities are not considered in the impact analysis, as monitoring would involve data and information collection and assessment and would result in only minor use of energy or energy resources. Thus, construction monitoring is not discussed further in this section.

3.7.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

Operation of Anderson Dam following construction of the Seismic Retrofit component would involve implementation of the FAHCE rule curves and pulse flows, which would not change energy consumption compared to the existing conditions baseline. The Anderson Hydroelectric Facility would be removed and would no longer be available to be reactivated and generate electricity. Under existing conditions, the hydroelectric facility has not generated electricity since 2018. As mentioned above, Valley Water discontinued operations of the hydroelectric facility due to the increasing cost of operations and maintenance of the facility (Valley Water 2021b). Given the current, and near future, inability of the hydroelectric facility to provide any meaningful amounts of electricity, the hydroelectric facility is not currently considered as a local or regional energy supplier. Thus, energy supply planning would not consider the hydroelectric facility a source of near-term additional capacity.

As described in Section 3.0, *Introduction*, the baseline for evaluating post-construction operation effects to energy is the existing conditions at the time of EIR preparation modified by FOCP implementation (existing conditions baseline).

Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). No new long-term operational sources requiring energy would be added by dam maintenance. Therefore, post-construction dam facility maintenance activities are not discussed further in this section.

3.7.3.5 Post-Construction Conservation Measures Operations and Maintenance

Similar to the operation of the Anderson Dam, post-construction operations and maintenance of the Conservation Measures components would involve minimal activities requiring energy consumption. As described in Chapter 2, Project Description, Valley Water would maintain Coyote Percolation Dam per Valley Water's existing DMP. Maintenance of Coyote Percolation Dam facilities were previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). No new long-term operational sources requiring energy would be added by the Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Maintenance Activities at the Live Oak Restoration Reach, and the Sediment Augmentation Program. However, post-construction operation of the Phase 2 Coyote Percolation Dam CM would include operation of the motorized inflatable bladder dam installed as part of FOCP. As such, only post-construction operation of the Phase 2 Coyote Percolation Dam CM is discussed further in this section.

3.7.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform a selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because they would result in only minor use of energy or energy resources.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts of these adaptive actions are not evaluated in the impact analysis because they would result in only minor use of energy or energy resources.

3.7.3.7 Applicable Best Management Practices and VHP Conditions

The following Valley Water BMP would serve to minimize impacts on energy resources from the Project (refer to Chapter 2, *Project Description*, for the full text of the BMPs):

AQ-1: Use Dust Control Measures

No VHP conditions are applicable to energy.

3.7.3.8 Thresholds of Significance

Significance Criteria

For the purposes of this EIR and pursuant to Appendix G of the *CEQA Guidelines*, the Project would result in a significant impact related to energy use if it would:

(a) result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during Project construction or operation; or

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

Specific Thresholds of Significance

This EIR applies the following energy thresholds:

Energy Consumption

<u>Construction</u>

The following thresholds are used to evaluate the significance of energy consumption impacts resulting from construction of the Project:

- Construction that would result in the inefficient and wasteful use of energy, especially nonrenewable energy
- Construction that would not incorporate renewable energy and energy efficiency measures.

<u>Operation</u>

The following thresholds are used to evaluate the significance of energy consumption impacts resulting from operation of the Project:

- Utilization of larger amounts of operational energy compared to environmental baseline conditions
- Utilization of larger amounts of operational nonrenewable energy compared to environmental baseline conditions
- Non-incorporation of renewable energy and energy efficiency measures.

Renewable Energy and Energy Efficiency Plan Consistency

<u>Construction and Operation</u>

The following qualitative threshold is used to evaluate the significance of renewable energy and energy efficiency plan consistency impacts resulting from implementation of the Project:

- Construction and operation of buildings, appliances, equipment, and vehicles would not adhere to the renewable energy and energy efficiency targets, standards, and guidance included in California Green Building Standards Code (CALGreen or Title 24 Part 11), California Building Energy Efficiency Standards (Title 24 Part 6), SB 100, Valley Water CCAP, Santa Clara County General Plan, Santa Clara County Sustainability Master Plan, Morgan Hill 2035 General Plan, and Envision San José 2040 General Plan.

3.7.4 Impact Analysis

***Impact ENR-1: Result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources* (Less than significant with Mitigation)**

Construction

Seismic Retrofit Construction

Primary construction activities associated with the Seismic Retrofit construction include demolition, reconstruction of the dam and spillway, alteration of roadway alignments, and excavation related to installation of new outlet works, pipeline alignments, and communication lines. The Seismic Retrofit component would result in a temporary increase of energy consumption during the construction period. Gasoline and diesel consumption for Seismic Retrofit construction is summarized in **Table 3.7-8**. As shown in **Table 3.7-8**, construction of the Seismic Retrofit component is estimated to consume 14,873,000 ~~11,274 thousand~~ gallons of diesel and 665,000 ~~428 thousand~~ gallons of gasoline during the entire construction period lasting approximately 7 years.

Table 3.7-8. Seismic Retrofit Construction Gasoline and Diesel Consumption

Year	Diesel (Thousand Gallons)	Gasoline (Thousand Gallons)
Year 1	331 ~~113~~	95 ~~5~~
Year 2	2,559 ~~2,006~~	80 ~~58~~
Year 3	2,575 ~~2,013~~	104 ~~80~~
Year 4	3,338 ~~2,400~~	126 ~~94~~
Year 5	2,810 ~~2,192~~	126 ~~93~~
Year 6	2,892 ~~2,262~~	92 ~~67~~
Year 7	368 ~~288~~	43 ~~31~~
Total	**14,873 ~~11,274~~**	**665 ~~428~~**

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Technical Report (see Appendix E).

Seismic Retrofit construction energy usage would be reduced by implementation of **Mitigation Measure AQ-1**, which will require all off-road construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and will require all on-road vehicles as well as boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. Seismic Retrofit construction non-renewable energy usage would be reduced by implementation of **Mitigation Measure GHG-1**, which will require use of zero emission construction equipment whenever feasible as well as renewable diesel fuel. Furthermore, the construction contractor will have a financial disincentive to waste fuel used by construction equipment given excess fuel usage reduces profits. Therefore, fuel used during construction would be conserved when feasible.

Energy use during Seismic Retrofit construction would result in increased demand on local and regional supplies of fossil fuel, such as diesel and gasoline. However, as discussed above, implementation of **Mitigation Measures AQ-1 and GHG-1** will reduce energy usage, including non-renewable energy usage, during construction. Additionally, given that the northern California region produced an annual average of 6,138,527,000 ~~thousand~~ gallons of gasoline and 2,363,161,000 ~~thousand~~ gallons of diesel over the 5-year period of 2018-2022, annual Seismic Retrofit construction energy demand is less than 0.01 ~~0.007~~ percent of the region's gasoline production throughput and less than 0.6 ~~0.4~~ percent of the region's diesel production throughput (CEC 2023a ~~2023c~~). Furthermore, the impacts of Seismic Retrofit construction on local and regional fuel supplies would be temporary and not require an increase in fuel production capacity. Similarly, due to the relatively small demand related to gasoline and diesel fuel during Seismic Retrofit construction, there would not be temporary disruptions in local fuel supplies or requirements for additional fuel capacity in the region. Therefore, the impacts of Seismic Retrofit construction with regard to gasoline and diesel demand would be minimal.

Seismic Retrofit construction may potentially consume other forms of energy such as electricity, propane, and compressed natural gas. However, electricity consumed during Seismic Retrofit construction would be generated from on-site diesel generator sets. Any propane and/or compressed natural gas use would be as alternatives to gasoline and diesel consumption. Therefore, Seismic Retrofit construction is also unlikely to cause strain on peak- and base-period demand for electricity and other forms of energy, including natural gas.

Construction of the Seismic Retrofit component would also result in a temporary increase in transportation energy use. Energy use requirements of diesel and gasoline for construction on-road vehicles during Seismic Retrofit construction are included in **Table 3.7-8**.

Finally, Seismic Retrofit construction would utilize fuel-efficient equipment consistent with State and federal regulations and would comply with State measures related to incorporation of renewable energy and energy efficiency measures. Per applicable regulatory requirements of CALGreen, Seismic Retrofit construction activities would comply with construction waste management practices to divert construction and demolition debris from landfills. These practices would result in efficient use of energy and less consumption of non-renewable energy during Seismic Retrofit construction.

For the reasons listed above, construction of the Seismic Retrofit component would not result in the wasteful, inefficient, or unnecessary consumption of energy, especially non-renewable energy. Therefore, the Seismic Retrofit construction impact related to the consumption of energy resources is less than significant with mitigation.

Conservation Measures Construction

Ogier Ponds CM

Primary construction activities associated with the Ogier Ponds CM includes dewatering, placing fill in Ponds 1, 2, 4, and 5, construction of earthen berms, grading of the channel area, and construction of the new spillway and discharge structure. The Ogier Ponds CM would result in a temporary increase of energy consumption during the construction period. Gasoline and diesel consumption for Ogier Ponds CM construction is summarized in **Table 3.7-9**. As shown in **Table 3.7-9**, Ogier Ponds CM construction is estimated to consume 2,788,000 ~~2,660 thousand~~ gallons of diesel and 85,000 ~~83 thousand~~ gallons of gasoline during the construction period.

Table 3.7-9. Ogier Ponds CM Construction Gasoline and Diesel Consumption

Year	Diesel (Thousand Gallons)	Gasoline (Thousand Gallons)
Year 6	1,473 ~~1,394~~	2~~1~~
Year 7	957 ~~908~~	31 ~~30~~
Year 8	359 358	33 32
Total	**2,788 ~~2,660~~**	**85 ~~83~~**

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Technical Report (see Appendix E).

Ogier Ponds CM construction energy usage would be reduced by implementation of **Mitigation Measure AQ-1**, which would require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. Furthermore, the construction contractor would have a financial disincentive to waste fuel used by construction equipment (i.e., excess fuel usage reduces profits). Therefore, fuel used during construction would be conserved when feasible.

Energy use during Ogier Ponds CM construction would result in increased demand on local and regional supplies of fossil fuel, such as diesel and gasoline. However, as discussed above, implementation of **Mitigation Measures AQ-1 and GHG-1** will reduce energy usage, including non-renewable energy usage, during construction. Additionally, given that the northern California region produced an annual average of 6,138,527,000 ~~thousand~~ gallons of gasoline and 2,363,161,000 ~~thousand~~ gallons of diesel over the 5-year period of 2018-2022, annual Ogier Ponds CM construction demand is less than 0.002 ~~0.001~~ percent of the region's gasoline production throughput and less than 0.12 ~~0.11~~ percent of the region's diesel production throughput (CEC 2023a~~c~~). Additionally, the impacts of Ogier Ponds CM construction on local and regional fuel supplies would be temporary, and would not require an increase in fuel production capacity. Similarly, due to the relatively small demand on gasoline and diesel fuel during Ogier Ponds CM construction, there would not be a temporary disruption in local fuel supplies, or requirements for additional fuel capacity in the region. Therefore, the impacts of Ogier Ponds CM construction on demands for gasoline and diesel would be minimal.

Ogier Ponds CM construction may potentially consume other forms of energy, such as electricity, propane, and natural gas. However, electricity during Ogier Ponds CM construction would be generated from on-site diesel generator sets. Any propane and/or compressed natural gas use would be as alternatives to the gasoline and diesel consumption, discussed above. Therefore, Ogier Ponds CM construction is also unlikely to cause any strain on peak and base period demand for electricity and other forms of energy, including natural gas.

Construction of the Ogier Ponds CM would result in a temporary increase in transportation energy use. Energy use requirements of diesel and gasoline for construction on-road vehicles during Seismic Retrofit construction are included in **Table 3.7-9**.

Finally, Ogier Ponds CM construction would utilize fuel-efficient equipment consistent with State and federal regulations related to incorporation of renewable energy and energy efficiency measures. Per applicable regulatory requirements of CALGreen, Seismic Retrofit construction activities would comply with construction waste management practices to divert construction and demolition debris from landfills. These practices would result in efficient use of energy by Ogier Ponds CM construction.

For the reasons listed above, construction of the Ogier Ponds CM would not result in the wasteful, inefficient, or unnecessary consumption of energy, including non-renewable energy. Therefore, the Ogier Ponds CM construction impact related to the consumption of energy resources is less than significant with mitigation.

Maintenance of the North Channel Reach and Live Oak Restoration Reach Extension

Primary construction activities associated with the Maintenance of the North Channel Reach and Live Oak Restoration Reach ~~Extension~~ include ~~grading,~~ vegetation management, sediment management, and site restoration. Maintenance activities would be minor and intermittent, largely driven by maintenance in response to high flow events or plant mortality. ~~Construction is planned to occur over 2 months during the dry season of Year 1. Additional native vegetation along the North Channel would be planted during Year 7 to enhance the restored North Channel. Construction~~ Maintenance of the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach would involve ~~less~~ limited construction activity and ~~less construction~~ equipment, particularly as compared to ~~than~~ the Seismic Retrofit component or ~~any of the~~ other Conservation Measures (e.g., Ogier Ponds CM), so corresponding energy usage has not been quantified. Given the duration and scale of ~~construction~~ Project activities, Maintenance of the North Channel Reach and Live Oak Restoration Reach ~~Extension, construction~~ would involve negligible energy consumption, including non-renewable energy consumption. Therefore, Maintenance of the North Channel Reach and Live Oak Restoration Reach ~~Extension~~ construction impacts related to the consumption of energy resources is less than significant.

Sediment Augmentation Program

Primary construction activities associated with the Sediment Augmentation Program include access establishment, minor grading, vegetation management, and stockpiling and placement of material. The Sediment Augmentation Program would result in a temporary increase of energy consumption during the construction period. Gasoline and diesel consumption for Sediment Augmentation Program construction is summarized in **Table 3.7-10**. As shown in **Table 3.7-10**, construction of the Sediment Augmentation Program is estimated to consume 200 ~~7,468~~ gallons of diesel and 100 ~~1,569~~ gallons of gasoline during the construction period.

Table 3.7-10. Sediment Augmentation Program Construction Gasoline and Diesel Consumption

Year	Diesel (Thousand Gallons)	Gasoline (Thousand Gallons)
~~Year 2~~	579	123
~~Year 3~~	536	117
~~Year 4~~	~~536~~	~~116~~
~~Year 5~~	~~527~~	~~114~~
~~Year 6~~	524	113
~~Year 7~~	522	112
Year 8	0.2 528	0.1 111

Year	Diesel (Thousand Gallons)	Gasoline (Thousand Gallons)
~~Year 9~~	536	110
~~Year 1~~0	533	110
~~Year 11~~	~~527~~	~~109~~
~~Year 1~~2	523	108
~~Year 1~~3	527	108
~~Year 1~~4	535	107
~~Year 1~~5	535	111
Total	**0.2 ~~7,~~468**	**0.1 ~~1,5~~69**

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Technical Report (see Appendix E).

While minimal, Sediment Augmentation Program construction energy usage would be reduced by implementation of **Mitigation Measure AQ-1**, which will require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. Construction non-renewable energy usage would be reduced by implementation of **Mitigation Measure GHG-1**, which will require use of zero emission construction equipment whenever feasible as well as renewable diesel fuel. Furthermore, the construction contractor would have a financial disincentive to waste fuel used by construction equipment (i.e., excess fuel usage reduces profits). Therefore, fuel used during construction would be conserved when feasible. Energy use during Sediment Augmentation Program construction would result in increased demand on local and regional supplies of fossil fuel, such as diesel and gasoline. However, as discussed above, implementation of **Mitigation Measure AQ-1** will reduce energy usage during construction. Additionally, given that the northern California region produced an annual average of 6,138,527,000 ~~thousand~~ gallons of gasoline and 2,363,161,000 ~~thousand~~ gallons of diesel over the 5-year period of 2018-2022, annual Sediment Augmentation Program construction demand is negligible (less than 0.000002 ~~0.02~~ percent of the region's gasoline production throughput and less than 0.000009 ~~0.3~~ percent of the region's diesel production throughput (CEC 2023a ~~2023c~~)). Additionally, the impacts of Seismic Retrofit construction on local and regional fuel supplies would be temporary, and would not require an increase in fuel production capacity. Similarly, due to the relatively small demand on gasoline and diesel fuel during Sediment Augmentation Program construction, there would not be a temporary disruption in local fuel supplies, or requirements for additional fuel capacity in the region. Therefore, the impacts of Sediment Augmentation Program construction with regard to demand for gasoline and diesel would be minimal.

Sediment Augmentation Program construction may potentially consume other forms of energy, such as electricity, natural gas, and propane. However, as discussed previously, electricity during Sediment Augmentation Program construction would be generated from onsite diesel generator sets. Any propane and/or compressed natural gas use would be as alternatives to the gasoline and diesel consumption, discussed above. Therefore, Sediment Augmentation Program construction is also unlikely to cause any strain on peak and base period demand for electricity and other forms of energy, including natural gas.

Construction of the Sediment Augmentation Program would result in a temporary increase in transportation energy use. Energy use requirements of diesel and gasoline for construction on-road vehicles during Sediment Augmentation Program construction are included in **Table 3.7-10**.

Finally, Sediment Augmentation Program construction would utilize fuel-efficient equipment consistent with State and federal regulations related to incorporation of renewable energy and energy efficiency measures. Per applicable regulatory requirements of CALGreen, Sediment Augmentation Program construction activities would comply with construction waste management practices to divert construction and demolition debris from landfills. These practices would result in efficient use of energy by Sediment Augmentation Program construction.

For the reasons listed above, construction of the Sediment Augmentation Program would not result in the wasteful, inefficient, or unnecessary consumption of energy, including renewable energy. Therefore, the Sediment Augmentation Program construction impact related to the consumption of energy resources is less than significant with mitigation.

Phase 2 Coyote Percolation Dam CM

Primary construction activities associated with the Phase 2 Coyote Percolation Dam CM include construction of haul roads and stockpiling areas, clearing and grubbing, construction of creek bypass, and roughened ramp construction. The Phase 2 Coyote Percolation Dam CM would result in a temporary increase of energy consumption during the construction period. Gasoline and diesel consumption for Phase 2 Coyote Percolation Dam CM construction is summarized in **Table 3.7-11**. As shown in **Table 3.7-11**, Phase 2 Coyote Percolation Dam CM construction is estimated to consume 173,000 ~~108 thousand~~ gallons of diesel and 25,000 ~~23 thousand~~ gallons of gasoline during the construction period.

Table 3.7-11. Phase 2 Coyote Percolation Dam CM Construction Gasoline and Diesel Consumption

Year	Diesel (Thousand Gallons)	Gasoline (Thousand Gallons)
Year 1 ~~4~~	69 ~~29~~	10 ~~7~~
Year 2 ~~5~~	104 ~~79~~	15 ~~16~~
Total –	**173 ~~108~~**	**25 ~~23~~**

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Technical Report (see Appendix E).

Phase 2 Coyote Percolation Dam CM construction energy usage would be reduced by implementation of **Mitigation Measure AQ-1**, which will require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. Construction non-renewable energy usage would be reduced by implementation of **Mitigation Measure GHG-1**, which will require use of zero emission construction equipment whenever feasible as well as renewable diesel fuel. Furthermore, the construction contractor would have a financial disincentive to waste fuel used by construction equipment (i.e., excess fuel usage reduces profits). Therefore, fuel used during construction would be conserved when feasible.

Energy use during Phase 2 Coyote Percolation Dam CM construction would result in increased demand on local and regional supplies of fossil fuel, such as diesel and gasoline. However, as discussed above, implementation of **Mitigation Measure AQ-1** will reduce energy usage during construction. Additionally, given that the northern California region produced an annual average of 6,138,527,000 ~~thousand~~ gallons of gasoline and 2,363,161,000 ~~thousand~~ gallons of diesel over the 5-year period of 2018-2022, annual ~~Seismic Retrofit~~ Phase 2 Coyote Percolation Dam CM construction demand is negligible (less than 0.0004 percent of the region's gasoline production throughput and less than 0.007 ~~0.005~~ percent of the region's diesel production throughput (CEC 2023a ~~2023c~~)). Additionally, the impacts of Phase 2 Coyote Percolation Dam CM construction on local and regional fuel supplies would be temporary~~,~~ and would not require an increase in fuel production capacity. Similarly, due to the relatively small demand on gasoline and diesel fuel during Phase 2 Coyote Percolation Dam CM construction, there would not be a temporary disruption in local fuel supplies, or requirements for additional fuel capacity in the region. Therefore, the impacts of Phase 2 Coyote Percolation Dam CM construction on demands for gasoline and diesel would be minimal.

Phase 2 Coyote Percolation Dam CM construction may potentially consume other forms of energy, such as electricity, natural gas, and propane. However, as discussed previously, electricity during Phase 2 Coyote Percolation Dam CM construction would be generated from onsite diesel generator sets. Any propane and/or compressed natural gas use would be as alternatives to the gasoline and diesel consumption, discussed above. Therefore, Phase 2 Coyote Percolation Dam CM construction is also unlikely to cause any strain on peak and base period demand for electricity and other forms of energy, including natural gas.

Construction of the Phase 2 Coyote Percolation Dam CM would result in a temporary increase in transportation energy use. Energy use requirements of diesel and gasoline for construction on-road vehicles during Phase 2 Coyote Percolation Dam CM construction are included in **Table 3.7-11**.

Finally, Phase 2 Coyote Percolation Dam CM construction would utilize fuel-efficient equipment consistent with State and federal regulations related to incorporation of renewable energy and energy efficiency measures. Per applicable regulatory requirements of CALGreen, Phase 2 Coyote Percolation Dam CM construction activities would comply with construction waste management practices to divert construction and demolition debris from landfills. These practices would result in efficient use of energy by Phase 2 Coyote Percolation Dam CM construction.

For the reasons listed above, construction of the Phase 2 Coyote Percolation Dam CM would not result in the wasteful, inefficient, or unnecessary consumption of energy, including non-renewable energy. Therefore, the Phase 2 Coyote Percolation Dam CM construction impact related to the consumption of energy resources is less than significant with mitigation.

Operations and Maintenance

Post-Construction Anderson Dam Facilities Operations and Maintenance

As discussed in Section 3.7.3, *Methodology and Approach to Impact Analysis*, above, post-construction operations and maintenance of the Anderson Dam Facilities would not change energy consumption or procurement of renewable energy from PWRPA compared to the existing conditions baseline. Operation of this Project component would also incorporate non-renewable energy and energy efficiency measures pursuant to CalGreen and the California Energy Efficiency Standards. In addition, the hydroelectric facility is not considered a local or regional energy supplier, nor would its existing non-operational status change with implementation of the Project. As such, post-construction operations and maintenance of the Anderson Dam Facilities would not result in greater utilization of energy, including non-renewable energy, during operation compared to environmental baseline conditions and, thus, would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, the Anderson Dam Facilities Operations and Maintenance operational impact related to the consumption of energy resources is less than significant.

Post-Construction Conservation Measures Operations and Maintenance

Post-construction operations of the Phase 2 Coyote Percolation Dam CM would consume 25.2 kWh annually, while the post-construction operations and maintenance of the Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Maintenance Activities at the Live Oak Restoration Reach, and the Sediment Augmentation Program would not require new long-term operational sources requiring energy.

Existing baseline conditions of operation of the Phase 2 Coyote Percolation Dam includes manual removal and replacement of the flashboard dam, which does not require electricity consumption. Post-construction operation of the Phase 2 Coyote Percolation Dam CM is estimated to consume approximately 25.2 kWh of electricity annually through the up to four times annual inflation of the bladder dam installed as part of FOCP. As such, a larger amount of operational energy would be used compared to existing baseline conditions. However, post-construction operation of the Phase 2 Coyote Percolation Dam CM represents less than 0.001 percent of Valley Water's annual electricity consumption (Valley Water 2013). Therefore, post-construction operation of the Phase 2 Coyote Percolation Dam CM would not place a significant demand on electricity supply. Additionally, 95 percent of Valley Water's purchased electricity is procured from PWRPA, which provides Valley Water with carbon-free electricity. Thus, post-construction operation of the Phase 2 Coyote Percolation Dam CM would utilize renewable energy for electricity consumption. As such, post-construction operation of the Phase 2 Coyote Percolation Dam CM would not result in greater utilization of non-renewable energy during operation compared to environmental baseline conditions and, thus, would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, the Conservation Measures Operations and Maintenance operational impact related to the consumption of energy resources is less than significant.

Post-Construction Project and FAHCE Adaptive Management

As discussed in Section 3.7.3 ~~3.9.3~~, *Methodology and Approach to Impact Analysis*, above, post-construction Project and FAHCE Adaptive Management would generally include monitoring activities and minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. It would also involve minor adjustments to FAHCE rule curves. As such, post-construction FAHCE Adaptive Management would result in negligible energy consumption and would not result in greater utilization of non-renewable energy compared to environmental baseline conditions and, thus, and would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, the Project and FAHCE Adaptive Management operational impact related to the consumption of energy resources is less than significant.

Significance Conclusion Summary

Construction of the Seismic Retrofit and Conservation Measures components would consume approximately 17,842,000 ~~21,150 thousand~~ gallons of diesel and 780,000 ~~2,103 thousand~~ gallons of gasoline. Energy use during construction of the Seismic Retrofit and Conservation Measures components would result in increased demand on local and regional supplies of fossil fuel, such as diesel and gasoline. However, compared to the northern California region's annual average production of fuel over the 5-year period of 2018-2022, the total annual average energy demand of the Project would be approximately 0.01 ~~0.03~~ percent of the region's gasoline production throughput and approximately 0.75 ~~0.89~~ percent of the region's diesel production throughput (CEC 2023a~~c~~). The impacts of Project construction on local and regional fuel supplies would be temporary and minimal.

Furthermore, implementation of **Mitigation Measures AQ-1** and **GHG-1** would increase the efficiency of energy usage and decrease the amount of non-renewable energy usage during construction. Specifically, implementation of **Mitigation Measure AQ-1** will require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. Implementation of **Mitigation Measure GHG-1** will require use of zero emission construction equipment whenever feasible as well as renewable diesel fuel.

Project construction would utilize fuel-efficient equipment consistent with State and federal regulations and would comply with State measures to reduce the inefficient, wasteful, or unnecessary consumption of energy. Per applicable regulatory requirements of CALGreen, Project construction activities would comply with construction waste management practices to divert construction and demolition debris from landfills. These practices would result in efficient use of energy by Project construction.

Post-construction operations and maintenance of the Project would consume a minimal amount of electricity, and the electricity consumed would be sourced from renewable resources. Therefore, because the Project would not result in any wasteful, inefficient, or unnecessary consumption of energy resources, the overall Project impact related to energy consumption is less than significant, and after mitigation to further reduce impacts would be **less than significant with mitigation**.

Table 3.7-12. Overall Project Construction Gasoline and Diesel Consumption

Year	Diesel (Thousand Gallons)	Gasoline (Thousand Gallons)
Year 1	400 ~~113~~	105 ~~5~~
Year 2	2,663 ~~2,58~~5	95 ~~181~~
Year 3	2,575 ~~2,549~~	104 ~~197~~
Year 4	3,338 ~~2,965~~	126 ~~217~~
Year 5	2,810 2,798	126 223
Year 6	4,365 ~~4,18~~0	113 ~~201~~
Year 7	1,325 ~~1,71~~8	74 ~~173~~
Year 8	359 ~~886~~	33 ~~143~~
~~Year 9~~	53~~6~~	11~~0~~
~~Year 10~~	533	110
~~Year 1~~1	52~~7~~	10~~9~~
~~Year 1~~2	52~~3~~	10~~8~~
~~Year 1~~3	52~~7~~	10~~8~~
~~Year 14~~	53~~5~~	10~~7~~
~~Year 15~~	535	111
Total	**17,835 ~~21,~~510**	**650 2~~,103~~**

Source: Air Quality, Greenhouse Gas, and Health Risk Assessment Technical Report (see Appendix E).

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

Impact ENR-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency **(Less than significant with mitigation)**

Construction

Seismic Retrofit and Conservation Measures Construction

Project construction would utilize fuel-efficient equipment consistent with State and federal regulations and would comply with State measures to reduce the inefficient, wasteful, or unnecessary consumption of energy. The Valley Water CCAP, Santa Clara County General Plan, Santa Clara County Sustainability Master Plan, City of Morgan Hill 2035 General Plan, and Envision San José 2040 General Plan provide renewable energy and energy reduction policies. However, none of these policies are specifically relevant to construction activities outside of encouraging the use of fuel efficient or alternative fuel equipment and vehicles, and reducing transportation energy. Implementation of **Mitigation Measures AQ-1 and GHG-1** would increase the efficiency of energy usage during Project construction, consistent with these policies. Implementation of **Mitigation Measure AQ-1** will require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and would require all on-road <u>truck</u> engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. Implementation of **Mitigation Measure GHG-1** will require use of zero emission construction equipment whenever feasible as well as renewable diesel fuel. As such, Project construction of buildings and use of equipment and vehicles would adhere to the renewable energy and energy efficiency standards and guidance included in the aforementioned State and local plans. Therefore, the Seismic Retrofit construction and Conservation Measures construction would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and the impact would be less than significant with mitigation.

Operations and Maintenance

Post-Construction Anderson Dam Facilities Operations and Maintenance

As discussed in Section 3.7.3, *Methodology and Approach to Impact Analysis*, above, post-construction operations and maintenance of the Anderson Dam Facilities would not substantially change energy consumption compared to the existing conditions baseline. In addition, the hydroelectric facility is not considered a local or regional energy supplier, nor would its existing non-operational status change with implementation of the Project. As such, post-construction operations and maintenance of the Anderson Dam Facilities would result in negligible energy consumption during operational use of equipment and vehicles and adhere to the renewable energy and energy efficiency standards and guidance included in the aforementioned State and local plans. Therefore, post-construction Anderson Dam facilities operations and maintenance would not conflict with or obstruct a State of California or local plan for renewable energy or energy efficiency, and the impact would be less than significant.

Post-Construction Conservation Measures Operations and Maintenance

As discussed under Impact ENR-1 above, post-construction operations of the Phase 2 Coyote Percolation Dam CM would consume 25.2 kWh annually, which would result in more energy consumption for operation of the inflatable bladder dam in comparison to existing baseline conditions. The post-construction operations and maintenance of the Ogier Ponds CM, <u>Maintenance of the</u> North Channel <u>Reach</u> ~~Extension~~, Maintenance Activities at the Live Oak Restoration Reach, and the Sediment Augmentation Program would not require new long-term operational sources requiring energy. Thus, only the Phase 2 Coyote Percolation Dam CM is discussed below in terms of Conservation Measures Operations and Maintenance consistency with plans and regulations for renewable energy and energy efficiency.

<u>Senate Bill 100, 2022 California Green Building Standards, and 2022 California Building Energy Efficiency Standards Consistency</u>

The primary State regulation that aims to increase the production and use of renewable energy is SB 100. SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the State’s RPS Program and requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045. Valley Water procures 95 percent of its electricity from PWRPA’s zero carbon profile, which sources electricity from renewable energy sources. Thus, post-construction operation of the Phase 2 Coyote Percolation Dam CM would be powered by renewable energy procured from PWRPA. This exceeds SB 100 requirements, which requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045. As such, Project operational use of equipment and vehicles would adhere to the renewable energy targets, standards, and guidance included in SB 100. Therefore, post-construction operation of the Phase 2 Coyote Percolation Dam CM would align with the overall intent of SB 100 and be consistent with this State renewable energy plan.

Relevant State regulations that aim to increase energy efficiency include the 2022 California Green Building Standards Code (CALGreen or Title 24 Part 11) and the 2022 California Building Energy Efficiency Standards (Title 24 Part 6). CALGreen (Title 24 Part 11) institutes mandatory minimum environmental performance standards for all ground-up new non-residential and residential structures and major renovations.[2] In addition, the California Building Energy Efficiency Standards (Title 24 Part 6) establishes energy-efficiency standards for residential and non-residential buildings in order to reduce California's energy demand. CCR Title 24 (Parts 6 and 11) is updated periodically to incorporate and consider new energy-efficiency technologies and methodologies as they become available. New structures and major renovations must demonstrate their compliance with the current Building Energy Efficiency Standards and CalGreen through submission and approval of a Title 24 Compliance Report to the local building permit review authority and the CEC. Post-construction operation of the Phase 2 Coyote Percolation Dam CM would be designed to comply with the energy efficiency standards of CALGreen and the California Building Energy Efficiency Standards. Therefore, compliance with these regulations would minimize potential conflicts with these State energy efficiency plans.

Valley Water CCAP Consistency

The CCAP includes goals related to renewable energy and energy efficiency to guide Valley Water's response to climate change. Post-construction operation of the Phase 2 Coyote Percolation Dam CM consistency with the CCAP is discussed in **Table 3.7-13**. As shown therein, post-construction operation of the Phase 2 Coyote Percolation Dam CM related to equipment and vehicle use would be consistent with the renewable energy and energy efficiency goals of the Valley Water CCAP.

Table 3.7-13. Valley Water CCAP Strategies Consistency Analysis

Goals	Action	Description	Project Consistency
Expand Renewable Energy and Improve Energy Efficiency	1.3.3	Continue to replace less efficient equipment with more fuel-efficient Class 4 equipment or devices that are powered by renewable energy.	Consistent. Post-construction operation of the Phase 2 Coyote Percolation Dam CM would replace operations of the existing flashboard dam with a remotely operated bladder dam. Post-construction operation of the Phase 2 Coyote Percolation Dam CM would be powered by renewable energy that Valley Water would procure from PWRPA. Although the bladder dam

[2] Major renovations are defined as changes to the building envelop or changing equipment, including different components and entire systems.

Goals	Action	Description	Project Consistency
			would consume more electricity than the flashboard dam (given the flashboard dam is currently removed and replaced manually), remote operation of the bladder equipment would reduce the number of vehicle trips needed to operate the dam. Thus, this Project component would replace less-fuel-efficient vehicle trips with more fuel-efficient equipment powered by renewable energy.
	1.3.5	Promote use of renewable energy for Valley Water field monitoring equipment.	Consistent. Post-construction operation of the Phase 2 Coyote Percolation Dam CM equipment, including monitoring equipment, use would be powered by renewable energy that Valley Water would procure from PWRPA.

Santa Clara County General Plan, Santa Clara County Sustainability Master Plan, Morgan Hill 2035 General Plan, Envision San José 2040 General Plan Consistency

The Santa Clara County General Plan, Santa Clara County Sustainability Master Plan, City of Morgan Hill 2035 General Plan, and Envision San José 2040 General Plan provide renewable energy and energy reduction policies. However, most of these policies are not relevant to post-construction operation of the Phase 2 Coyote Percolation Dam CM. Post-construction operation of the Phase 2 Coyote Percolation Dam CM consistency with relevant policies is discussed in **Table 3.7-14**. As shown therein, post-construction operation of the Phase 2 Coyote Percolation Dam CM related to equipment and vehicle use would be consistent with the renewable energy and energy efficiency policies of the Santa Clara County General Plan, Santa Clara County Sustainability Master Plan, City of Morgan Hill 2035 General Plan, and Envision San José 2040 General Plan.

Table 3.7-14. Santa Clara County General Plan, Santa Clara County Sustainability Master Plan, Morgan Hill 2035 General Plan, Envision San José 2040 General Plan Policies Consistency Analysis

Policy	Project Consistency
Santa Clara County General Plan	
Policy C-RC 77: Energy efficiency and conservation efforts in the transportation, industrial, commercial, residential, agricultural and public sectors shall be encouraged at the local, county (subregional), and regional level.	Consistent. Post-construction operation of the Phase 2 Coyote Percolation Dam CM would be powered by renewable energy that Valley Water would procure from PWRPA. Additionally, post-construction operation of the Phase 2 Coyote Percolation Dam CM would be designed to comply with the energy efficiency and conservation standards of CALGreen and the California Building Energy Efficiency Standards.

Policy	Project Consistency
Policy HE-G.10: Promote energy conservation and efficiency in homes, businesses, schools, and other infrastructure to reduce energy use and criteria pollutant and greenhouse gas emissions.	Consistent. Post-construction operation of the Phase 2 Coyote Percolation Dam CM would be powered by renewable energy that Valley Water would procure from PWRPA. The use of renewable energy to operate Phase 2 Coyote Percolation Dam CM equipment, rather than the use of non-renewable energy, would promote energy conservation and reduced non-renewable energy use, which in turn would also reduce emissions of criteria air pollutants and GHGs.
Santa Clara County Sustainability Master Plan	
Strategy 1.1. Clean Energy. The County has set a target of a 100 percent renewable energy system by 2045 which aligns with the State's Policies and Regulations. This strategy will evaluate opportunities to transition gas-powered equipment to electric. It will look to expand and incentivize the installation of solar photovoltaic systems at County sites and private land owners. Evaluate opportunities to expand wind-powered energy generation in the County. The County will also conduct a cost-benefit analysis of energy-related climate solutions.	Consistent. Valley Water procures 95 percent of its electricity from PWRPA's zero carbon profile, which sources electricity from renewable energy sources. Thus, post-construction operation of the Phase 2 Coyote Percolation Dam CM would be powered by renewable energy procured from PWRPA and would be consistent with the County's target to reach 100 percent renewable energy by 2045.
City of Morgan Hill 2035 General Plan	
Policy NRE-16.1: Energy Standards for New Development. New development, including public buildings, should be designed to exceed State standards for the use of energy.	Consistent. Post-construction operation of Phase 2 Coyote Percolation Dam CM equipment would be designed to comply with the energy conservation and efficiency standards of CALGreen and the California Building Energy Efficiency Standards that constitute State standards for the use of energy.
Policy NRE-16.2: Energy Conservation. Promote energy conservation techniques and energy efficiency in building design, orientation, and construction.	Consistent. Post-construction operation of Phase 2 Coyote Percolation Dam CM facilities related to the bladder dam would be designed to be comply with the energy conservation techniques and efficiency required by CALGreen and the California Building Energy Efficiency Standards.
Envision San José 2040 General Plan	
Policy MS-14.4: Implement the City's Green Building Policies so that new construction and rehabilitation of existing buildings fully implements industry best practices, including the use of optimized energy systems, selection of materials and resources, water efficiency, sustainable site	Consistent. Post-construction operation of Phase 2 Coyote Percolation Dam CM facilities related to the bladder dam would be designed to be comply with the energy conservation techniques and efficiency required by CALGreen and the California Building Energy Efficiency Standards, which include industry best practices to reduce energy consumption.

Policy	Project Consistency
selection, passive solar building design, and planting of trees and other landscape materials to reduce energy consumption.	

Overall, the Post-Construction Conservation Measures Operations and Maintenance would not conflict with or obstruct State or local plans for renewable energy or energy efficiency, and the impact would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

As discussed in Section 3.7.3 ~~3.9.3~~, *Methodology and Approach to Impact Analysis*, above, post-construction Project and FAHCE Adaptive Management would generally include monitoring activities and minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. It would also involve minor adjustments to FAHCE rule curves. As such, post-construction Project and FAHCE Adaptive Management would result in negligible energy consumption during equipment and vehicle operation and adhere to the renewable energy and energy efficiency standards and guidance included in the aforementioned State and local plans. Therefore, the Post-Construction Project and FAHCE Adaptive Management would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and the impact would be less than significant.

Significance Conclusion Summary

Project construction would be consistent with renewable energy and energy efficiency targets, standards, and guidance included in California Green Building Standards Code (CALGreen or Title 24 Part 11), California Building Energy Efficiency Standards (Title 24 Part 6), SB 100, Valley Water CCAP, Santa Clara County General Plan, Santa Clara County Sustainability Master Plan, Morgan Hill 2035 General Plan, and Envision San José 2040 General Plan with implementation of **Mitigation Measures AQ-1 and GHG-1**. Project operation related to equipment and vehicle energy use would be consistent with these regulations and plans without mitigation. Therefore, Project construction and operation would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, and overall impacts would be less than significant, and after mitigation to further reduce impacts would be **less than significant with mitigation.**

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

3.7.5 Cumulative Impacts

The cumulative impact study area for energy focuses on the portions of the County, San José, and Morgan Hill that comprise the Project Area, including the construction limits of the Seismic Retrofit and Conservation Measures components.

The approach to the cumulative impacts analysis and list of foreseeable future projects, programs, and plans considered in the cumulative impact analysis is included in Section 3.0.5, *Approach to Cumulative Impacts*.

This section describes the Project's contribution to cumulative energy impacts, as summarized in **Table 3.7-15**. Cumulative impact thresholds for energy are the same as the impact thresholds presented in Section 3.7.3.8 ~~3.9.3.8~~, *Thresholds of Significance*.

Table 3.7-15. Summary of Project Impact Contribution to Cumulative Energy Impacts

Impact	Significant Cumulative Impact with FOCP?	Significant Cumulative Impact with other Projects?	Incremental Project Contribution	Applicable Project Mitigations	Cumulatively Considerable after Mitigation?
Cumulative Impact ENR-1: Result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources	No	Yes	CC	MM AQ-1 MM GHG-1	No
Cumulative Impact ENR-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency	No	No	NCC	MM AQ-1 MM GHG-1	No

Key: CC = cumulatively considerable; MM = Mitigation Measure; NCC = not cumulatively considerable

Cumulative Impact ENR-1: Result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources (Not Cumulatively Considerable)

Cumulative Effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; therefore, these two projects would not result in cumulative impacts related to energy usage. There would be no cumulative effect.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur within the County. Construction or operation of future projects, programs, and plans could overlap in time with the 8 ~~15~~-year construction schedule that Seismic Retrofit components and Conservation Measures construction would occur.

Cumulative development would increase consumption of energy resources. However, new iterations of the California Building Energy Efficiency Standards and CALGreen would require increasingly more energy efficient appliances and building materials that reduce energy consumption in new development. In addition, vehicle fuel efficiency is anticipated to continue improving through implementation of the existing Pavley Bill regulations under AB 1493. As indicated under Impact ENR-1, Project construction would have a less-than-significant impact with mitigation incorporated related to the wasteful, inefficient, or unnecessary consumption of energy, including non-renewable energy. Implementation of **Mitigation Measure AQ-1** will require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and will require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. Implementation of **Mitigation Measure GHG-1** will require use of zero emission construction equipment whenever feasible as well as renewable diesel fuel. Project operation would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Nevertheless, the combined increase in energy consumption from cumulative projects, when added to the Project's impacts could result in a significant cumulative impact related to the wasteful, inefficient, and unnecessary consumption of energy, including non-renewable energy, and the Project's contribution to this impact could be cumulatively considerable. However, **Mitigation Measures AQ-1** and **GHG-1** would reduce the Project's incremental impact so that it would be not cumulatively considerable after mitigation.

Significance Conclusion Summary

Valley Water would reduce Project construction's incremental contribution to cumulative impacts with regard to wasteful, inefficient, and unnecessary consumption of energy, including non-renewable energy, through implementation of **Mitigation Measures AQ-1** and **GHG-2**. Implementation of **Mitigation Measure AQ-1** will require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and will require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. Implementation of **Mitigation Measure GHG-1** will require use of zero emission construction equipment whenever feasible as well as renewable diesel fuel. With implementation of **Mitigation Measures AQ-1 and GHG-1,** Project construction would not result in the wasteful, inefficient, and unnecessary consumption of energy resources. Project operation would not result in the wasteful, inefficient, and unnecessary consumption of energy resources without mitigation. Nevertheless, the combined increase in energy consumption from cumulative projects would potentially result in a significant cumulative impact related to the wasteful, inefficient, and unnecessary consumption of energy, including non-renewable energy. The Project's contribution to this impact could be cumulatively considerable. However, **Mitigation Measure AQ-1** and **GHG-1** would reduce the Project's incremental impact so that it would be **not cumulatively considerable** after mitigation.

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

Cumulative Impact ENR-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency (Not Cumulatively Considerable)

Cumulative Effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; therefore, these two projects would not result in cumulative impacts related to GHG emissions. There would be no cumulative effect.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur within the County. Construction or operation of future projects, programs, and plans could overlap in time with the 8 ~~15~~-year construction schedule that Seismic Retrofit components and Conservation Measures construction would occur. Cumulative development construction and operation would increase use of energy, including non-renewable energy. However, future projects, programs, and plans throughout the county are required to adhere to applicable renewable energy and energy efficiency regulations, plans, programs, and policies such as California's RPS, the CARB 2022 Scoping Plan, SB 100, Title 24 (Parts 6 and d), and local county and city standards. As discussed under Impact ENR-2, Project construction would be consistent with the energy-related goals and policies of the Statewide plans and regulations with mitigation. Implementation of **Mitigation Measure AQ-1** will require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and will require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. Implementation of **Mitigation Measure GHG-1** will require use of zero emission construction equipment whenever feasible as well as renewable diesel fuel. Project operation would not conflict with the energy efficiency and renewable energy-related goals and policies of the Statewide plans and regulations. The Project would not contribute to a significant cumulative impact with respect to consistency with such renewable energy and energy efficiency plans. Therefore, the cumulative impact resulting from the Project in combination with other probable future projects would be cumulatively less than significant, and the Project's contribution would not be cumulatively considerable.

Significance Conclusion Summary

Valley Water would reduce Project construction's incremental contribution to cumulative impacts on consistency with renewable energy and energy efficiency plans through implementation of **Mitigation Measures AQ-1** and **GHG-1**. Implementation of **Mitigation Measure AQ-1** will require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and will require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. Implementation of **Mitigation Measure GHG-1** will require use of zero emission construction equipment whenever feasible as well as renewable diesel fuel. With implementation of **Mitigation Measures AQ-1** and **GHG-1,** Project construction would not conflict with any renewable energy and energy efficiency plans. Project operation would also not conflict with any renewable energy and energy efficiency plans. Therefore, the Project's contribution to cumulative impacts on consistency with renewable energy and energy efficiency plans is **not cumulatively considerable.**

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

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3.8 Geology and Soils

This section evaluates Project impacts on the study area that has been defined for geologic hazards and soils resources. The *CEQA Guidelines* significance criteria for geology and soils addresses impacts related to the rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure that includes liquefaction and lateral spreading, landslides, substantial soil erosion or loss of topsoil, unstable geologic units, expansive soils, and paleontological resources.

The study area that was defined to assess impacts related to geology and soils is limited to the Project Area that includes the construction limits of the Seismic Retrofit component and Conservation Measures components (**Figure 2-3** in Chapter 2, *Project Description*), and the total surface and subsurface area within which all Project activities would occur.

Existing conditions, including regional and Project Area geology, soils, geologic and seismic hazards, landslides and other slope instability hazards, and the potential for paleontological resources, are described below. More detailed paleontological resources information can also be found in Appendix P, *Paleontological Resources Impact Assessment*. ~~*for the Anderson Dam Retrofit Project,*~~ ~~and~~ ~~*Post-Paleontological Survey for the Anderson Dam Drawdown to Deadpool Project*~~

Note that the Project does not involve the installation of septic tanks or alternative wastewater disposal systems. Therefore, the capability for soils within the Project Area to support septic tanks or alternative wastewater systems is not discussed in this section.

3.8.1 Environmental Setting

3.8.1.1 Geology

Regional Geology

The Project is located on the southwestern flank of the Diablo Range on the southeastern margin of the Santa Clara Valley, a southward extension of the valley occupied by the San Francisco Bay (URS 2021a). The Santa Clara Valley and surrounding mountain ranges are located within the Coast Range Geomorphic Province of California, which extends from south of the Oregon border to the central coast of California (California Geological Survey [CGS] 2015). This geomorphic province is characterized by mountains that range in elevation from 2,000 to 4,000 feet above mean sea level and sometimes reach elevations as high as 6,000 feet (CGS 2015). The rocks of the Santa Cruz Mountains are being pulled north and west, away from the crustal block defining the Diablo Range on the east (Stoffer and Messina 2002). This northwest relative motion between the Santa Cruz Mountains and the Diablo Range is causing the intervening Santa Clara Valley to drop relative to the surrounding mountain ranges.

Geologic units in the Santa Clara Valley include large alluvial complexes, Cenozoic sedimentary sequences, and varying basement rocks. The basement rocks in the Santa Cruz Mountains, beneath the Santa Clara Valley, and in the Diablo Range, consist of the Franciscan Complex structurally overlain by the Coast Range Ophiolite and Mesozoic marine deposits of the Great Valley Sequence. The Santa Cruz Mountains, Santa Clara Valley, and Diablo Range have been divided into several distinct northwest-southeast trending fault-bounded blocks. Margins of the valley contain large alluvial fan gravel deposits including Miocene and Pliocene volcanics and Pleistocene gravels (Wentworth et al. 1999 ~~1998~~).

Anderson Reservoir and Coyote Creek are within the Coyote Block and the Silver Creek Block and fill the canyon drained by Coyote Creek. The rock units in the Coyote block consist of Jurassic Coast Range ophiolite and overlying Cretaceous and Tertiary strata. In the northernmost part of the block, the Tertiary sequence consists of Eocene mudstone, middle Miocene Claremont Formation, and middle to upper Miocene Briones Formation. In the east-central part of the block, in contrast, the sequence is composed of lower to middle Miocene Temblor sandstone overlain by Claremont Formation. The Coyote Block pinches out to the north where bedding steeply[1] converges with steeply west-dipping reverse faults. A large, northwest-trending, very steeply northeast-dipping linear ridge of silica-carbonate rock is present upstream of the right abutment and spillway. Steeply dipping stream and alluvial fan gravel deposits of the Miocene-Pliocene Silver Creek gravels occur in the eastern sections of the Project area (**Figure 3.8-1**) (Wentworth et al. 1999 ~~1998~~).

The Silver Creek Block is exposed, or visible at ground surface, northeast of the southern Santa Clara Valley. In the Silver Creek Block, Pliocene Silver Creek gravels are faulted between serpentinite and Franciscan mélange or have moved relative to each other as a result of tectonic forces. Structurally interleaved between the basement rocks are tightly folded Jurassic through Tertiary strata, including the Pliocene Silver Creek Gravels. The basement rocks were thrust over these strata along the Silver Creek thrust. In addition to its structural formation, the Silver Creek block contrasts with surrounding blocks in its Tertiary stratigraphy. The locally exposed Miocene rocks in the block are quite different from the Miocene sections in the adjacent Alum Rock, Coyote, and New Almaden blocks, being composed of mica-rich sandstone and 9.3-10.5 mega annum (Ma) andesite and basalt instead of fossiliferous quartz-lithic sandstone, siliceous shale, and polymictic conglomerate. The large volume of Pliocene volcanic rocks is also unique to the Silver Creek block (**Figure 3.8-1**) (Wentworth et al. 1999 ~~1998~~).

Prior to the construction of the Anderson Dam, Coyote Creek drained directly into the Santa Clara Valley, forming a broad alluvial fan. The Pleistocene-age Coyote Creek alluvial fan deposits consist of coarse sand and gravel with local accumulations of middle and late Pleistocene-age vertebrate fossils (Helley and Brabb 1971). The Holocene-age alluvial deposits consist of moderately well sorted fine sand and silt. Gravel beds became more abundant toward fan heads. The Holocene-age deposits locally contain aboriginal artifacts and skeletal remains (Helley and Brabb 1971).

Project Area Geology

Seismic Retrofit Project Area

The rocks underlying the majority of Anderson Dam have been described as Franciscan Complex rocks, including zones of serpentinite, mélange, graywacke sandstone, and local metavolcanics (greenstone, basalt). These rock types generally occur in distinct, northwest-trending zones, and are separated by faults. Specifically, the upstream end of the spillway and the upstream right abutment are underlain by sheared serpentinite. The central part of the embankment and

[1] *Dipping* refers to the angle at which sediments are tilted as a result of tectonic forces.

downstream spillway are underlain by graywacke sandstone and mélange with high shale content, and the southwestern part of the downstream left abutment and downstream end of unlined spillway chute are underlain by metavolcanic rocks and serpentinite (URS 2021a).

The Santa Clara Formation and younger sediments overlie the bedrock beneath and near the embankment and spillway. The Santa Clara Formation consists of poorly sorted conglomerate, sandstone, siltstone, and claystone formed by prehistoric streams (Iwamura 1995). The age of these deposits ranges from approximately 500,000 years to 4 million years (Pliocene to Pleistocene) (URS 2021a). The boundary between the underlying Franciscan Complex and the Santa Clara Formation is an unconformity representing a gap of millions of years in the geologic record. Younger (late Pleistocene to late Holocene) alluvial fans emanate from drainages in the Diablo Range and overlie Mesozoic rocks and Santa Clara Formation sediments along the range front (URS 2021a). The geology in the area surrounding Anderson Dam is shown on **Figure 3.8-2.**

Conservation Measures Project Area

As described above, Coyote Creek historically drained directly into the Santa Clara Valley, forming a broad alluvial fan. Thus, the area downstream of Anderson Dam along Coyote Creek in the vicinity of the Conservation Measure components consists of Holocene- and Pleistocene-age natural floodplain and alluvial fan deposits (refer to **Figure 3.8-2**)**.** The Santa Clara Formation and younger sediments are located in the vicinity of the Conservation Measures. Where younger sediments are exposed at ground surface, Santa Clara Formation is likely to underlie the younger sediments at unknown depth.

3.8.1.2 Soils

Soils are comprised of particles known as sand, silt, and clay with variable amounts of organic matter. Soil types provide site-specific information, such as erosion and runoff potential, and various behaviors that effect structures, such as expansion and settlement. Soils that are primarily sandy are porous and are less stable and more susceptible to seismic hazards, such as liquefaction and erosion. Soils that are primarily clay are close-textured but can be expansive, and susceptible to shrinking and swelling. Finally, soils overlaying steep slopes or soft alluvial geologic units are more susceptible to instability, such as landslides.

Seismic Retrofit Project Area

Native and artificial soils (excluding modern lake sediment) at the Anderson Dam site, particularly in the valley bottom and lower slopes, are generally derived from coarse-grained alluvial deposits or formations (URS 2022). The principal soil types found in the vicinity of the Seismic Retrofit area, based on the Natural Resources Conservation Service (NRCS) soil survey for the eastern Santa Clara area, are characterized by the presence of the following soil units: Altamont clay, Garretson loam, Gilroy clay loam, Hillgate silt loam, Inks stony clay loam, Keefers clay loam, and Montara rocky clay loam (NRCS 2019) (**Figure 3.8-3**). These soil units are classified as being well drained, with bedrock occurring 10 to 36 inches below the surface. The parent material for these soils is residuum from weathered greenstone, basalt, and sandstone formations.

Soils derived from weathered bedrock (i.e., Franciscan Complex, Santa Clara formation) generally have higher amounts of fine-grained material (silt and clay) but are not known to contain clay properties associated with shrink/swell behavior. Review of available online NRCS soil mapping data (URS 2022) for the area around the dam and downstream indicates that the soils outside of the recent Coyote Creek channel, where the alluvium is granular and non-plastic,[2] have plasticity index[3] ranging from about 5 to 25, with most of the soils between 10 and 20, and are therefore not classified as expansive soils (URS 2022). NRCS maps describe the area around the dam and just downstream as having soils with low or moderate shrink/swell qualities (NRCS 2021 ~~2022~~). ~~Additionally, all of the Seismic Retrofit components would be constructed on bedrock foundations or on compacted fill materials that do not exhibit shrink/swell behavior (URS 2022).~~

Undisturbed soil is not found on the dam faces; fill material to create the dam was taken from nearby quarries (Valley Water 2012).

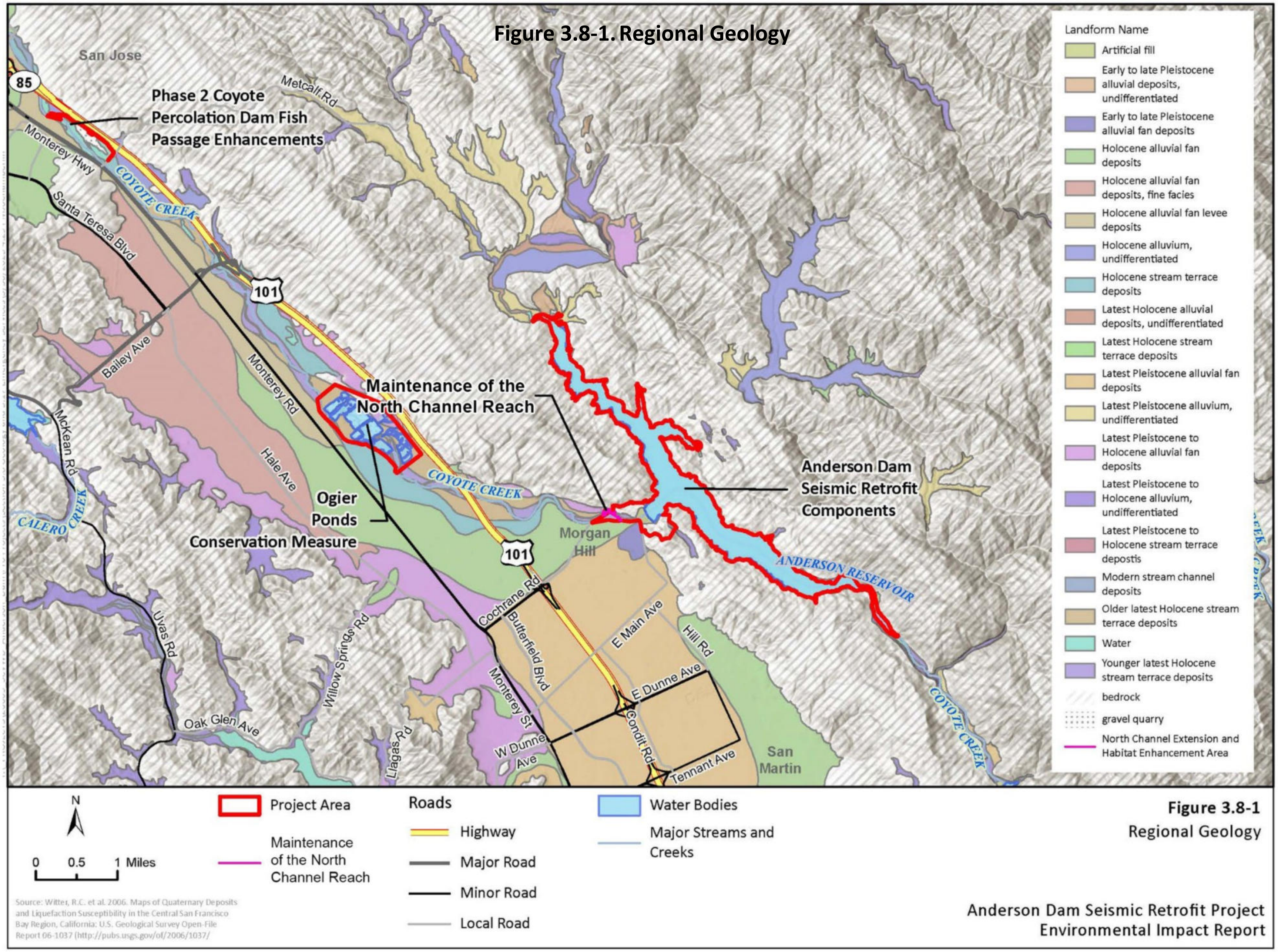
Conservation Measures Project Area

Soils found along Coyote Creek in the vicinity of the Conservation Measures components are typical of those found near water features within historical floodplains. The units are listed below (NRCS 2019). All soils within the conservation measures area have low to moderate expansiveness (NRCS 2021 ~~2022~~).

- Soils in the North Channel Reach ~~Extension~~, Live Oak Restoration Reach, and the Sediment Augmentation and Cold Water Management Zone consist of the Cortina very gravelly loam, Garretson loam, and river wash.
- Soils in the vicinity of Ogier Ponds CM consist primarily of gravelly loams and clay, including Cortina very gravelly loam, river wash, Garretson loam, Yolo silty clay loam, and Hillgate silt loam.
- Soils near the Phase 2 Coyote Percolation Dam CM consist of the Canine creek complex sandy loam and the Cropley clay.

[2] Plastic soils are generally more predominantly of clay and thus are more expansive than non-plastic soils.
[3] Soils with a low plasticity index from 0 to 20 generally are considered to have low expansion potential, whereas soils with a plasticity index over 35 are considered to have high expansion potential (EDT 2018).

Figure 3.8-1. Regional Geology



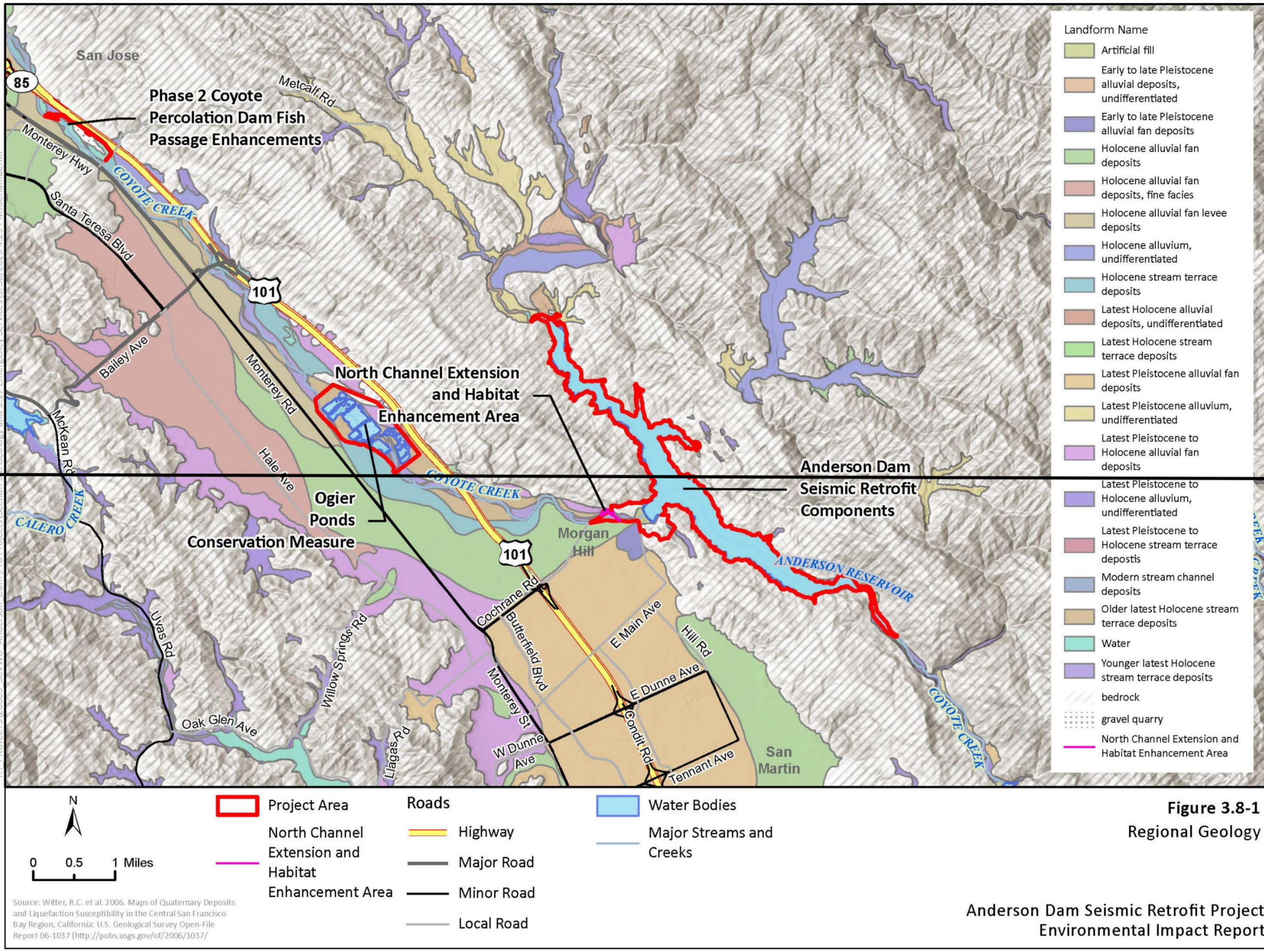


Figure 3.8-1
Regional Geology

Figure 3.8-2. Project Area Geology

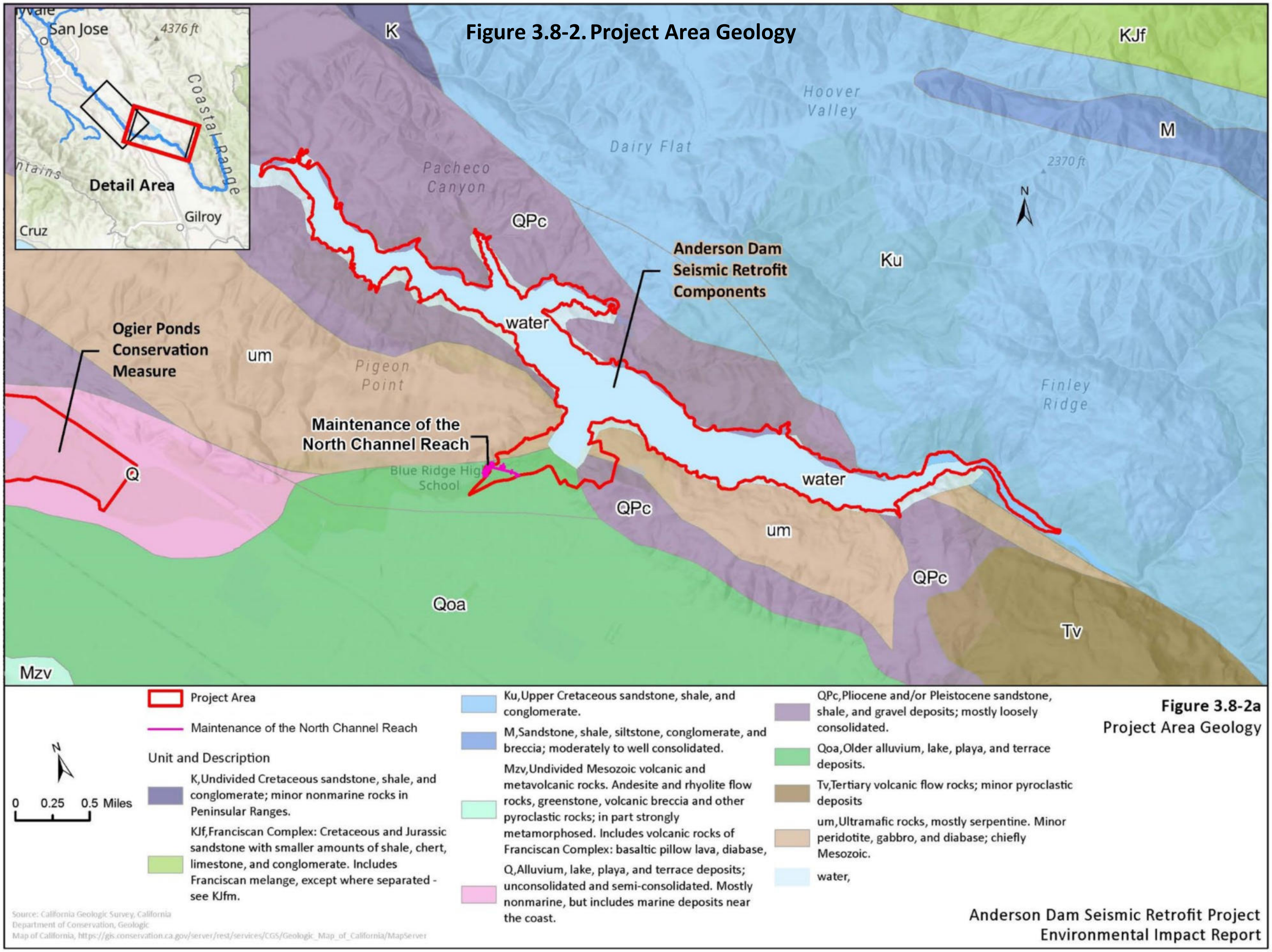


Figure 3.8-2a
Project Area Geology

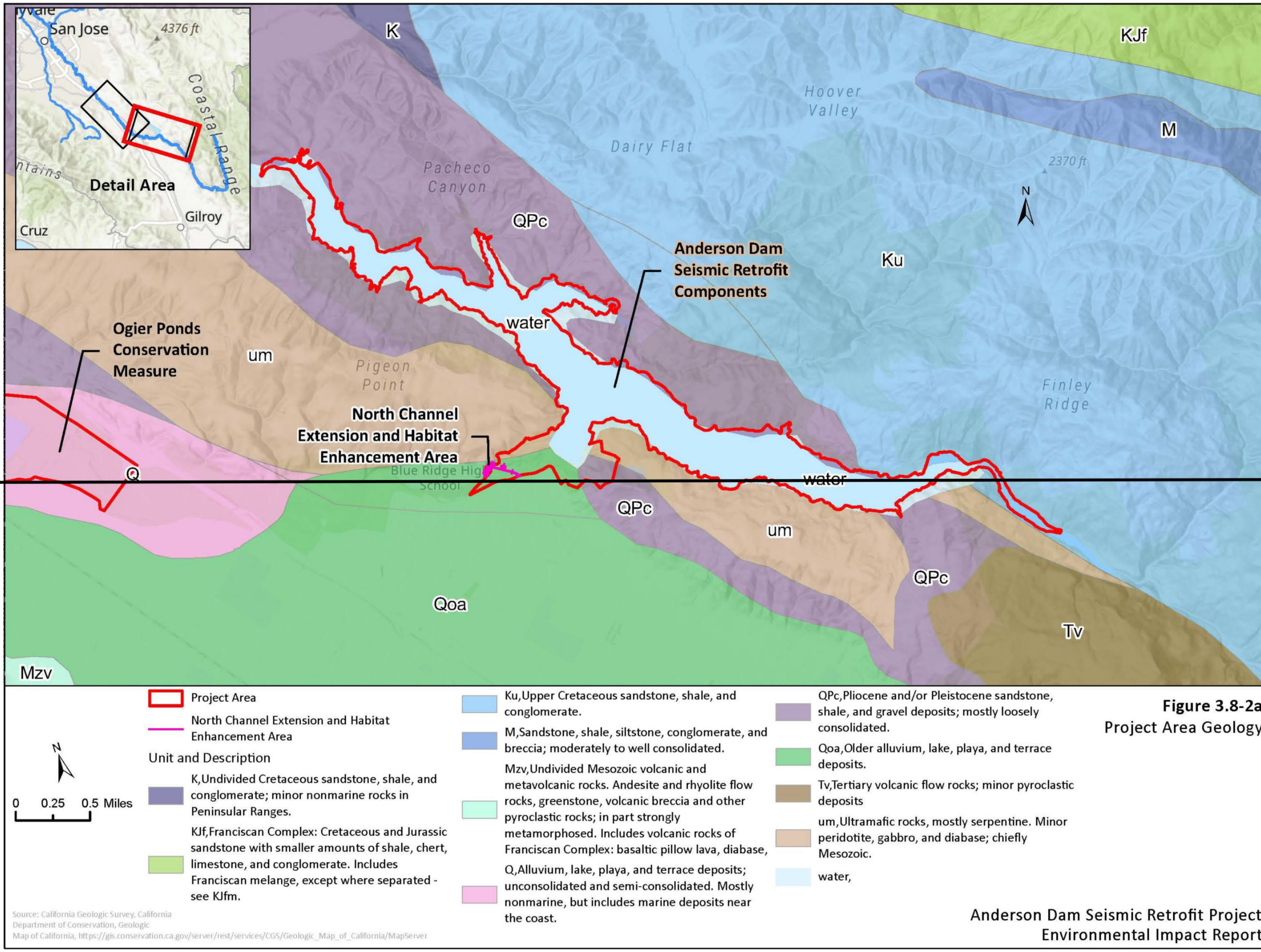


Figure 3.8-2a
Project Area Geology

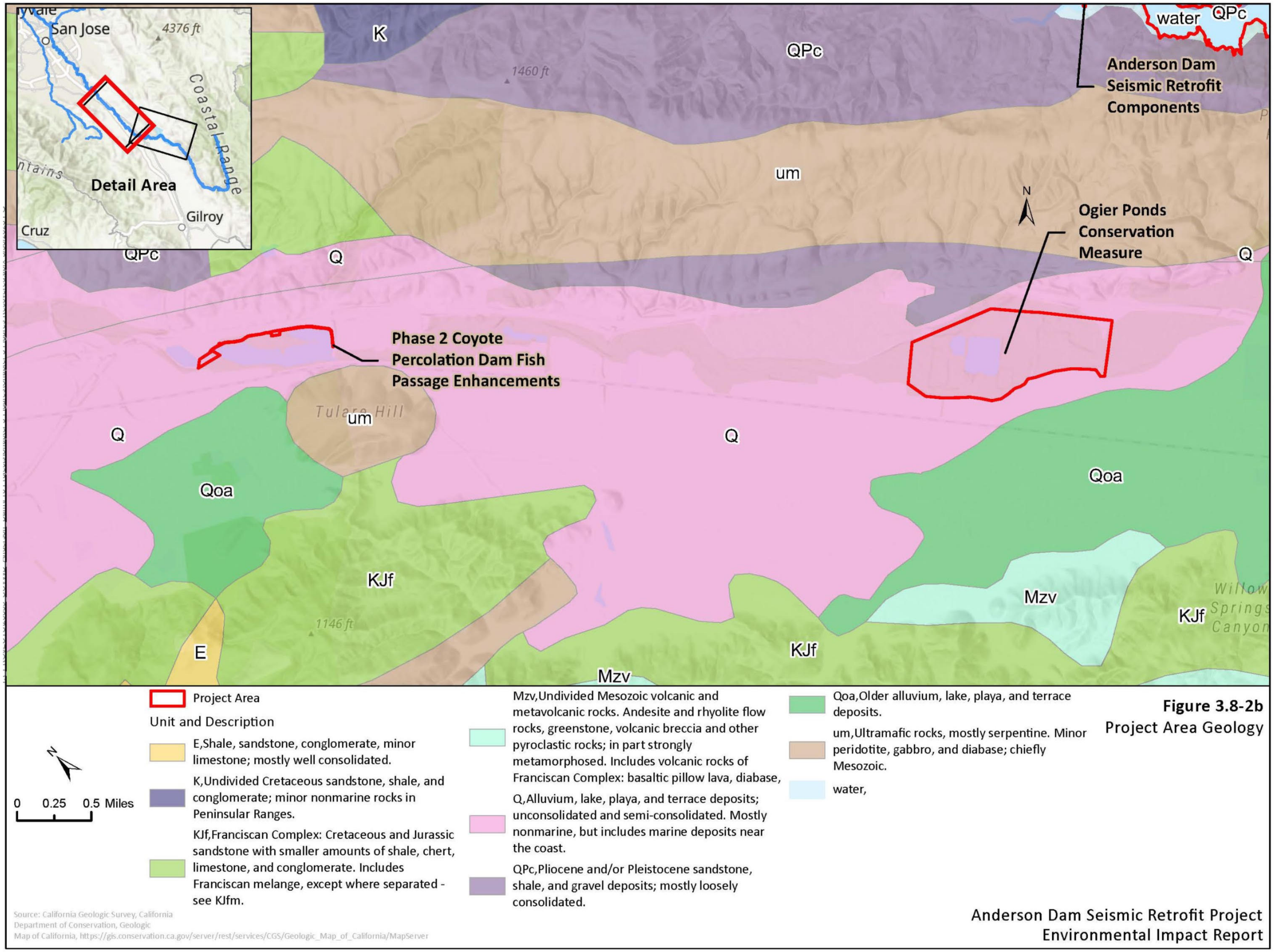
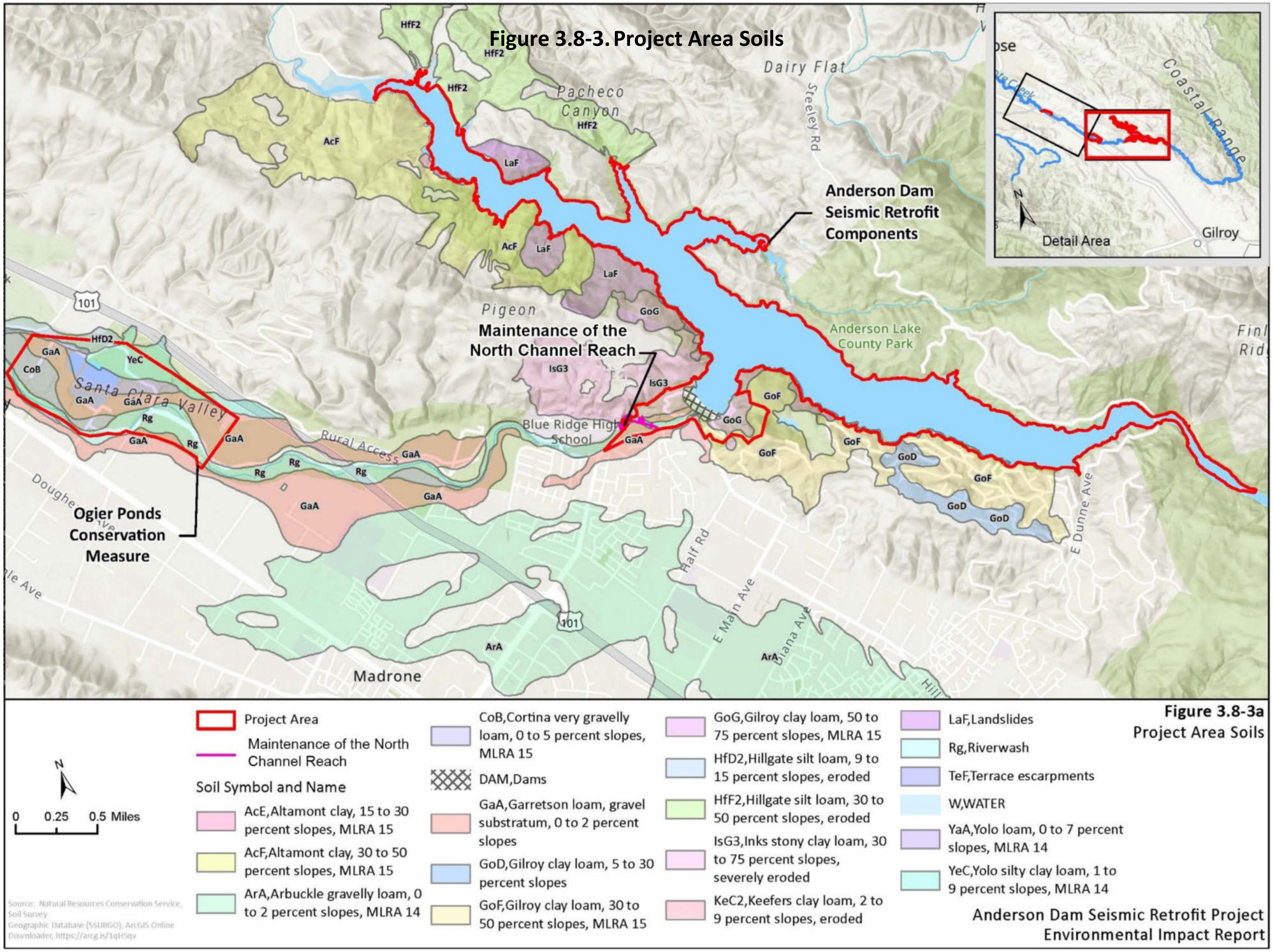


Figure 3.8-2b
Project Area Geology

Figure 3.8-3. Project Area Soils



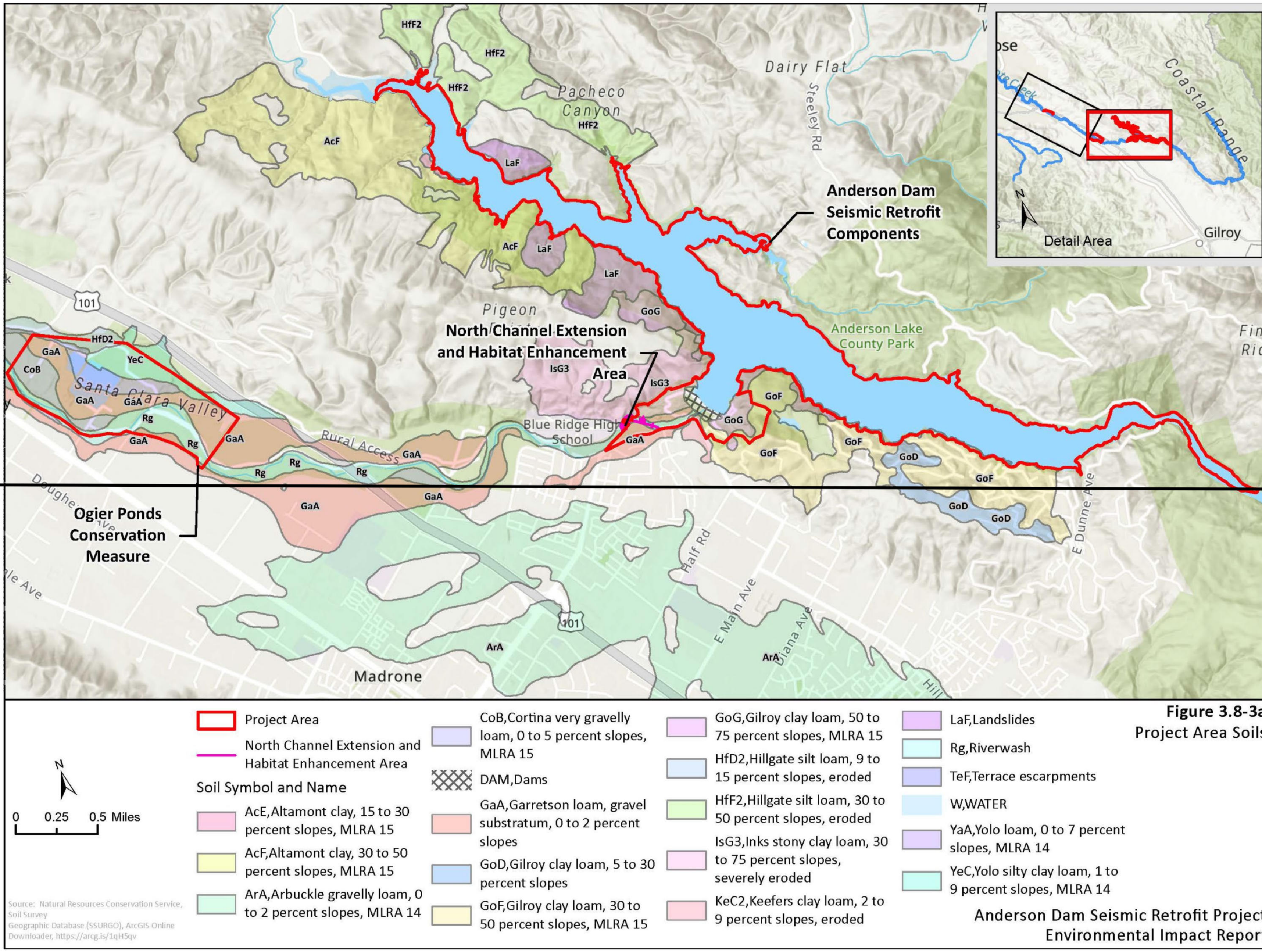


Figure 3.8-3a
Project Area Soils

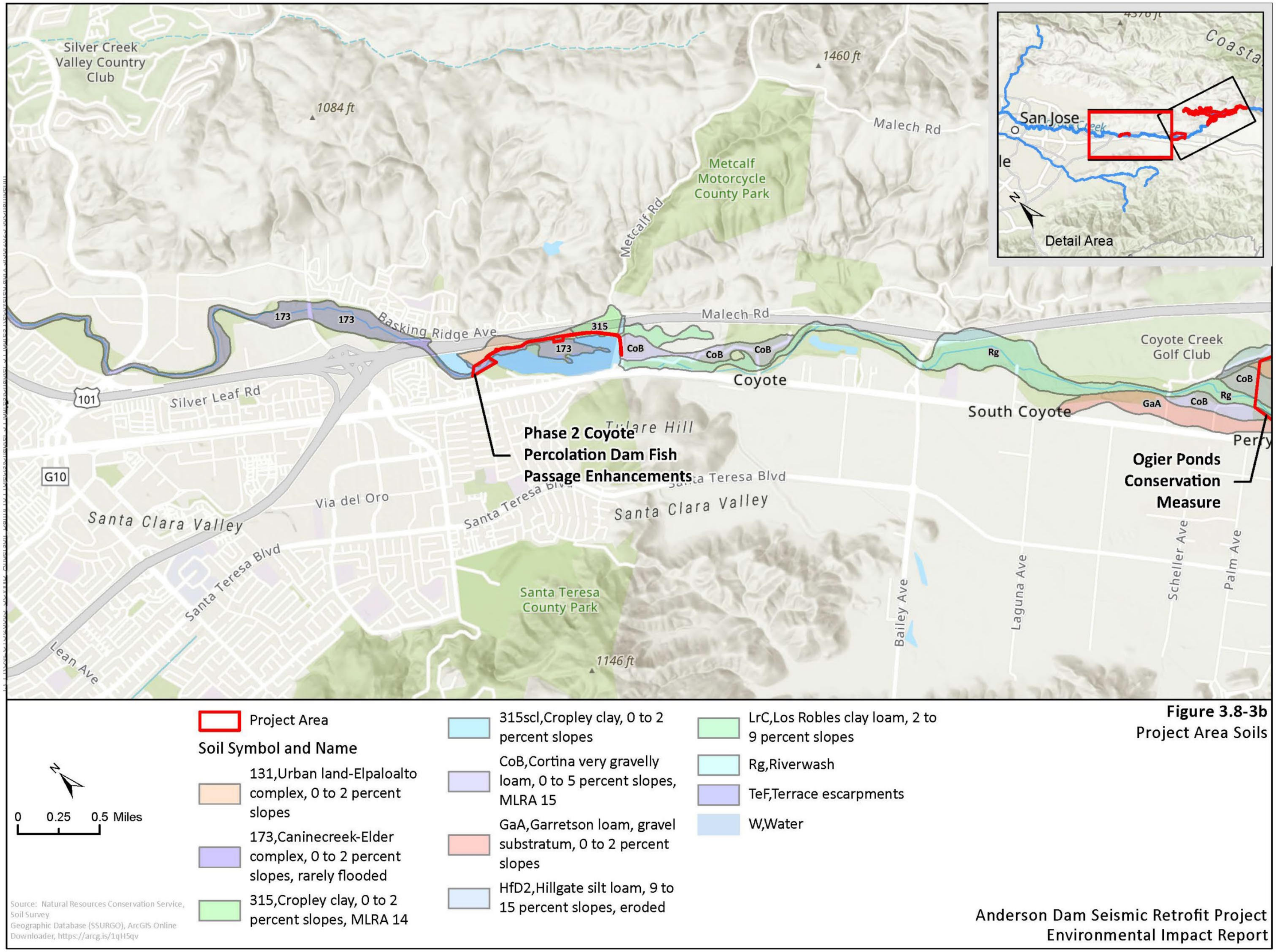


Figure 3.8-3b
Project Area Soils

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3.8.1.3 Geologic and Seismic Hazards

Seismic activity in California is concentrated in tectonically active regions, such as the Coast Ranges, the Sierra Nevada Range, and the Cascades Range. There are thousands of mapped faults in the Coast Ranges, including dozens in the county and at least four in the vicinity of the Project area (CDOC 2015). The Santa Clara Valley is part of the San Andreas fault system, which comprises a complex system of primarily northwest-trending, right lateral, strike-slip faults that include the San Andreas, Hayward, and Calaveras faults. Smaller faults in the Project area are potentially connected to these larger faults; specifically, the Coyote Creek Range Front fault could be linked to the Calaveras fault (URS 2021b).

In accordance with the Alquist-Priolo Earthquake Fault Zoning Act of 1972, only faults with evidence of historic or Holocene surface fault rupture are considered active (or Holocene-active) earthquake faults. A fault whose recency of past movement is older than 11,700 years is a pre-Holocene fault. Under DSOD fault categorization, an active fault is one that has ruptured within the last 35,000 years, and a conditionally active fault is one that has ruptured in the Quaternary, but its displacement history during the last 35,000 years is unknown. Some faults in the Project area are active, whether based on the DSOD or the CGS Alquist-Priolo method of classification (see 3.8.2, *Regulatory Setting*, below). **Table 3.8-1** shows the fault names, whether they are considered active under CGS and DSOD, distance and direction from the Project area, and the estimated maximum moment magnitude.

Table 3.8-1. Faults in the Project Area

Fault	CGS (DSOD) Active[a,b]	Distance from Project Area	Direction from Project Area	Maximum Moment Magnitude (Mw)
Coyote Creek Range Front	Undifferentiated Quaternary (conditionally active)	Intersects	Intersects	6.6
Calaveras	Historic (active)	Intersects	Intersects	6.8
Sargent-Berrocal	Historic (active)	10.0	West	6.8
San Andreas	Historic (active)	10.7	West	7.9
Monte-Vista/Shannon	Late Quaternary (conditionally active)	14.7	Northwest	6.8
Hayward	Historic (active)	15.9	Northwest	7.1
San Gregorio	Historic (active)	42.6	West	7.3

Sources: Table 3.8-1USGS 2021~~a~~, URS 2021b, Peterson et al. 1996, DSOD 2018, CGS 2010

Notes:

CGS classifies faults on the basis of surface fault rupture hazard, as follows:

Historic faults that have shown movement within the past 250 years

Holocene faults that have shown movement in the past 11,700 years

Late Quaternary faults that have shown movement between 11,700 and 1.6 million years

Undifferentiated Quaternary faults that have shown movement at an unspecified time during the Quaternary

B DSOD classifies faults on the basis of seismic hazard, as follows:

Active fault – A fault having ruptured within the last 35,000 years

Conditionally active fault – A fault having ruptured in the Quaternary, but its displacement history during the last 35,000 years is unknown.

Inactive fault – Fault inactivity is demonstrated by a fault trace that is consistently overlain by unbroken geologic material older than 35,000 years. A fault that has no indication of Quaternary activity is presumed to be inactive, except in regions of sparse Quaternary cover.

Key: CGS = California Geological Survey; DSOD = Division of Safety of Dams; MW = megawatt

Other faults within the Santa Clara Valley include the Silver Creek fault, the San José fault, the Monte Vista-Shannon fault zone, the Sargent-Berrocal fault, and Calero fault located west of the Project area; Arroyo Aguague fault located to the north; and the Hayward fault zone located to the northwest. In addition, the San Andreas fault zone traverses the Santa Cruz Mountains west of the Santa Clara Valley, and the San Gregorio fault lies west of the San Andreas fault zone. While the Project could experience the effects of movement along any of these faults, due to their location there is no possibility that Project activities could change the risk of tectonic movement and seismic effects. Therefore, these faults are not discussed further.

As described in Chapter 2, *Project Description*, and shown in **Figure 3.8-4**, Anderson Reservoir sits on the Coyote Creek Range fault system. Anderson Dam is located between two faults associated with the Coyote Creek Range fault system; the Coyote Creek Range fault, which passes through the dam and extends to the northwest along Coyote Creek, and the Front Range fault, which extends southeast of the dam (URS 2021b). For purposes of this section and as shown in **Figure 3.8-4**, the Coyote Creek Range fault system is also referred to as the Coyote Creek Front Range fault or Coyote Creek Range fault zone. The Coyote Creek Range fault system and other nearby faults are capable of producing fault offsets on the earthquake-producing fault during a large earthquake that could result in as much as 4 feet of sharp, discrete offset along any of the fault traces (Valley Water 2012). The MCE[4] for the Coyote Creek Front Range fault was identified to be a 6.6-magnitude (M), reverse-oblique event occurring at the dam site which would generate a peak ground acceleration (PGA)[5] of 1.14g[6] at the site (URS 2021b). This PGA equates to extremely intense ground shaking, as shown in **Table 3.8-2**, which presents approximate earthquake magnitudes and average peak accelerations associated with each intensity value.

The Calaveras fault is located approximately 1-mile east of Anderson Dam and traverses across the southeastern leg of the reservoir. The MCE for the Calaveras fault was identified to be a 7.25M, strike-slip event occurring 1.2 miles from the dam site which would generate a PGA of 0.85g at the site (URS 2021b). There is an approximately 16 percent probability that an earthquake with a magnitude greater than 6.7 will occur on the Calaveras fault within the next 30 years (USGS et al. 2015). It is likely that the Coyote Creek Front Range fault and Central Calaveras fault may merge south of the dam at depth and thus are not considered independent seismic sources; movement along the Central Calaveras fault could therefore cause movement along the Coyote Creek Front Range fault (URS 2021b).

[4] MCE refers to the maximum credible earthquake that could occur along a recognized fault under the tectonic framework.

[5] PGA refers to peak ground acceleration of seismically induced ground shaking. It measures the relationship between local ground movement based on earthquake magnitude and the distance of the location where PGA is calculated from the earthquake epicenter.

[6] "g" is gravity at 9.80 meters per second squared, a measure of the estimated acceleration of ground movement.

Seismic Retrofit Project Area

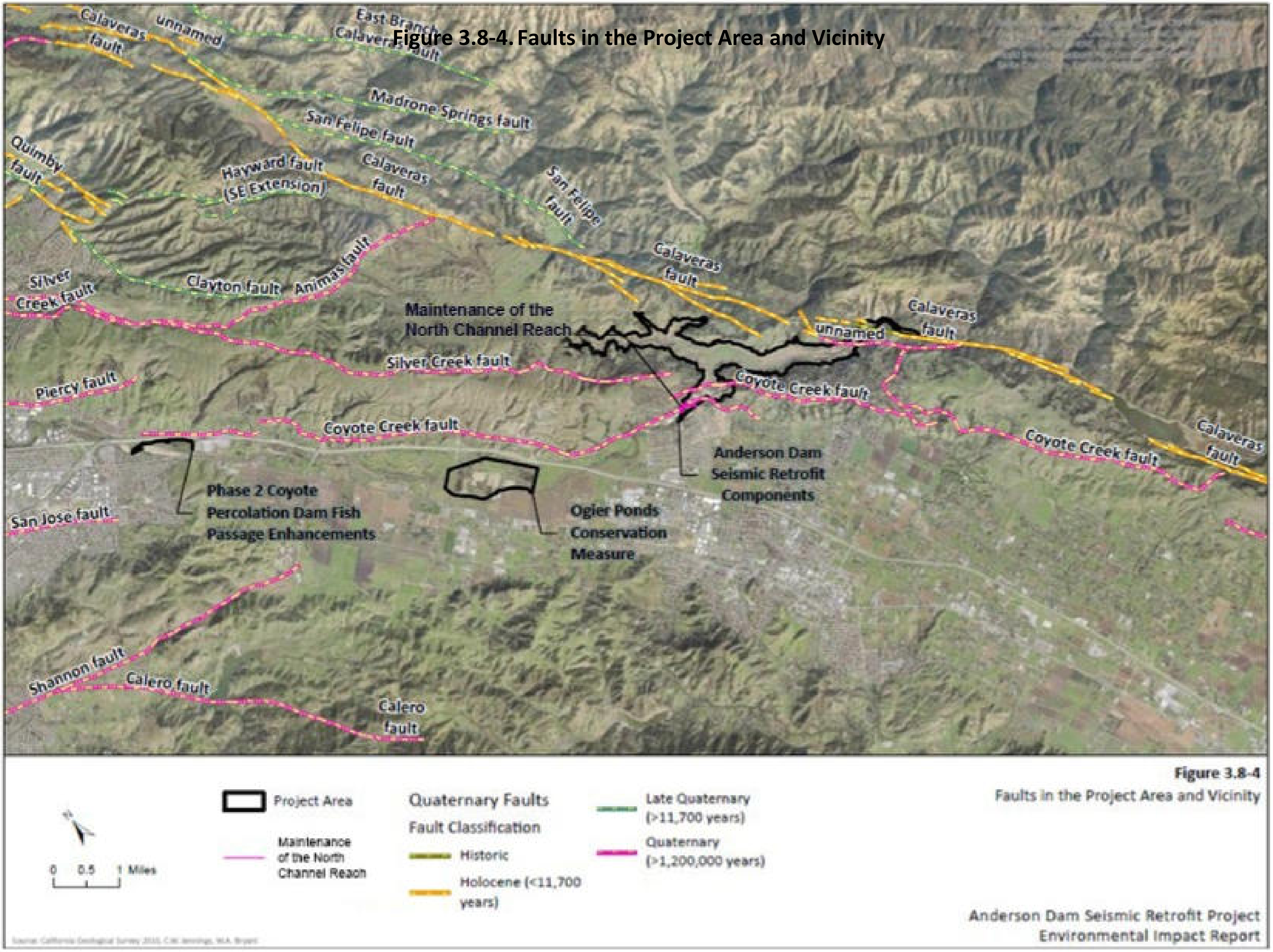
Because the dam is located within a highly active seismic area, dam embankment failure, deformation of the dam, cracking of the dam core and pipe failure, and damage to the existing outlet works and spillway may result either from surface fault rupture or strong ground shaking if a large earthquake occurs on either the Calaveras or Coyote Creek faults. Damage could include dam failure and subsequent downstream flooding. FERC requirements necessitate that the dam be seismically retrofitted to withstand fault rupture and that the spillway be modified to safely pass flood flows. Section 2.3 in Chapter 2, *Project Description*, describes the purpose and objectives of the Project to meet the FERC seismic safety requirements, as well as DSOD and Valley Water public safety requirements.

In addition, movement along the Coyote Creek Range fault or Calaveras fault could cause a seiche, similar to a tsunami but in a confined inland waterbody such as a lake or reservoir.

Conservation Measures Project Area

Downstream of Anderson Dam, the Coyote Creek Range fault zone parallels Coyote Creek. The Coyote Creek Range fault zone is located approximately 0.25- to 0.75-miles east of Coyote Creek near all of the CM components, respectively. Thus, the area downstream of Anderson Dam in the vicinity of the Conservation Measures is also susceptible to fault rupture and strong seismic ground shaking, which could damage any of the CM components and could adversely affect the flood control capacity and/or reduce the ability of fish to move upstream and populate habitat.

Figure 3.8-4. Faults in the Project Area and Vicinity



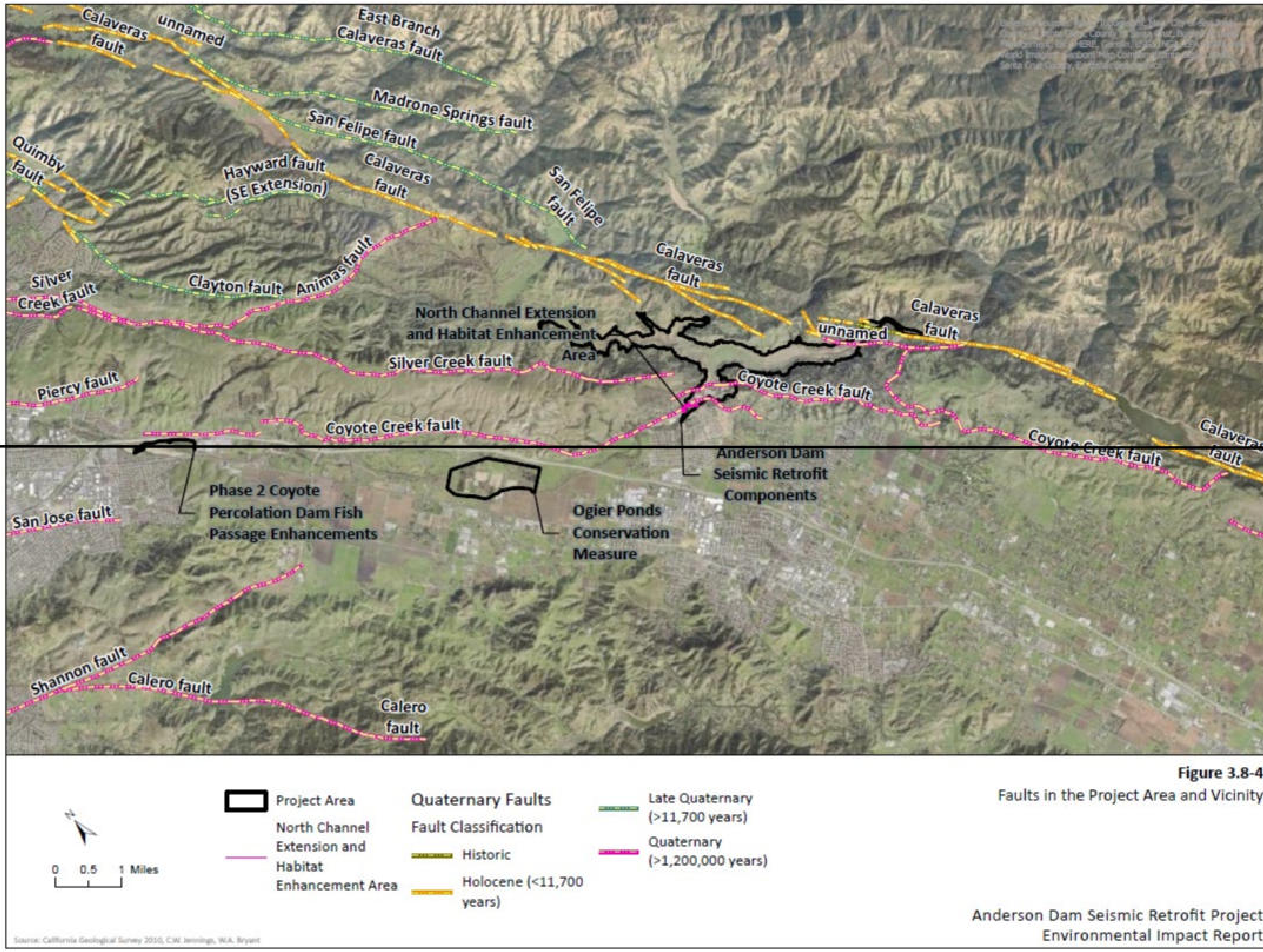


Figure 3.8-4
Faults in the Project Area and Vicinity

Table 3.8-2. Modified Mercalli Scale for Earthquake Intensity

Intensity Value	Intensity Description	Approximate Earthquake Magnitude (Richter)	Average Peak Acceleration
I	Not felt except by a very few persons under especially favorable circumstances	1.0–3.0	< 0.015g
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.	3.0-3.9	
III	Felt noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly, vibration similar to a passing truck.		
IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make creaking sound. Sensation like heavy truck striking building. Standing automobiles rock noticeably.	4.0-4.9	0.015g-0.02g
V	Felt by nearly everyone, many awakened. Some dishes and windows broken; cracked plaster in a few places; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.		0.03g-0.04g
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster and damaged chimneys. Damage slight.	5.0-5.9	0.06g-0.07g
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving cars.		0.10g-0.15g
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stack, columns, monuments, and walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Temporary or permanent changes in well water levels. Persons driving cars disturbed.	6.0-6.9	0.25g-0.30g
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	7.0 and higher	0.50g-0.55g

Intensity Value	Intensity Description	Approximate Earthquake Magnitude (Richter)	Average Peak Acceleration
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed, slopped over banks.		0.60g-0.80g
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.		0.80g-0.90g
XII	Damage total. Waves seen on ground surface. Lines of sight and level distorted. Objects thrown into the air.		>0.90g

Source: Bolt 1993.

Key: g = gravity at 9.80 meters per second squared

3.8.1.4 Landslides and Other Slope Stability Hazards

Landslides

Slope failure and landslides occur when the downhill-driving forces of the native material, principally under the influence of gravity, exceed the resisting forces of the material. The forces triggering landslides can be increased by adding to the weight of the soil or rock mass through saturation during periods of high rainfall or by loading with fill, while forces resisting landslide can be reduced by erosion or grading at the toe of a slope or landslide mass. Zones with low resistance to landslides are often associated with the presence of expansive clay soils and weak bedrock units or structural features susceptible to failure, such as faulted geologic units. Both increasing landslide triggers and decreasing landslide resistance can increase incidence of landslide. Landslides can also be induced by ground shaking from earthquakes and may take several forms, including soil creep, earthflow, slump, debris slide, debris flow, and rockfall.

Seismic Retrofit Project Area

Anderson Dam is located in a mountainous area with steep slopes that are designated as having landslide risk and exhibit landslide activity (**Figure 3.8-5**) (URS 2021c). Landslide hazards are prevalent in mountainous and foothill areas in the Seismic Retrofit vicinity where there are occurrences of unconsolidated alluvium. The California landslide inventory depicts numerous landslides surrounding Anderson Dam and the Anderson Reservoir (CDOC and CGS 2021). In addition, areas along both sides of Anderson Reservoir are within earthquake-induced landslide zones (CGS 2004). Landslide mapping of the reservoir area has been performed by multiple parties over time (Scott 1976, Coyle 1988, Meehan 1988, Wahler 1988, AMEC Geomatrix, Inc. [AMEC] 2009). Landslides have been ongoing in and around Anderson Dam for a long period of time and existed prior to development of the dam in the 1950s (URS 2021c). Weak ground due to faults and historic landslides have made the area susceptible to movement when water is present.

There are multiple existing landslides along the reservoir rim (URS 2021c). Studies of the landslides have described them as being relatively shallow failures with moderate thicknesses of approximately 30 feet, meaning that the soil that moves in these landslides is up to 30 feet deep. These landslides are considered marginally stable and sensitive to fluctuation in groundwater, heavy rainfall, and reservoir fluctuations.

Five major landslides exist along the southern portion of the dam: two on the west side, the Boat Marina Landslide the Hoot Owl Way Landslide, and three on the east side, the East Dunne Landslides (consisting of the East Dunne Avenue Landslide, Northern East Dunne Landslide, and the Woodchopper Landslide) (**Figure 3.8-5**) (URS 2021c). These landslides have a history of movement during previous drawdowns of the reservoir. In the 1986 to 1988 drawdown, movements of up to 1 to 2 feet were observed at the Boat Marina Landslide, with only a small amount near the headscarp. Movements of 1 to 5 vertical feet and 6 to 10 horizontal feet were observed at the Hoot Owl Way Landslide. Little movement was reported near the scarp, although 6- to 12-inch scarps and slumps have been observed since that drawdown. Movements of 18 feet were observed on the East Dunne Avenue Landslide. Movements of up to 1 foot occurred on the Woodchopper Landslide at the headscarp. No movement was recorded at the Northern East Dunne Landslide, although, based on aerial imagery, movement of this landslide has occurred in the past. The Hoot Owl Way Landslide is located immediately below numerous private properties, and the three landslides along East Dunne Avenue all intersect East Dunne Avenue. These landslides, therefore, present risk to existing structures and infrastructure. While these are active landslides, the FOCP included the acquisition and demolition of the identified residences along Hoot Owl Way, and the stabilization of the Boat Marina Landslide (CDFW 2021 ~~2020~~). Stabilization techniques include excavation and re-compaction of disturbed soils, slope grading, and installation of soil nails. Accordingly, it is not expected to move as a result of future disturbance.

In addition, a landslide is present in the left abutment of Anderson Dam near the existing intake structure. This landslide is expected to continue to move periodically; however, it does not pose a risk to the intake structure (URS 2021c). Furthermore, a landslide within the Packwood Gravels Borrow Pit area has been observed (URS 2021d ~~2023~~). The landslide is located in unstable and hummocky terrain,[7] and the area is normally covered by the reservoir. A review of historical photographs indicates that the landslide was not present during original dam construction but was present when the reservoir was drawn down in 1960. Other smaller landslides have been either removed or are not located nearby the existing intake structure (URS 2021c). Other than the Boat Marina Landslide, which has been stabilized, all of these landslides could be activated in the future by heavy precipitation; reservoir fluctuations, including drawdown and refilling; and disturbances to the landslide toe such as construction.

Conservation Measures Project Area

No steep slopes are located within the downstream portion of Coyote Creek near any of the proposed CM components. In addition, this portion of Coyote Creek is not located within an area identified as susceptible to landslides (CGS 2003, 2004) (refer to **Figure 3.8-5**). However, the one CM at the North Channel Reach ~~Extension~~ is located in an area of landslide susceptibility (CGS 2004) (**Figure 3.8-5**).

Liquefaction and Lateral Spreading

Liquefaction is the temporary transformation of saturated and very low cohesion or cohesionless soils into a vicious liquid as a result of ground shaking. Liquefaction may occur in water-saturated sediment during ground shaking caused by moderate to large earthquakes. Liquefied sediment loses strength and may fail, causing damage to any load-bearing features that are located on the liquefiable sediments. The susceptibility of an area to liquefaction is determined largely by its depth to groundwater and the properties of the soil and sediment within and above the groundwater. The sediments most susceptible to liquefaction are saturated, unconsolidated sand and silt within 50 feet of the ground surface.

Of the liquefaction hazards, lateral spreading generally causes the most damage. Lateral spreading is a phenomenon in which large blocks of intact, non-liquefied soil moves downslope on a liquefied substrate of large areal extent. The mass moves toward an unconfined area, such as a descending slope or stream-cut bluff and can occur on slope gradients as gentle as one degree. Drainages and swales between hill slopes are generally filled by unconsolidated

[7] The presence of hummocky terrain can imply landslide movement (URS 2021d ~~2023~~).

alluvium, colluvium, landslide debris, and slope wash, which readily move once an activating event, such as liquefaction, occurs.

There are two aquifers in the southern county: a shallow aquifer and a principal or deep aquifer. Depth to the shallow groundwater table can be as shallow as 5 feet below ground surface (bgs) in the southern county (Valley Water 2010). While depth to groundwater varies seasonally and between years, the shallow aquifer is expected to be relatively close to ground surface. Presence of shallow groundwater would affect likelihood of liquefaction and lateral spreading as well as lateral earth pressure in the Seismic Retrofit area.

Seismic Retrofit Project Area

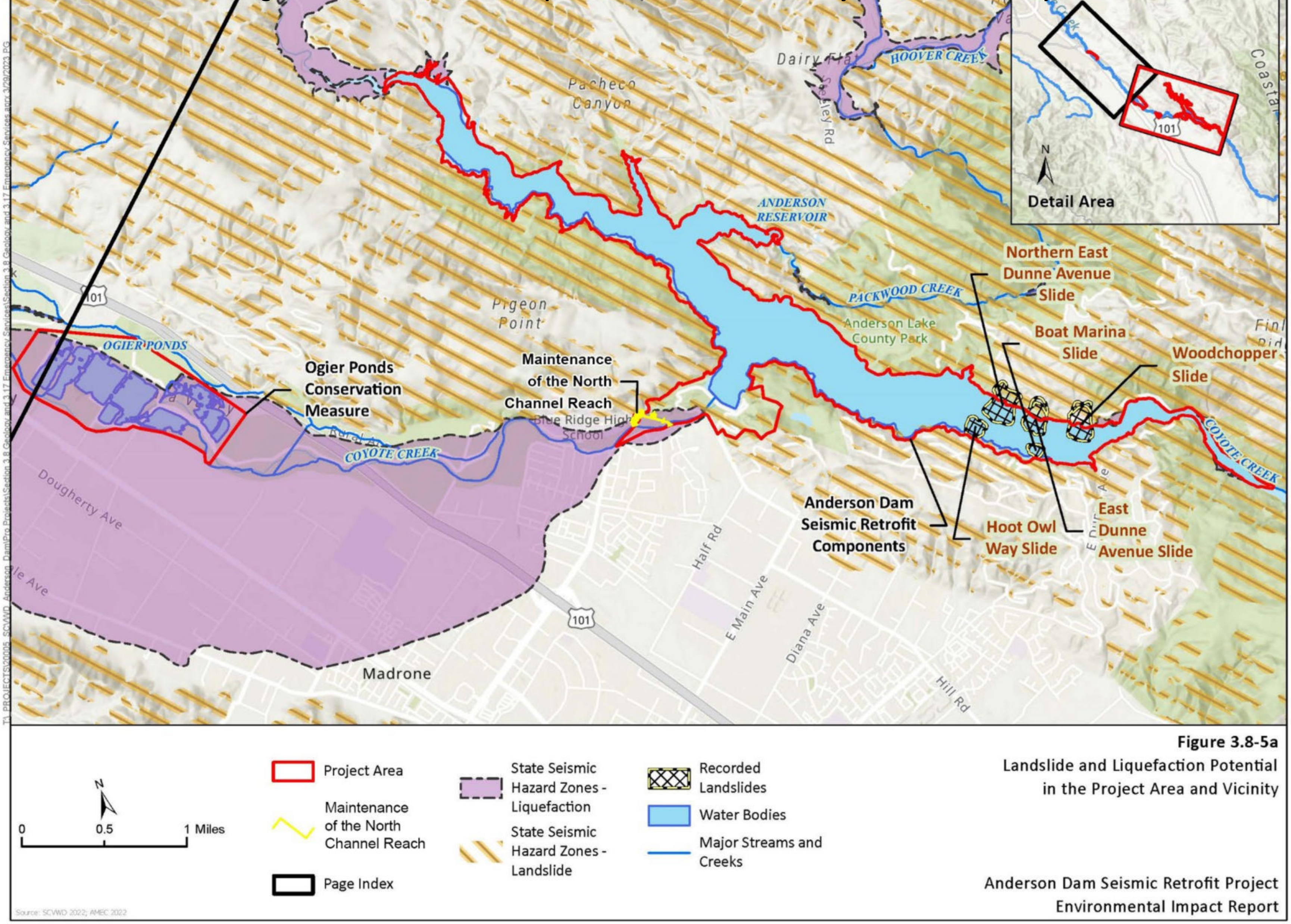
Liquefiable soil layers of the dam embankment (specifically within the lower finer fill) and alluvium exist beneath both the upstream and downstream slopes of the dam embankment. Because the embankment consists of materials which place a load on underlying sediments, strong seismic ground shaking could result in movement of Project features and materials placed on liquefiable sediments. Any such movement could make the dam unstable following a large earthquake (AMEC 2011, URS 2021a) (**Figure 3.8-5**). Thus, during very strong earthquake shaking, major slumping and cracking of the dam could occur. Subsequently, this could lead to a failure of the dam by either overtopping or piping through large cracks, resulting in an uncontrolled release of reservoir water. Conditions favorable to lateral spreading may be present around the rim of Anderson Reservoir.

Conservation Measures Project Area

The area downstream of the dam along Coyote Creek and in the vicinity of all of the CM components is located in liquefaction seismic hazard zones according to CGS (2015) (refer to **Figure 3.8-5**). All of the CM components are located within areas at risk to liquefaction due to water-saturated sediment. Any Project load-bearing features placed in this area on liquefiable sediments could trigger soil displacement during strong seismic ground shaking. Where no load-bearing features are placed on liquefiable sediments, there is no risk of increasing risk of liquefaction during ground shaking.

Liquefiable soils are located along Coyote Creek in the vicinity of all of the CM components (CGS 2004, 2006; County n.d.), including Ogier Ponds and the Phase 2 Coyote Percolation Dam. These areas are generally flat, but because of the presence of stream banks, lateral spreading could occur if seismic ground shaking causes liquefaction in this area.

Figure 3.8-5. Landslides and Liquefaction Potential in the Project Area and Vicinity



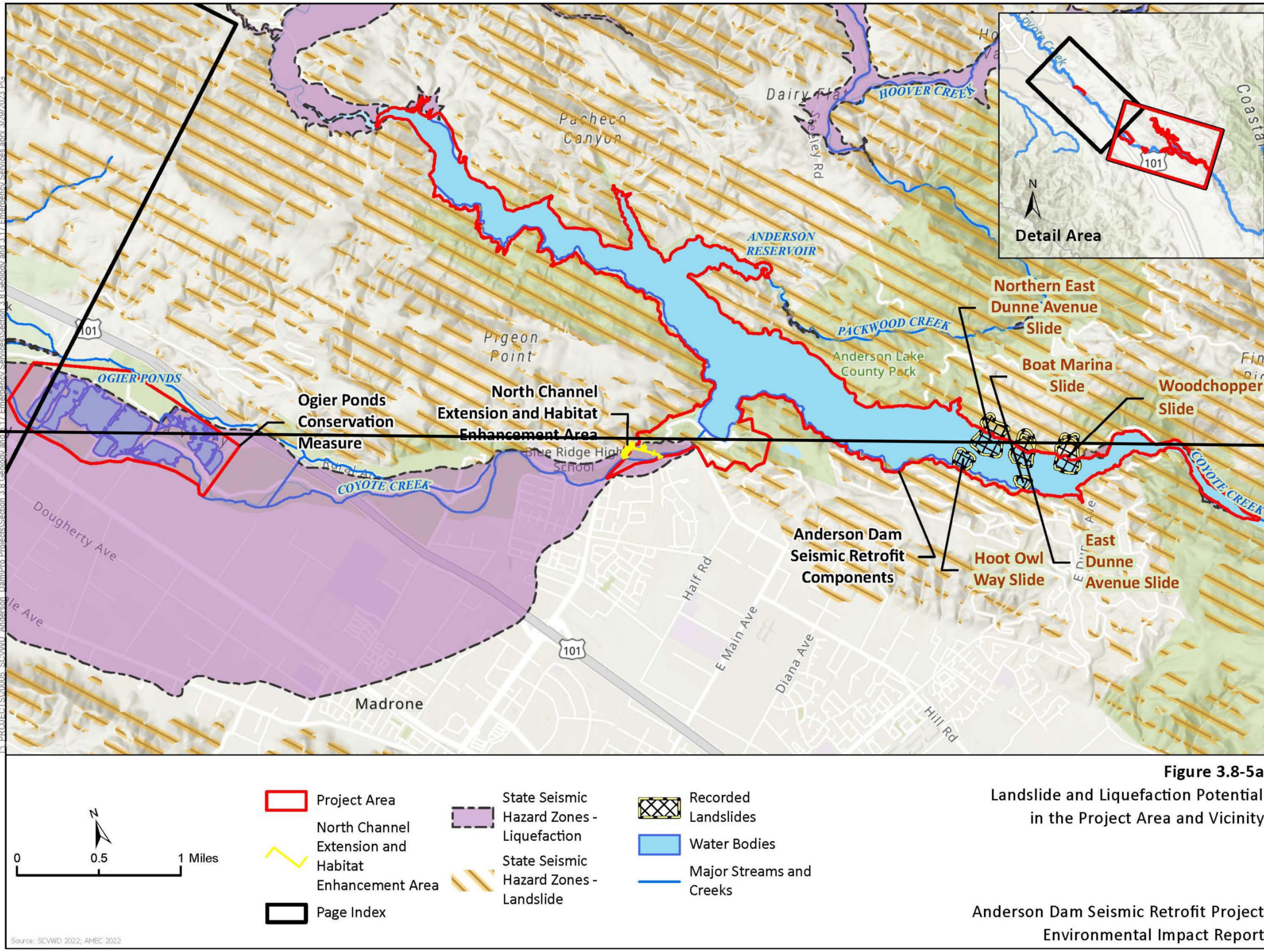
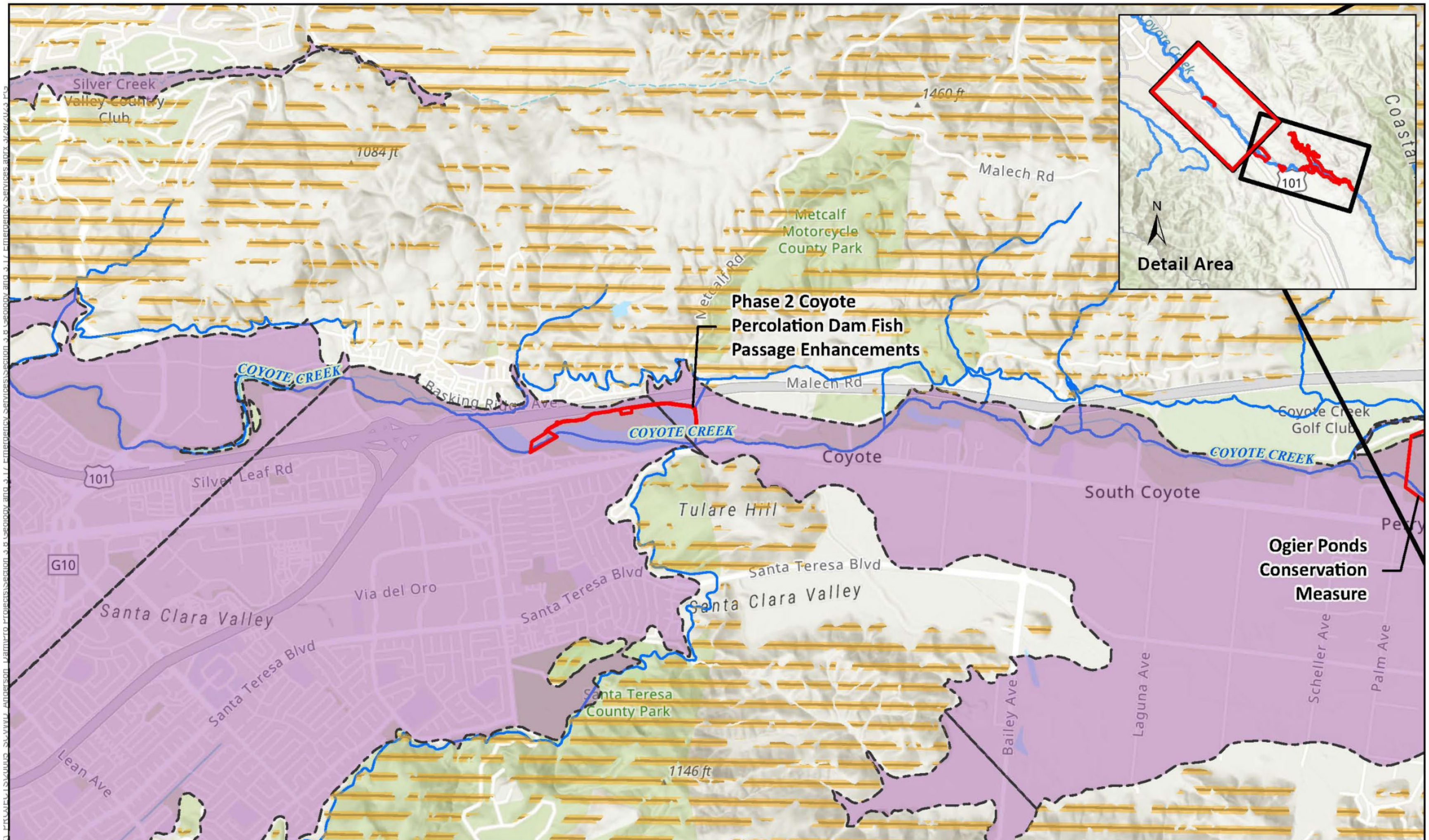


Figure 3.8-5a
Landslide and Liquefaction Potential in the Project Area and Vicinity



0 0.5 1 Miles

- Project Area
- Page Index
- State Seismic Hazard Zones - Liquefaction
- State Seismic Hazard Zones - Landslide
- Major Streams and Creeks

Source: SCVWD 2022; AMEC 2022

Figure 3.8-5b
Landslide and Liquefaction Potential in the Project Area and Vicinity

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3.8.1.5 Paleontological Resources

Paleontological resources are limited, nonrenewable resources of scientific, cultural, and educational value (Far Western 2021). Fossils are any remains, trace, or imprint of past life that have been preserved by natural processes in the rock record. Paleontological resources include both fossils themselves as well as the rocks in which fossils are preserved because the geologic character of the rock record preserves the ecological, geographic, and evolutionary context of past life represented by fossils themselves. Paleontological resources are objects of national significance that are worthy of preservation for the inspiration and interpretive opportunities they offer.

Certain geologic units may contain paleontological resources. Some geologic units are more likely to contain paleontological resources, depending on age, rock type, and depositional environment (Far Western 2021). Paleontological sites indicate that the containing sedimentary rock unit or formation is fossiliferous. The limits of the entire geologic formation, both areal and stratigraphic, therefore define the scope of the paleontological potential in each case. Fossils are often contained within surficial sediments or bedrock and are therefore not observable or detectable unless exposed by erosion or human activity. Geologic units in the Project area are shown in **Figure 3.8-6**.

The geologic record of the Santa Clara Valley region, which includes the Coyote Valley area, dates from the Jurassic Period (approximately 200 to 145.5 million years ago) to the present (Dibblee and Minch 2005a, 2005b). Fossilized Pleistocene vertebrates, dating from approximately 2.6 million to 11,700 years ago, have been discovered in Quaternary deposits (dating from 2.588 million years ago to the present) in the south San Francisco Bay area, which has resulted in paleontological interest in the region (Valley Water 2011, Maguire and Holroyd 2016). Fossil mammal assemblages have also been discovered in Quaternary sediments located along the south San Francisco Bay, all of which have produced fossil elephant, camel, and bison specimens (Maguire and Holroyd 2016).

Table 3.8-3 lists geologic units in the study area and their paleontological sensitivity as determined through the Potential Fossil Yield Classification (PFYC) system described in Section 3.8.2.1, *Federal Laws, Regulations, and Policies* (Far Western 2021, 2023).

Table 3.8-3. Paleontological Sensitivity for Geologic Units in the Study Area

Formation	Symbol	PFYC	Justification
Landslide deposits	Qls	2—Low	Young age (<10,000 years)[a]
Alluvium	Qa	2—Low	Young age (<10,000 years)[a]
Sand and gravel of major stream channels	Qg	2—Low	Young age (<10,000 years)
Santa Clara Formation	QTs	4—High	Known and diverse significant paleontological resources[a,b]
Panoche formation	Kp/Kps	2—Low	Lack of known record[a]
Serpentinite	sp	1—Low	Metamorphic[a]

Formation	Symbol	PFYC	Justification
Greenstone	fg	1—Low	Metamorphic[a]

Notes:

[a.] Far Western 2021

[b.] Far Western 2023

Key: PFYC = Potential Fossil Yield Classification

Seismic Retrofit Project Area

As described in paleontological resources evaluations for the Seismic Retrofit study area (Far Western 2021) and the drawdown area (Far Western 2023) and listed above in **Table 3.8-3**, a geologic unit with high paleontological sensitivity, Santa Clara Formation, occurs in the Seismic Retrofit area. Other geologic units with lower paleontological sensitivity lie adjacent to this formation and in some cases overlie it at an unknown depth. Geologic units in the Seismic Retrofit area include Quaternary alluvium (Qa), Quaternary landslides (Qls), Santa Clara Formation (QTs), Panoche Formation (Kp and KPs), serpentinite (sp), and greenstone (fg) (**Figure 3.8-6**)[8] (Far Western 2021, 2023; Dibblee and Minch 2005a, 2005b).

The Quaternary alluvium and landslide deposits in the Seismic Retrofit area resulted from ongoing erosion activity. Alluvium (i.e., surficial sediments) consists of alluvial gravels, sands, and clays typical of river deposits. Landslide deposits consist of rubble from rock upslope and are common in the area due to the unstable nature of most of the underlying units. Both the landslide deposits and alluvium in the Seismic Retrofit area have a low fossil yield ranking due to their young age (less than 10,000 years) (Far Western 2021).

The Santa Clara Formation, on the other hand, has a record of yielding paleontological resources (Far Western 2021, ~~Axelrod 1944~~, Casteel 1978, Adam et al. 1983, Holland and Allen 2000). The Santa Clara Formation is from the Pliocene to Pleistocene epochs. Geologic units from these epochs, depending on depositional environment, are likely to yield fossils. This deposit is primarily conglomerate but has significant units of sand and clay. The Santa Clara Formation has a high paleontological sensitivity[9] due to the known and diverse significant paleontological resources occurring in this unit (Far Western 2021) (**Table 3.8-3**). While Quaternary landslide deposits generally are too young to yield fossils, as discussed immediately above, a landslide occurring in the Santa Clara Formation could expose significant fossils during downslope movement; however, these would have moved from their original context and would no longer exhibit scientific significance.

The Panoche Formation forms the hills to the east of Anderson Reservoir and consists of marine sediments with layers of well-lithified sandstone; however, these sediments are generally fossil-poor. This formation has a low fossil yield ranking due to the lack of known fossil records (Far Western 2021).

The hills west of Anderson Reservoir are underlain by metamorphic ocean crust (primarily serpentinite and greenstone). Serpentinite consists of hydrothermally metamorphosed and mafic mantle rock of the Coast Range Ophiolite Complex from the late Jurassic to Cretaceous

[8] Figure 3.8-6a through 3.8-6e show geologic units at a higher resolution that Figure 3.8-2.

[9] Methodology for determining paleontological sensitivity or PFYC ranking according to BLM 2016 is described in more detail in Section 3.8.2.1 ~~3.8.1.1~~, *Federal Laws, Regulations, and Policies*.

age. Serpentinite forms blue-green or gray highly fractured rocky outcrops and underlies much of the higher hills. Because it is metamorphosed mantle rocks, fossils are not found in the bedrock but could occur in caves developed on fractures (although none have been reported in this area). Greenstone consists of metamorphosed basalt of the Franciscan Complex and is located in the southwest part of the seismic retrofit area. Similar to serpentinite, because it is metamorphosed volcanic rock, fossils are not expected to occur. These two formations have a low fossil yield ranking based on their metamorphic history (Far Western 2021).

A records search was conducted through the University of California Museum of Paleontology (UCMP) for the Paleontological Resources Impact Assessment (Far Western 2021) for the Seismic Retrofit area and is included in Appendix P. The records search identified 52 fossils consisting of plant and mammal (i.e., bison, mammoths, horses, camelids, sloth, pronghorn, peccary) fossils from Pliocene or Pleistocene deposits from the Santa Clara Formation. Of particular note, an artiodactyl (camelid) tibia was found in Anderson Lake in 1993. In addition, two fossils were discovered around the reservoir rim during an archaeological field survey in 2019 (Far Western 2021, 2023).

All of the named geologic units that have yielded fossils identified in this search are Santa Clara Formation. As described in **Table 3.8-3**, because of this formation's documented history of having yielded vertebrate fossils, this geologic unit is considered to have high paleontological sensitivity (rated 4 in the PFYC methodology from Bureau of Land Management [BLM]).

A surface collecting survey for paleontological resources in the reservoir drawdown area was conducted and reported on by Far Western (2023). Pedestrian surveys of the area below the ordinary high-water mark and above deadpool occurred between September 12 and September 15, 2022. One significant vertebrate bone was collected in the field and prepared in the paleontological laboratory space in Chico, California. The fossil is a nearly complete and large camelid metapodial that is highly silicified. Preliminary identification of the genus is *Camelops*, although further study will be necessary to confirm. Other fossils that were collected during the survey include another camelid metapodial, the rib of an unknown mammal, and a limb bone fragment of a large perissodactyl (e.g., horse or rhinoceros) that was not identifiable. Other non-significant fossils were observed, including bivalve mollusks and fossilized wood.

Conservation Measures Project Area

Geologic units in the Conservation Measures area vary by location of the Conservation Measure footprint. Geologic units underlying Maintenance of the North Channel Reach ~~Extension~~ are Quaternary alluvium (Qa) and Quaternary sand and gravel of major stream channels (Qg) (**Figure 3.8-6c**). Both geologic units are too young to yield fossils. This Conservation Measure is located very near an outcropping of the fossil-yielding Santa Clara Formation (QTs). Geologic units underlying the Ogier Ponds CM are Quaternary alluvium (Qa), Quaternary sand and gravel of major stream channels (Qg), and Santa Clara Formation (QTs) (**Figure 3.8-6d**). Geologic units underlying the Phase 2 Coyote Percolation Dam CM are Quaternary alluvium (Qa) and Quaternary sand and gravel of major stream channels (Qg) (**Figure 3.8-6e**). While Santa Clara Formation (QTs) is located fairly near this conservation measure, none of the construction area is adjacent to this formation.

Figure 3.8-6. Geologic Units in the Project Area and Vicinity

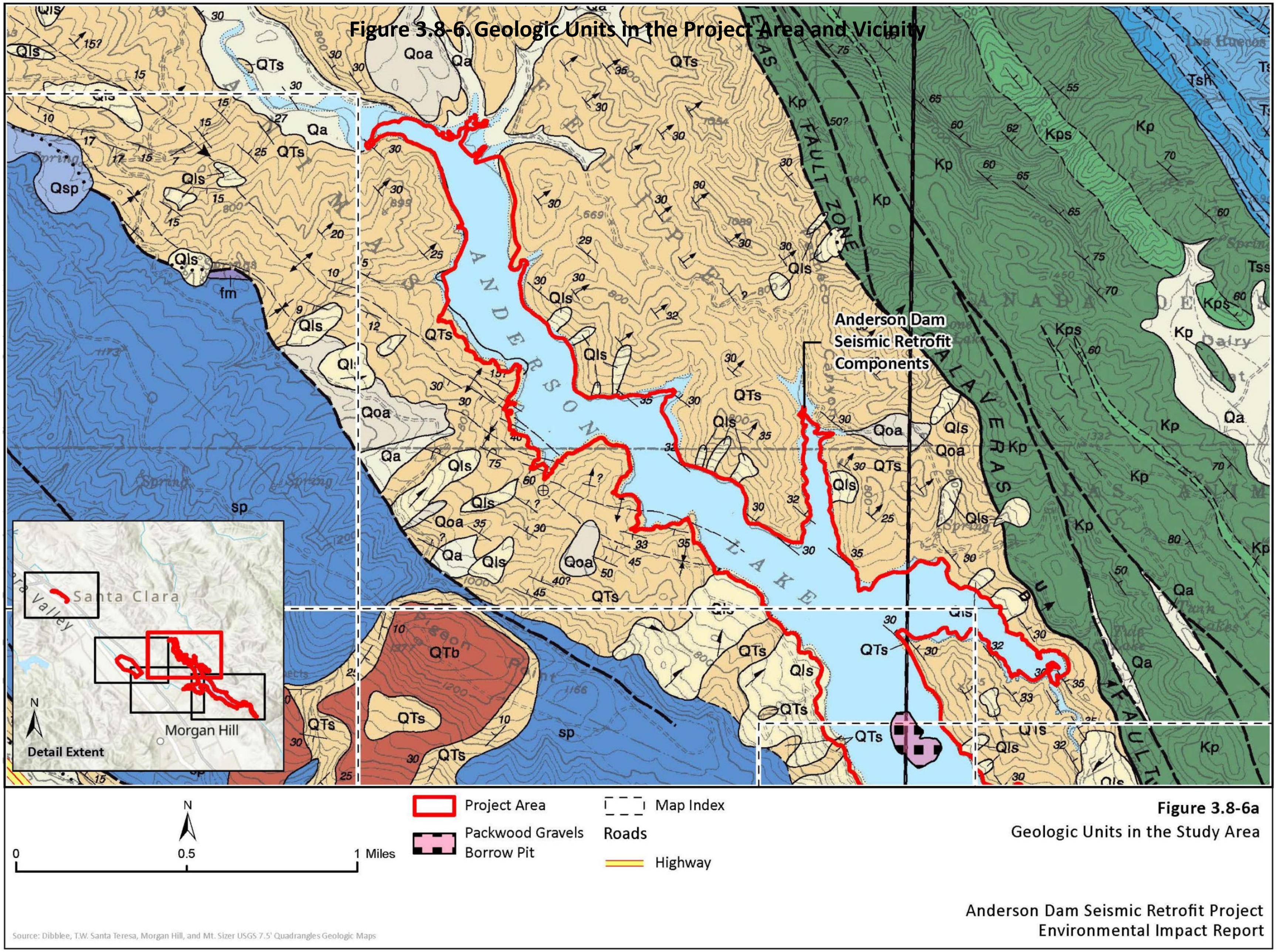


Figure 3.8-7b. Geologic Units in the Project Area and Vicinity

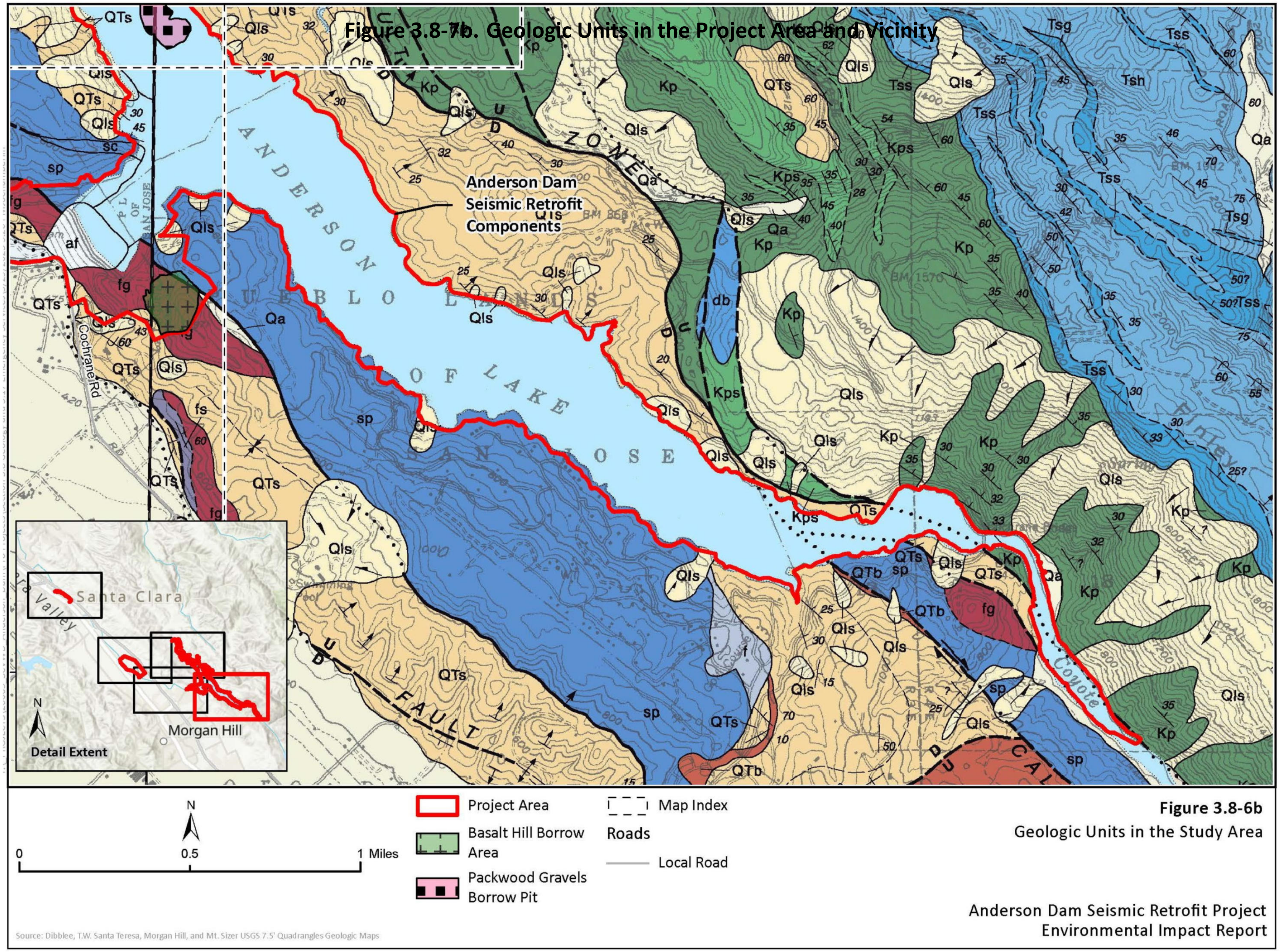
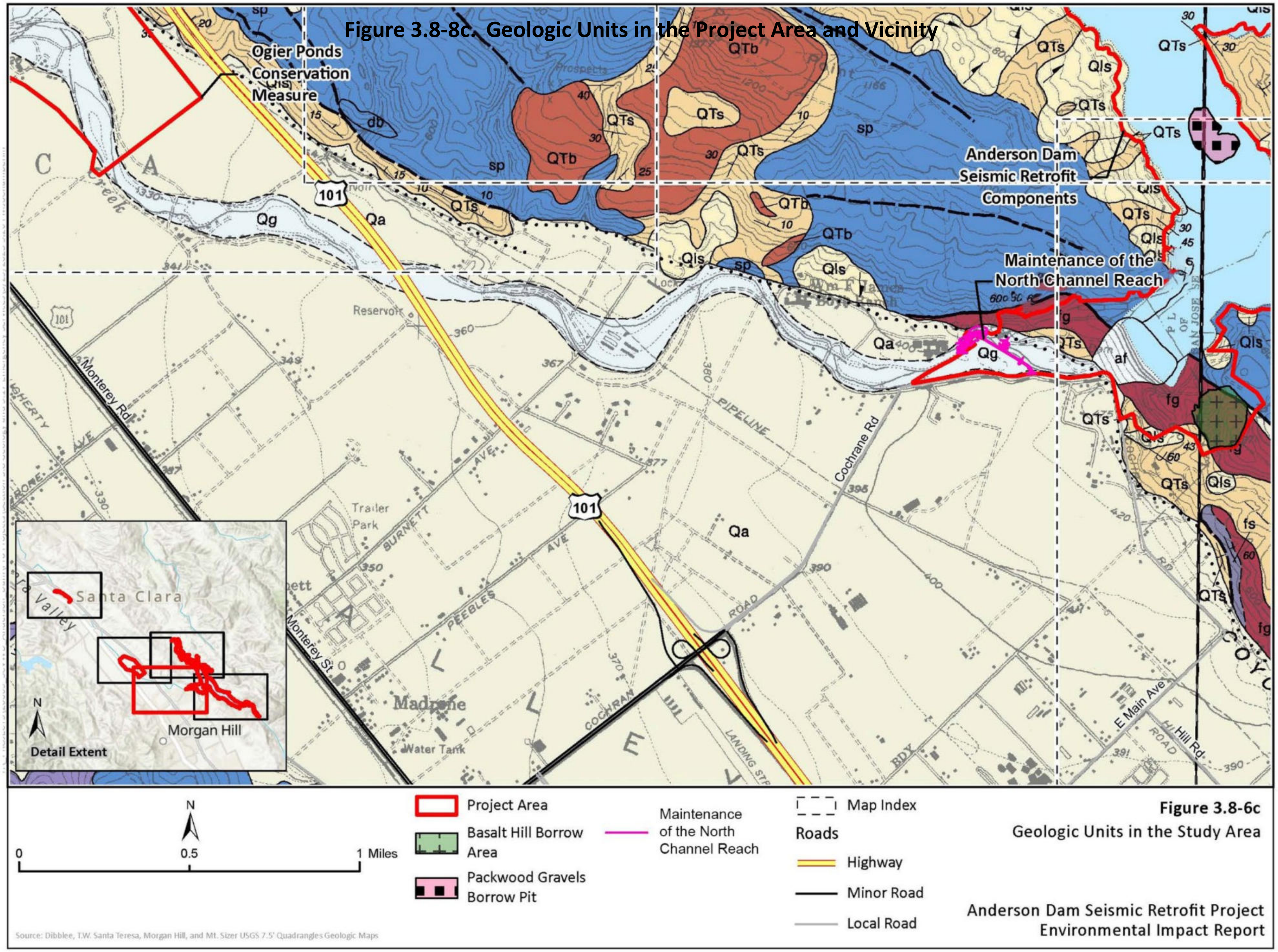
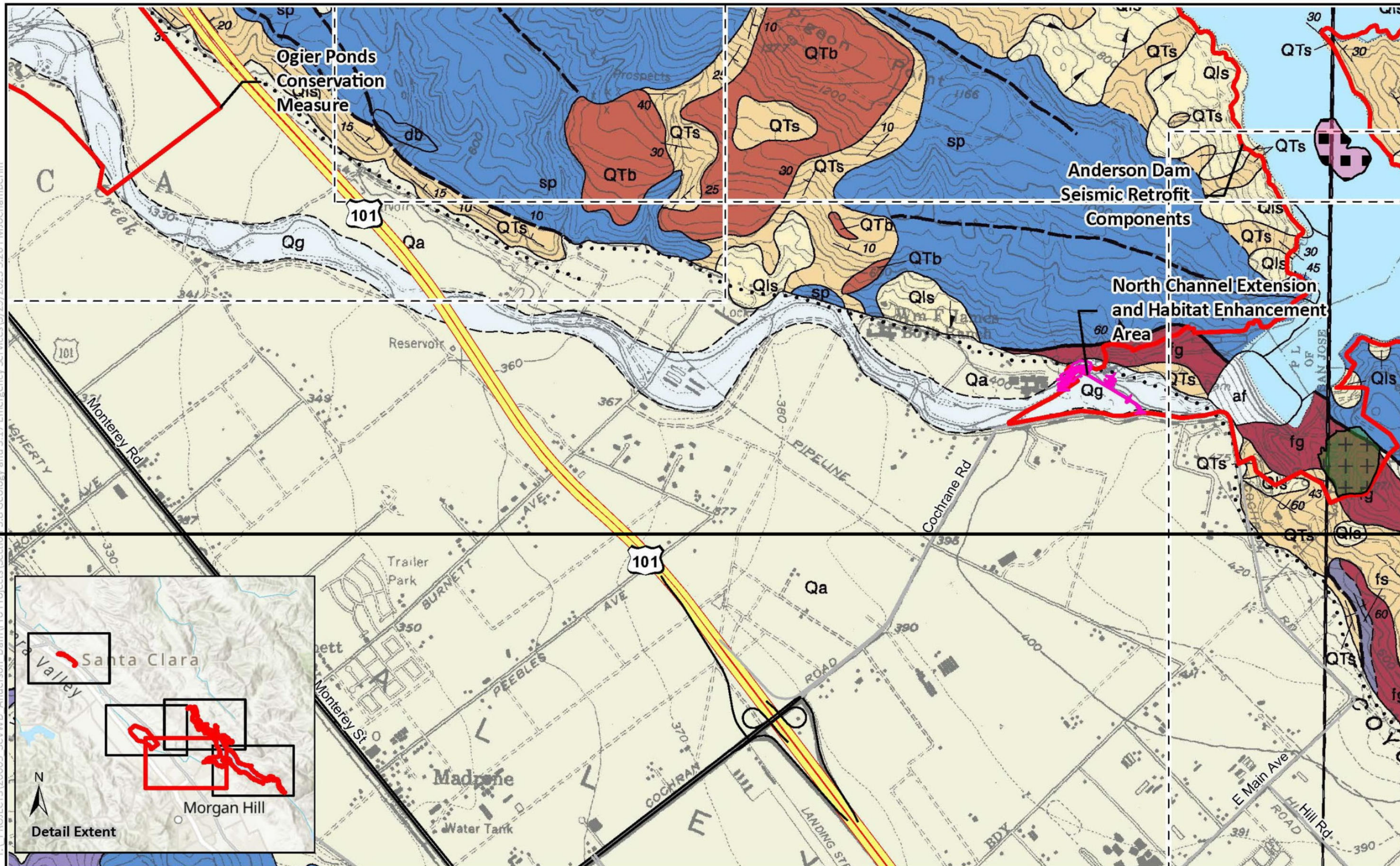


Figure 3.8-8c. Geologic Units in the Project Area and Vicinity





N

0 0.5 1 Miles

Source: Dibblee, T.W. Santa Teresa, Morgan Hill, and Mt. Sizer USGS 7.5' Quadrangles Geologic Maps

- Project Area
- Basalt Hill Borrow Area
- Packwood Gravels Borrow Pit
- North Channel Extension and Habitat Enhancement Area
- Map Index

Roads

- Highway
- Minor Road
- Local Road

Figure 3.8-6c
Geologic Units in the Study Area

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

1 **Figure 3.8-9d. Geologic Units in the Project Area and Vicinity**

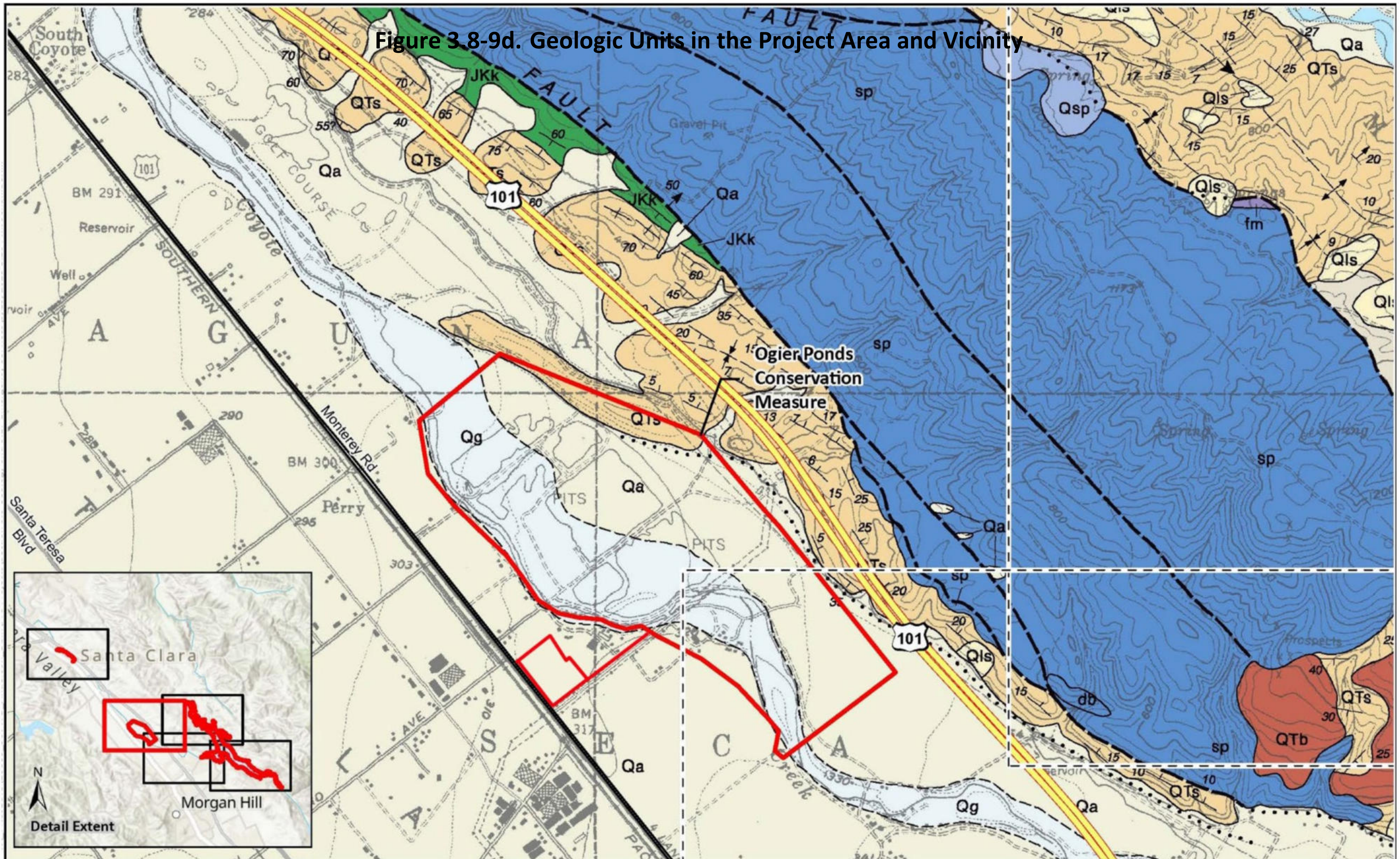
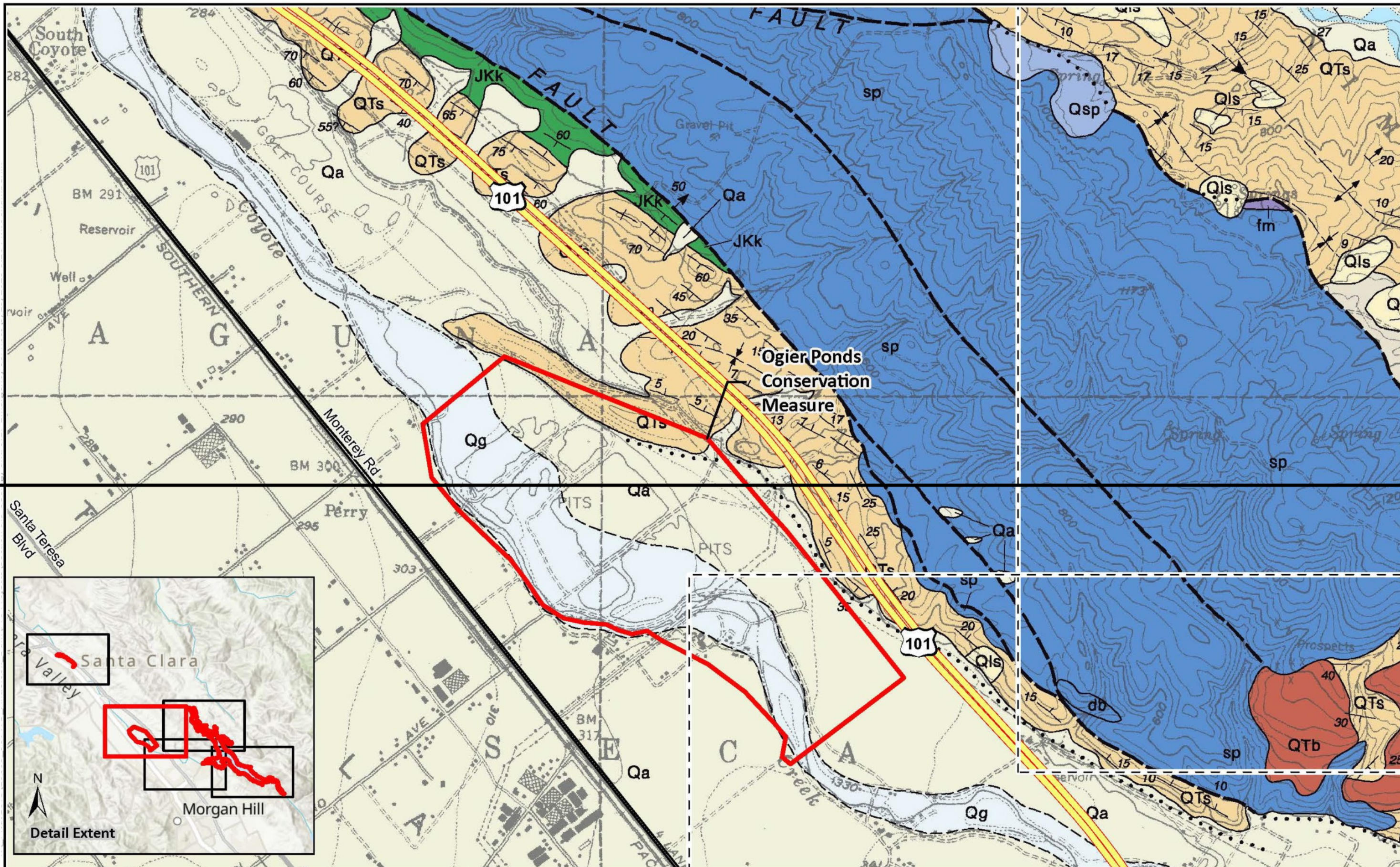


Figure 3.8-6d
Geologic Units in the Study Area

Anderson Dam Seismic Retrofit Project
Environmental Impact Report



N
0 0.5 1 Miles
Project Area
Map Index
Roads
Highway
Minor Road
Local Road

Source: Dibblee, T.W. Santa Teresa, Morgan Hill, and Mt. Sizer USGS 7.5' Quadrangles Geologic Maps

Figure 3.8-6d
Geologic Units in the Study Area

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

1

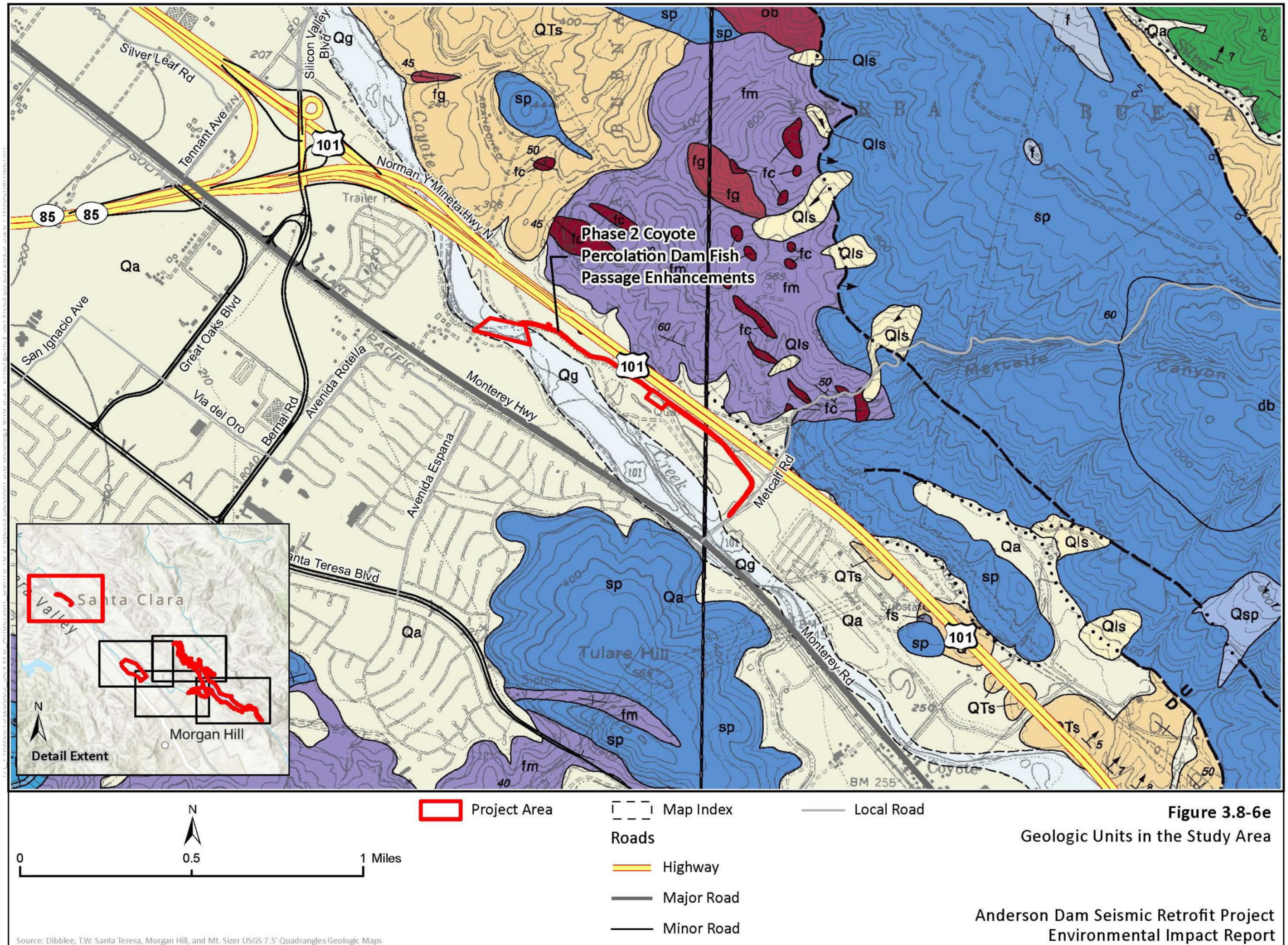


Figure 3.8-6e
Geologic Units in the Study Area

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

3.8.2 Regulatory Setting

3.8.2.1 Federal Laws, Regulations, and Policies

Clean Water Act

Activities discharging pollutants from a point source to a water of the United States are subject to the National Pollutant Discharge Elimination System (NPDES) permitting program, as authorized by the CWA, established in 1972. The NPDES permitting program has been delegated to the State of California for implementation through the SWRCB and nine RWQCBs. Under the NPDES program, any construction project that would result in the disturbance of 1 or more acres would require compliance with the state's NPDES Construction General Permit for stormwater discharges associated with the construction activity, discussed in more detail below under *General Permit for Construction Activities*.

National Earthquake Hazards Reduction Act

The United States Congress passed the National Earthquake Hazards Reduction Act in 1977 (Public Law [PL] 95-124, 42 USC 7701 et seq.) to develop a national policy to reduce the risks of earthquakes in the United States. The act was amended in 2004 by PL 101-614, 105-47, 106-503, and 108-360 to reduce the risks to life and property from future earthquakes through the establishment of the National Earthquake Hazards Reduction Program (NEHRP). The goals of the NEHRP are to: (1) develop effective practices and policies for earthquake loss reduction and accelerate their implementation, (2) improve techniques for reducing earthquake vulnerabilities of facilities and systems, (3) improve earthquake hazards identification and risk assessment methods and their use, and (4) improve the understanding of earthquakes and their effects (Federal Emergency Management Agency (FEMA) et al. 2021). FEMA, the National Institute of Standards and Technology (NIST), the National Science Foundation (NSF), and the USGS are the four agencies responsible for managing the NEHRP (FEMA et al. 2021). These four agencies together carry out the NEHRP's mission: to develop, disseminate, and promote knowledge, tools, and practices for earthquake risk reduction—through coordinated, multidisciplinary, interagency partnerships among the NEHRP agencies and their stakeholders—that improve the Nation's earthquake resilience in public safety, economic strength, and national security (FEMA et al. 2021 ~~2009~~).

Potential Fossil Yield Classification

Valley Water has adopted the BLM's PFYC system (2016) for the Project to categorize the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. The BLM's PFYC system provides guidance for predicting, assessing, and mitigating impacts to paleontological resources. The PFYC system ranks geologic formations or members on a 1 to 5 scale, with 5 having the highest potential for preserving fossil resources and uses geologic mapping as a predictive tool to identify areas of paleontological sensitivity. This classification does not reflect rare or isolated occurrences of significant fossils or individual localities, only the relative occurrence on a formation or member-wide basis. Any rare occurrences require additional assessment and mitigation if they fall within the area of anticipated impacts. The PFYC system is based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts.

The following descriptions of paleontological sensitivity class rankings pertinent to this Project ~~project~~ and drawn directly from the BLM Guidelines (2016) are provided below:

Class 1—Very Low. Geologic units that are not likely to contain recognizable paleontological resources. Units assigned to Class 1 typically have one or more of the following characteristics:

- Geologic units are igneous or metamorphic, excluding air-fall and reworked volcanic ash units.
- Geologic Units are Precambrian in age.

Class 2—Low. Geologic units that are not likely to contain paleontological resources. Units assigned to Class 2 typically have one or more of the following characteristics:

- Field surveys have verified that significant paleontological resources are not present or are very rare.
- Units are generally younger than 10,000 years before present.
- Recent aeolian deposits
- Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely.

Class 3—Moderate. Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence. Units assigned to Class 3 have some of the following characteristics:

- Marine in origin with sporadic known occurrences of paleontological resources
- Paleontological resources may occur intermittently, but abundance is known to be low.
- Units may contain significant paleontological resources, but these occurrences are widely scattered.
- The potential for an authorized land use to impact a significant paleontological resource is known to be low to moderate.

Class 4—High. Geologic units that are known to contain a high occurrence of paleontological resources. Units assigned to Class 4 typically have the following characteristics:

- Significant paleontological resources have been documented but may vary in occurrence and predictability.
- Surface disturbing activities may adversely affect paleontological resources.
- Rare or uncommon fossils, including nonvertebrate (such as soft body preservation) or unusual plant fossils, may be present.
- Illegal collecting activities may impact some areas.

Class 5–Very High. Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources. Units assigned to Class 5 have some or all of the following characteristics:

- Significant paleontological resources have been documented and occur consistently.
- Paleontological resources are highly susceptible to adverse impacts from surface disturbing activities.
- Unit is frequently the focus of illegal collecting activities.

Consistent with BLM (2016), Valley Water considers management concerns for paleontological resources in geologic units categorized as Class 4 and Class 5 to be high to very high.

3.8.2.2 State Laws, Regulations, and Policies

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (PRC section 2621 et seq.), also known as the Alquist-Priolo Act, was passed in 1972 to mitigate the hazard of surface faulting to structures intended for human occupancy. The act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The law requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps depicting those zones. The maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling new or renovated construction. Before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults. An evaluation and written report of a specific site must be prepared by a licensed geologist. If an active fault is identified, a structure for human occupancy cannot be placed over the trace of the fault and must be set back from the fault (generally 50 feet) (CDOC 2019a). Under the Alquist-Priolo Fault Zoning Act, an active fault is one that has ruptured in the last 11,000 years.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (PRC sections 2690-2699.6) is intended to reduce the threat to public safety resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. The Seismic Hazards Mapping Act highlights the need to identify and map seismic hazard zones to allow cities and counties to adequately prepare the safety element of their general plans, and to encourage land use management policies and regulations that reduce and mitigate those hazards to protect public health and safety. Cities and counties are required to regulate development within mapped Seismic Hazard Zones (CDOC 2019b).

Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act of 1975 (SMARA) (PRC sections 2710–2719) was enacted to provide a comprehensive surface mining and reclamation policy to ensure that adverse environmental impacts of mining are minimized and that mined lands are reclaimed to a usable condition. Certain land use activities, such as public or private engineering projects, including dams, do not require a permit, based on the Economic Exclusion category presented in the Guidelines for Classification and Designation of Mineral Lands (CDOC 2019c).

Project excavation from borrow areas necessary to construct the Seismic Retrofit is exempt from compliance with SMARA under PRC section 2714(b). This section provides a SMARA exemption for onsite excavation and onsite earthmoving activities that are an integral and necessary part of a construction project and that are undertaken to prepare a site for construction of structures, landscaping, or other land improvements associated with those structures, including the related excavation, grading, compaction, or the creation of fills, road cuts, and embankments, whether or not surplus materials are exported from the site, provided four conditions are met. The Project will meet all four of these conditions, which require approval of permits for the construction project, lead agency CEQA compliance for the construction project, consistency of the construction project with the site general plan or zoning, and timing limitations on export of surplus materials. As discussed in Chapter 2, *Project Description*, the onsite excavation and earthmoving activities are integral and necessary for construction of the Project.

Please note that the same PRC section 2714(b) exemption is also found in the Santa Clara County Zoning Ordinance – section 4.10.370 (Surface Mining).

California Building Code and International Building Code

The State of California mandates minimum standards for building design through the California Building Code (CBC) (CCR Title 24) for geologic and seismic hazards, other than surface faulting, to address seismic safety, earthquake-resistant design, and construction ~~(California Building Standards Commission 2021b).~~ The 2022 CBC was published in July 2022 with an effective date of January 1, 2023 (California Building Standards Commission 2023). The most current and updated version of the CBC is generally adopted by local jurisdictions to guide building construction. The CBC specifies criteria for open excavation, seismic design, and load-bearing capacity directly related to construction in California.

The International Building Code (IBC) (known as the Uniform Building Code prior to 2000) was developed by the International Conference of Building Officials, and is used by most states, including California, as well as local jurisdictions, to set basic standards for the acceptable design of structures and facilities. The IBC provides information on criteria for seismic design, construction, and load-bearing capacity associated with various buildings and other structures and features. Additionally, the IBC identifies design and construction requirements for addressing and mitigating geologic hazards. New construction generally must meet the requirements of the most recent version of the IBC. The IBC was incorporated as part of the CBC, which has been modified for California based on the natural environment of the state that requires more detailed and/or more stringent regulations.

With certain modifications, the County has adopted the 2022 CBC. The County’s modifications and amendments to the 2022 CBC are given in Division C3, Chapter I, Article 2 of the County Ordinance Code. Valley Water’s internal standard is also the 2022 CBC, which is currently used for the design of all Valley Water projects.

Division of Safety of Dams

The DWR, with regulatory power from the California Water Code, delegates dam safety to the DSOD to protect people against loss of life and property from dam failure. DSOD engineers and engineering geologists review and approve plans and specifications for the design of dams and oversee their construction to ensure compliance with the approved plans and specifications. Geologic and seismic reviews include site geology, seismic setting, geologic/geotechnical site investigations, construction material evaluation, and seismic dam stability. In addition, DSOD engineers inspect existing dams on a yearly schedule to ensure they are performing and being maintained in a safe manner.

The DSOD Inspection and Reevaluation Protocols (DSOD 2018) define active, conditionally active, and inactive faults relative to the timeframe in which a fault is documented to have ruptured. An active fault, according to these protocols, ruptured in the last 35,000 years; a conditionally active fault ruptured in the Quaternary, but its displacement during the last 35,000 years is unknown; and an inactive fault is one whose fault trace is consistently overlain by unbroken geologic material older than 35,000 years.

DSOD authority is granted by the California Water Code (Parts 1 and 2 of Division 3, *Dam and Reservoirs*). The DSOD provides oversight to the design, construction, and maintenance of over 1,200 jurisdictional sized dams in California, including the Anderson Reservoir Dam. Jurisdictional dams are dams that are more than 6 feet high and impound 50 acre-feet or more of water, or 25 feet or higher and impound more than 15 acre-feet of water. The jurisdictional height of a dam, as determined by DSOD, is the vertical distance measured from the lowest point at the downstream toe of the dam to its maximum storage elevation, which is typically the spillway crest. The DSOD ensures dam safety by:

- Reviewing and approving dam enlargements, repairs, alterations, and removals to ensure that the dam appurtenant structures are designed to meet minimum requirements.
- Performing independent analyses to understand dam and appurtenant structures performance. These analyses can include structural, hydrologic, hydraulic, and geotechnical evaluations.
- Overseeing construction to ensure work is being done in accordance with the approved plans and specifications.
- Inspecting each dam on an annual basis to ensure it is safe, performing as intended, and is not developing issues. Roughly 1/3 of these inspections include in-depth instrumentation reviews of the dam surveillance network data.
- Periodically reviewing the stability of dams and their major appurtenances in light of improved design approaches and requirements, as well as new findings regarding earthquake hazards and hydrologic estimates in California.

The structural elements of the Project would undergo appropriate and final design-level geotechnical evaluations prior to final design and construction. Implementing the regulatory requirements in the DSOD regulations and ensuring that all structures constructed in compliance with the law is the responsibility of the Project engineers and building officials. The design engineer, as a registered professional with the State of California, is required to comply with the DSOD and local codes while applying standard engineering practice and the appropriate standard of care for the particular region in California, which, in the case of the Project, is Santa Clara County.[10] The California Professional Engineers Act (Building and Professions Code Sections 6700-6799), and the Codes of Professional Conduct, as administered by the California Board of

[10] A geotechnical engineer (GE) specializes in structural behavior of soil and rocks. GEs conduct soil investigations, determine soil and rock characteristics, provide input to structural engineers, and provide recommendations to address problematic soils.

Professional Engineers and Land Surveyors, provides the basis for regulating and enforcing engineering practice in California.

NPDES Construction General Permit

The State of California adopted the Construction General Permit, Order No. 2022-0057-DWQ, effective September 1, 2023. The Construction General Permit regulates construction site stormwater management. Projects that will disturb 1 or more acres of soil, or disturb less than 1 acre, but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the Construction General Permit for discharges of stormwater associated with construction activity. The General Permit requires the preparation of a Project-specific SWPPP to minimize any potential stormwater impacts to surface waters (SWRCB 2020). This program is further discussed in Section 3.11, *Hydrology*. Construction activities that are subject to this permit include clearing, grading, and ground disturbance (stockpiling or excavation), but do not include regular maintenance activities performed to restore the original grade of the disturbed area.

Permit applicants are required to submit a Notice of Intent (NOI) to the SWRCB and to prepare a SWPPP. The SWPPP identifies BMPs that must be implemented to reduce construction effects on receiving water quality based on pollutants. BMPs are directed at implementing sediment and erosion control measures, and other measures to control chemical contaminants. The SWPPP must also include descriptions of the BMPs to reduce pollutants in stormwater discharges after all construction phases have been completed at the site (post-construction BMPs). The SWPPP must contain a visual monitoring program, a chemical monitoring program for “nonvisible” pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a waterbody listed on the CWA section 303(d) list of waterbodies impaired for sediment.

Public Resources Code Section 5097.5

PRC section 5097.5 defines a misdemeanor as any unauthorized disturbance or removal of a historic or prehistoric ruin, burial ground, or archaeological or vertebrate paleontological site on public lands,[11] without the express permission of the public agency having jurisdiction over the lands. This protection includes fossilized footprints, inscriptions, or other archaeological, paleontological, or historical features on public land.

3.8.2.3 Regional and Local Laws, Regulations, and Policies

Santa Clara County

Grading Ordinance

The Santa Clara County Grading Ordinances, Title C, Division C12, Chapter III governs grading and drainage for all projects that are subject to its requirements and describes requirements for permits. Section C12-407(a) notes that grading is exempt from the requirements of the ordinance when it is performed by or under the supervision or construction control of a

[11] As used in this section, “public lands” means lands owned by, or under the jurisdiction of, the State, or any City, County, District, Authority, or public corporation, or any agency thereof.

governmental agency, including the County, where that agency has provided written confirmation from an authorized representative of that agency assuming full responsibility for the work. C12-409€ similarly states that drainage projects are exempt from the ordinance's requirements when it concerns the addition of impervious area or drainage alterations by, or under the supervision or construction control of, a governmental agency including the County, where that agency has provided written confirmation from an authorized representative of that agency assuming full responsibility for the work.

General Plan

Geologic Hazards

Book A of the Santa Clara County General Plan (County 1994a), Safety and Noise element, provides strategies, policies, and implementation programs to reduce the risks of natural hazards countywide. Those that are relevant to the Project are listed below.

Strategy #1: Inventory Hazards and Monitor Changing Conditions. Adequate documentation of natural hazard areas such as floodplains, landslide areas, fault traces, and high fire hazard areas is essential for purposes of determining the appropriate densities for general areas and for determining placement of structures such as schools, landfills, and hazardous materials storage facilities.

As new landslide areas and faults are discovered, or as other conditions change, inventories used by local jurisdictions should be updated to provide an adequate basis for decision-making.

> **Policy C-HS 29:** Inventories and mapping of natural hazards should be adequately maintained for use in planning and decision-making.

Strategy #3: Design, Locate and Regulate Development to Avoid or Withstand Hazards. Development which occurs in areas subject to natural hazards must be designed, constructed, and maintained to reduce the threat of hazards to occupants as well as to the community.

> **Policy C-HS 33:** Development in areas of natural hazards should be designed, located, and otherwise regulated to reduce associated risks, by regulating the type, density, and placement of development where it will not: (a) be directly jeopardized by hazards, (b) increase hazard potential, and (c) increase risks to neighboring properties.

Strategy #4: Reduce the Magnitude of the Hazard, If Feasible. One type of measure not specifically related to individual development projects that is intended to reduce the risks of natural hazards is dam reinforcement. Dam reinforcement is important to both an assured water supply and to protect the safety of populations and property downstream of the water impoundments.

> **Policy C-HS 34:** Flood control measures should be considered part of an overall community improvement program and advance the following goals, in addition to flood control: (a) resource conservation, (b) preservation of riparian vegetation and habitat, (c) recreation, and (d) scenic preservation of the county's streams and creeks.
>
> Book B of the Santa Clara County General Plan (Santa Clara County 1994b), Safety and Noise element, provides strategies, policies, and implementation programs to reduce the risks of

natural hazards in rural unincorporated areas. Those that are relevant to the Project are listed below.

Strategy #1: Inventory Hazards and Monitor Changing Conditions. This strategy is the same as presented in Book A, discussed above.

Policy R-HS 6: Inventories and mapping of natural hazards shall be adequately maintained for use in planning and decision-making, including: (a) Relative Seismic Stability Map; (b) Composite Geologic Hazards Map; (c) Soil Creep; (d) Saturated, Unstable Soils; (e) Slope Maps; (f) Flood Hazards Maps; (g) Relative Fire Hazard Rating; (h) Dam Failure Inundation Areas Maps; (i) Airport Safety Zones; and (j) Closed Solid Waste Disposal Sites.

Strategy #3: Design, Locate and Regulate Development to Avoid or Withstand Hazards. The design, construction, and location of development can in many cases significantly reduce the risk associated with some natural hazards.

Policy R-HS 10: In all hazard areas, projects shall be designed and conditioned to avoid placement of structures and improvements where they would: (a) be directly jeopardized by hazards; (b) increase the hazard potential; and/or (c) increase risks to neighboring properties.

Policy R-HS 11: Proposals for General Plan amendments, zone changes, use permits, variances, building site approvals, and all land development applications subject to environmental assessment shall be reviewed for the presence of hazardous conditions, utilizing the best, most up-to-date information available. If a development proposal would require a major investment or addition to public infrastructure in areas subject to high hazards, objective estimates of the probable public costs of maintaining and repairing the infrastructure should be provided to decision-makers.

Policy R-HS 12: Proposals shall be conditioned as necessary to conform with County General Plan policies on public safety. Projects which cannot be conditioned to avoid hazards shall be conditioned to reduce the risks associated with natural hazards to an acceptable level or shall be denied.

Policy R-HS 13: Where needed to adequately assess the hazards of a proposal, the County shall require on-site investigations and analysis by certified professionals.

Policy R-HS 14: Critical structures and infrastructure vital to the public health, safety, and general welfare, such as water supply facilities, other utilities, police and fire stations, and communications facilities, shall not be located in areas subject to significant impacts from geologic or seismic hazards unless there is no feasible alternative site. Projects shall be designed to mitigate any seismic hazards associated with their sites.

Policy R-HS 19: In areas of high potential for activation of landslides, there shall be no avoidable alteration of the land or hydrology which is likely to increase the hazard potential, including: (a) saturation due to drainage or septic systems; (b) removal of vegetative cover; and (c) steepening of slopes or undercutting the base of a slope.

Policy R-HS 20: Lands where soils are in a continually saturated condition should not be used for structural purposes or filled with heavy earth fills due to their inherently weak and unstable nature. Uses requiring septic systems in such areas should not be allowed.

Policy R-HS 21: Proposals involving potential geologic or seismic hazards shall be referred to the County Geologist for review and recommendations.

Paleontological Resources

Book A of the Santa Clara County General Plan (County 1994a), Resource Conservation element, provides strategies, policies, and implementation programs to inventory, preserve, and restore heritage resources countywide. Heritage resources are defined in this element as including paleontological resources. Those that are relevant to the Project are listed below.

Strategy #1: Inventory and Evaluate Heritage Resources. Inventories of heritage resources serve several purposes:

- to document the existence of identified resources and their location;
- to help evaluate the significance, quality, and protective status of the resources;
- to form the basis for recommendations that resources of various kinds be included in state inventories or the National Register of Historic Places;
- to ensure that local decision-makers take heritage resource conservation into account; and
- to publicize and increase awareness of the value of heritage resources.

Inventories may be initiated by formal action, such as the case when surveys are commissioned for an area or jurisdiction. As conditions change, inventories must be updated and maintained. Incidental observations by members of the public as well as by various governmental agencies involved with such work may add to the knowledge base. However, involvement of local historians and architectural historians[12] should be integral to the work of conducting and maintaining adequate resource inventories.

Policy C-RC 51: Inventories of heritage resources should be maintained as the basis for local decision-making regarding such resources.

Strategy #2: Prevent or Minimize Adverse Impacts on Heritage Resources. Preventing losses to heritage resources, given their irreplaceable nature, should take precedence wherever possible over attempts to compensate or minimize the impact. However, when loss or damage to such resources is unavoidable, impacts should be mitigated to the maximum extent possible. Alternatives may be able to preserve some, if not all, of the resource.

Policy C-RC 52: Prevention of unnecessary losses to heritage resources should be ensured as much as possible through adequate ordinances, regulations, and standard review procedures. Mitigation efforts, such as relocation of the resource, should be employed where feasible when projects will have significant adverse impact upon heritage resources.

Book B of the Santa Clara County General Plan (County 1994b), Resource Conservation Element, provides strategies, policies, and implementation programs to inventory, preserve, and restore heritage resources in the rural unincorporated portions of the county. Heritage

12 Although not mentioned specifically in the General Plan, involvement of applicable professionals includes paleontologists for the study of paleontological resources.

resources are defined in this element as including paleontological resources. Those that are relevant to the Project are listed below.

Strategy #1: Inventory and Evaluate Heritage Resources. This strategy is the same as presented in Book A, discussed above.

Policy R-RC 83: The County's Heritage Resources database shall be maintained and used to review private development projects and guide the design of public projects.

Policy R-RC 84: Heritage resource acquisition, preservation, restoration, and interpretation projects eligible for funding with County Parks Charter Funds are identified in the "Santa Clara County Heritage Resources Inventory" adopted by the Board of Supervisors.

Strategy #2: Prevent or Minimize Adverse Impacts on Heritage Resources. This strategy is the same as presented in Book A, discussed above.

Policy R-RC 85: No heritage resource shall knowingly be allowed to be destroyed or lost through a discretionary action (zoning, subdivision site approval, grading permit, building permit, etc.) of the County of Santa Clara unless: (a) the site or resource has been reviewed by experts and the County Historic Heritage Commission and has been found to be of insignificant value; or (b) there is an overriding public benefit from the project and compensating mitigation to offset the loss is made part of the project.

Policy R-RC 86: Projects in areas found to have heritage resources shall be conditioned and designed to avoid loss or degradation of the resources. Where conflict with the resource is unavoidable, mitigation measures that offset the impact may be imposed.

Policy R-RC 88: For projects receiving environmental assessment, expert opinions and field reconnaissance may be required if needed at the applicant's expense to determine the presence, extent, and condition of suspected heritage resources and the likely impact of the project upon the resources.

City of San José

Grading and Drainage Permits

Title 17, Chapter 17.04, Part 6 describes excavation and grading requirements for projects constructed in San José. 17.04.310(A)(8) notes that earthwork entirely within public rights-of-way or easements and/or which is authorized and administered by a public agency is exempt from grading and drainage permits.

Geologic Hazard Ordinance

The purpose of Title 17, Chapter 17.10 is to ensure an appropriate level of review to projects which are located in geologically sensitive areas in order to identify any geologic hazard and impose necessary mitigations before development may be permitted. Geologic conditions change over time, and knowledge about geologic hazards and technology to respond to those hazards is evolving. A certificate of geologic hazard clearance must be received for any discretionary approval for development, grading permit, or building permit.

General Plan

Geologic Hazards

The Envision San José 2040 General Plan (City of San José 2023) contains goals and policies related to seismic hazards and geologic and soils hazards.

Goal EC-3 – Seismic Hazards. Minimize the risk of injury, loss of life, property damage, and community disruption from seismic shaking, fault rupture, ground failure (liquefaction and lateral spreading), earthquake-induced landslides, and other earthquake-induced ground deformation.

Policy EC-3.2 Within seismic hazard zones identified under the Alquist-Priolo Fault Zoning Act, California Seismic Hazards Mapping Act and/or by the City of San José, complete geotechnical and geological investigations and approve development proposals only when the severity of seismic hazards have been evaluated and appropriate mitigation measures are provided as reviewed and approved by the City of San José Geologist. State guidelines for evaluating and mitigating seismic hazards and the City-adopted California Building Code will be followed.

Policy EC-3.5 Locate, design and construct vital public utilities, communication infrastructure, and transportation facilities in a manner that maximizes risk reduction and functionality during and after an earthquake.

Goal EC-4 – Geologic and Soil Hazards. Minimize the risk of injury, loss of life, and property damage from soil and slope instability including landslides, differential settlement, and accelerated erosion.

Policy EC-4.2 Approve development in areas subject to soils and geologic hazards, including un-engineered fill and weak soils and landslide-prone areas, only when the severity of hazards has been evaluated and if shown to be required, appropriate mitigation measures are provided. New development proposed within areas of geologic hazards shall not be endangered by, nor contribute to, the hazardous conditions on the site or on adjoining properties. The City of San José Geologist will review and approve geotechnical and geological investigation reports for projects within these areas as part of the project approval process.

Policy EC-4.3 Locate new public improvements and utilities outside of areas with identified soils and/or geologic hazards (e.g., deep seated landslides in the Special Geologic Hazard Study Area and former landfills) to avoid extraordinary maintenance and operating expenses. Where the location of public improvements and utilities in such areas cannot be avoided, effective mitigation measures will be implemented.

Paleontological Resources

The Envision San José 2040 General Plan (City of San José 2023) contains goals and policies related to paleontological resources.

Goal ER-10 – Archaeology and Paleontology. Preserve and conserve archaeologically significant structures, sites, districts, and artifacts in order to promote a greater sense of historic awareness and community identity.

Policy ER-10.1: For proposed development sites that have been identified as archaeologically or paleontologically sensitive, require investigation during the planning process in order to determine whether potentially significant archeological or paleontological information may be affected by the project and then require, if needed, that appropriate mitigation measures be incorporated into the project design.

Policy ER-10.3: Ensure that City, State, and Federal historic preservation laws, regulations, and codes are enforced, including laws related to archaeological and paleontological resources, to ensure the adequate protection of historic and pre-historic resources.

City of Morgan Hill

Geologic Hazards Ordinance

The purpose of Title 18, Chapter 18.70 includes preventing increases in the potential for loss of life, injury, and property damage caused by geologic hazards in Morgan Hill. No discretionary approval for development, grading permit, or building permit shall be issued for any project located in an area zoned for geologic hazards unless the director has first approved an application for geologic clearance.

General Plan

Geologic Hazards

The City of Morgan Hill 2035 General Plan (City of Morgan Hill 2017) contains goals and policies related to seismic hazards and geologic and soils hazards.

Goal SSI-2 Reduction of potential harm to persons or property from geologic/seismic hazards.

Policy SSI-2.1 Land Use and Geologic Hazards. Limit uses on lands with geologic hazards but allow uses on previously urbanized lands with proper mitigation. Keep development in hazardous areas to a minimum by encouraging low-density, low-intensity uses and the types of uses least disruptive to the soil and vegetative cover. (South County Joint Area Plan 15.02a)

Policy SSI-2.2 Site Preparation for Geologic Stability. On lands with geologic hazards that have already been developed, require mitigation procedures, including geotechnical investigations appropriate for the known or suspected geologic problems.

Policy SSI-2.3 Site Preparation in Hazardous Areas. Require site preparation in hazardous areas to be designed to achieve long-term geologic stability.

Policy SSI-2.4 Code Requirements for Critical Structures. Design and construct critical structures above and beyond the applicable engineering and building standards, where such measures are deemed necessary from available geologic and engineering data. Critical structures are those structures:

a) needed after a disaster (e.g., emergency communications, fire stations, hospitals, bridges and overpasses;

b) whose continued functioning is critical (e.g., major power lines and stations, water lines, and other public utilities); or

c) whose failure might be catastrophic (e.g., large dams).

Policy SSI-2.5 Design of Critical Structures. Design and construct critical structures to resist minor earthquakes without damage, resist moderate earthquakes without structural damage, and resist major earthquakes of the intensity or severity of the strongest experienced in California without collapse.

Policy SSI-2.6 Hillside Development. Protect hillsides and carefully control development on steep slopes. When hillside land is developed, it should be done with minimum disruption of topography and vegetative cover. (South County Joint Area Plan 15.00)

Policy SSI-2.7 Landslides. Prohibit development on known active landslides and limit development in areas where such development might initiate sliding or be affected by sliding on adjacent parcels. (South County Joint Area Plan 15.02c)

Policy SSI-2.8 Runoff and Slope Stability. Prohibit development in areas where increased runoff from the addition of impervious surfaces and drainage would increase the probability of downslope landsliding, or where additional projects would add to the cumulative effect of increased runoff, unless a downslope drainage improvement plan has been approved. (South County Joint Area Plan 15.02d)

Policy SSI-2.9 Geologic Studies. Continue to require geologic and geotechnical studies for development in potentially hazardous areas, such as hillside areas and geotechnical studies for critical facilities in areas with liquefiable soils. The costs for consulting geologists shall be covered by a fee to the developer.

Policy SSI-2.10 Slope Stability. Enforce and maintain strict grading and building regulations to minimize instability of sloping areas and reduce public costs associated with maintaining roads and utilities on unstable slopes. (South County Joint Area Plan 15.12b)

Policy SSI-2.11 Geotechnical Investigations. Require geotechnical investigations on all projects in unstable areas, including areas of expansive soils, prior to construction to ensure that the potential hazards are identified and can be properly mitigated. (South County Joint Area Plan 15.13)

Paleontological Resources

The City of Morgan Hill 2035 General Plan (City of Morgan Hill 2017) contains goals and policies related to paleontological resources.

Goal HC-8 Historic identity and cultural resources that are preserved for future generations.

Policy HC-8.5 Mitigation. Require that if cultural resources, including tribal, archaeological, or paleontological resources, are uncovered during grading or other on-site excavation activities, construction shall stop until appropriate mitigation is implemented.

3.8.3 Methodology and Approach to Impact Analysis

The impact analysis considers whether implementation of the Project would exacerbate existing seismic or geologic hazards, cause significant impacts related to soils, or result in significant adverse impacts to paleontological resources. The analysis evaluates impacts on these resources that would occur as a result of the following activities:

- Seismic Retrofit construction
- Conservation Measure construction
- Construction Monitoring
- Post-construction Anderson Dam facilities and Conservation Measures operations and maintenance
- Post-construction FAHCE adaptive management

The analysis focuses on reasonably foreseeable effects of the Project on existing geologic conditions and paleontological resources based on review of the following resources:

- Geotechnical evaluations including
    a. Anderson Dam Seismic Retrofit Project Naturally Occurring Asbestos and Metals Evaluation Report (URS 2021a)
    b. Embankment basis of design technical memorandum for the Project (URS 2021b)
    c. Anderson Dam Seismic Retrofit Project Landslide Monitoring and Mitigation Plan (URS 2021c)
    d. Miscellaneous geotechnical information for EIR (URS 2022)
    e. Material development and handling technical memorandum for the Project (URS 2021d ~~2023~~)
- Paleontological Resources evaluations included in Appendix P:
    a. Paleontological Resources Impact Assessment for the Anderson Dam Seismic Retrofit Project (Far Western 2021); Post-Paleontological Survey for the Anderson Dam Drawdown to Deadpool Project, Santa Clara County, California (Far Western 2023)
- Results of the desktop evaluations performed using GIS based on data from the following sources:
    a. For information about distance of the Project from seismic sources, CGS's 2010 Fault Activity Map of California (2010)
    b. For soils hazards, soils mapping and evaluation of soil hazards by NRCS (NRCS 2021 ~~2023~~)
    c. For paleontological resources, geologic mapping by Dibblee and Minch (2005a, 2005b)

The analysis considers temporary impacts, or short-term impacts, that may occur during the 7-year construction period, as well as permanent impacts, or impacts considered to be long-term and/or that would result from ongoing facility operations and maintenance.

The direct effects of the Project are described and evaluated according to significance criteria generally derived from Appendix G of the *CEQA Guidelines*, discussed below.

The assessment of impacts for the purposes of this section has been divided into construction related impacts and operation/maintenance related impacts by Project ~~project~~ component, as identified and described in **Table 2-1** of Chapter 2, *Project Description*. Additional information on impact assessment approach by Project ~~project~~ component is provided below.

3.8.3.1 Seismic Retrofit Construction

As described in Section 3.0, *Introduction*, the baseline for evaluating Seismic Retrofit construction effects is the existing conditions following completion of the FOCP upgrades to the existing dam and reservoir facilities (i.e., existing conditions baseline).

3.8.3.2 Conservation Measures Construction

Conservation measures requiring construction activities that are evaluated in the impact analysis include:

- Ogier Ponds CM ~~Geomorphic and Habitat Restoration~~
- Maintenance of the North Channel Reach ~~Extension~~
- Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach
- Sediment Augmentation Program
- Phase 2 Coyote Percolation Dam CM ~~Fish Passage Enhancements~~

As described in Section 3.0, *Introduction*, the baseline for evaluating conservation measure construction effects is the existing conditions baseline.

3.8.3.3 Construction Monitoring

Construction monitoring activities include data collection to monitor habitat environmental conditions (e.g., water quality; fisheries; fish rescue and relocation; juvenile rearing, migration, and growth; aquatic species rescue and relocation during dewatering; suspended sediment; sediment deposition; groundwater; invasive species; wetland and riparian habitat dryback; phytophthora pathogen; northwestern pond turtle; ~~and~~ milkweed, and other terrestrial animal species), identify any changes to ecological functions and habitat values that have or may result from construction activity, and where feasible, adjust construction activities to prevent or reduce the effect of those changes on the existing conditions baseline, often in compliance with Project regulatory permits. Construction monitoring activities are not considered in the impact analysis, as monitoring would involve data and information collection and assessment and would not result in direct or indirect adverse impacts to geology, soils, and paleontological resources.

Any monitoring response actions that could result in physical impacts would occur as part of the Seismic Retrofit and Conservation Measure components construction addressed above.

3.8.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

This analysis considers indirect and direct impacts to geology and soils that could result from operational changes and proposed for nonemergency flow releases following completion of the Seismic Retrofit construction, as described in Chapter 2, *Project Description.* The analysis addresses whether changes to reservoir flow releases could result in soil instability and increased potential for erosion downstream in Coyote Creek. The analysis also considers stochastic modeling output in the ~~Potential Flood Impacts for the Project~~ Hydrology Technical

Appendix ~~Memorandum~~ (Valley Water 2023; Appendix K) for potential impacts to geology, soils, and paleontological resources within the Project area.

As described in Section 3.0, *Introduction*, the baseline for evaluating post-construction operation effects is the Pre FERC-Orders Baseline.

Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). The DMP includes measures to reduce impacts related to geology, soils, and paleontological resources during maintenance activities, including impacts associated with earthwork, steep slopes, landslides, and discovery of unknown paleontological resources. The DMP EIR **Mitigation Measures Geology-1, Geology-2, Geology-3,** and **Paleo-1** require recontouring and revegetating temporary access roads and preparing a slope stabilization plan and performance of slope stability analysis, respectively, to reduce potential effects associated with increased erosion and unstable slopes. Impacts related to geology, soils, and paleontological resources associated with Project post-construction maintenance activities would not differ substantially from those impacts identified in the DMP EIR. Furthermore, previously identified DMP impacts would not be exacerbated with implementation of the Project. Therefore, no new impacts would occur as a result of post-construction dam maintenance activities that are not addressed by the DMP EIR. For these reasons, post-construction dam facility maintenance activities are not discussed further in this section.

3.8.3.5 Post-Construction Conservation Measures Operations and Maintenance

Operations and maintenance of the constructed Conservation Measures could include ground-disturbing activities, including placement of sediment into Coyote Creek. However, excavation is not anticipated. Operations and maintenance would also involve management of nonnative species, including the removal of vegetation and subsequent replanting. Accordingly, operations and maintenance of the Conservation Measures would not result in ground-disturbing activities that have the potential to cause significant impacts related to seismic or geologic hazards, increase the potential for erosion, or impact paleontological resources, and these impacts are not discussed further in this section.

Aside from the maintenance of restored and enhanced habitats of the Conservation Measures, which would ensure achieving success criteria during establishment periods designated in Project permits, maintenance of water conveyance infrastructure along Coyote Creek between the Conservation Measures for flood control and groundwater recharge of water released from Anderson Dam would be conducted consistent with existing Valley Water maintenance programs (e.g., SMP, DMP). Because Conservation Measure maintenance would be consistent with existing maintenance programs, no new impacts outside of those already accounted for in the SMP and DMP environmental analyses would result.

Operations and maintenance of Conservation Measures would not cause impacts related to seismic hazards, geologic hazards, or soils, or result in impacts to paleontological resources. Therefore, these topics are not discussed further in this section.

3.8.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of project flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are evaluated in the impact analyses below.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original flow measures and Conservation Measure construction. Impacts of these adaptive actions are evaluated in the impact analyses below. These impacts are considered here at a programmatic level, because the detailed characteristics, timing, and/or locations of the proposed adaptive measures are not known at the time of EIR preparation. Project-specific CEQA review would be undertaken in the future, as necessary, when specific projects are proposed and project-specific details are available.

3.8.3.7 Applicable Best Management Practices and VHP Conditions

As noted in Chapter 2, *Project Description*, Valley Water would incorporate a range of BMPs, including conditions and AMMs from the VHP, to avoid and minimize adverse effects on the environment that could result from the Project. All relevant BMPs and AMMs for the Project are included in Appendix A, *Best Management Practices and Santa Clara Valley Habitat Conservation Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures* ~~*Incorporated in the Proposed Project*~~. BMPs relevant to geology and soils include the following:

GEN-20: Erosion and Sediment Control Measures – Would reduce the potential for erosion and sedimentation. This BMP describes measures to recover disturbed and exposed soils with seeding or erosion control materials. These measures would capture soil affected by erosion and keep it on the site and out of downslope waterways, where it could affect water quality as well as sedimentation.

GEN-21: Staging and Stockpiling of Materials – Would reduce the potential for erosion. This BMP specifies that staging must occur on surfaces that are either paved or already compacted, stockpiled materials must be hydrologically disconnected from waterways, and stockpiled soils will remain covered during the wet season, among other measures. These measures would ensure that any sediments remain onsite and do migrate to downslope waterways.

AQ-1: Use Dust Control Measures – Would implement dust and air quality management measures, including implementation of BAAQMD’s [Bay Area Air Quality Management District’s] BMPs for dust suppression. Removal of ground cover, including both vegetation and structures, would expose soil to erosive forces. Dust control measures would minimize erosion by requiring exposed surfaces to be watered, limiting vehicle speed and idling times, and planting or paving exposed surfaces as soon as possible, among other measures.

BI-3: Remove Temporary Fill – Would reduce the potential for erosion. Temporary fill materials, because they consist of exposed soil, are vulnerable to erosion. Removing this temporary fill after it has served its purpose would remove the source of erosion.

BI-8: Choose Local Ecotypes of Native Plants and Appropriate Erosion Control Seed Mixes – Would reduce the potential for erosion. Planting and seeding reduce the risk of erosion by replacing ground cover that was removed during construction. Replanting with native plants or erosion control mixes would provide for a stable ground cover that will hold soil in place in the face of erosive forces.

WQ-4: Limit Impacts from Staging and Stockpiling Materials – Would reduce the potential for erosion. Staging can increase the risk of erosion by removing ground cover and disturbing soil, making it more vulnerable to erosive forces. Stockpiling of materials can increase erosion if the stockpiled materials consist of soil. This BMP would limit staging to areas that are already disturbed and where possible compacted or paved and would ensure that stockpiled soils would either be covered or surrounded by properly installed silt fencing or other means of erosion control.

WQ-5: Stabilize Construction Entrances and Exits – Would reduce the potential for erosion. This BMP minimizes the risk of erosion in areas where construction equipment enters and exits the work area by minimizing the distance between the entrance or exit and the work area and by planning work site access to minimize disturbance of water bodies and stream banks.

WQ-9: Use Seeding for Erosion Control, Weed Suppression, and Site Improvement – Would reduce the potential for erosion. Similar to BI-8 discussed above, seeding reduces the risk of erosion by replacing ground cover that was removed during construction. Replanting with native plants or erosion control mixes would provide for a stable ground cover that will hold soil in place in the face of erosive forces.

BANK-1: Bank Stabilization Design to Prevent Erosion Downstream – Would reduce the potential for erosion at streambanks. This BMP would involve planting or placing protective devices such as logs, rock, and flow deflectors at locations where streambanks could be disturbed by Project activities and thus exposed to erosion.

REVEG-1: Seeding – Would reduce the potential for erosion. Similar to BI-8 discussed above, seeding reduces the risk of erosion by replacing ground cover that was removed during construction. Replanting with native plants or erosion control mixes would provide for a stable ground cover that will hold soil in place in the face of erosive forces.

VHP conditions were developed to help covered activities meet regional avoidance and minimization goals. VHP conditions that would apply to geology and soils relate to erosion control, slope stability, and paleontological resources (that could be unearthed through erosion or landslide). VHP conditions that would minimize impacts are the following:

- Condition 3, Maintain Hydrologic Conditions and Protect Water Quality
- Condition 4, Avoidance and Minimization for In-Stream Projects
- Condition 5, Avoidance and Minimization for In-Stream Operations and Maintenance
- Condition 7, Rural Development Design and Construction Requirements
- Condition 8, Implement Avoidance and Minimization Measures for Rural Road Maintenance
- Condition 11, Stream and Riparian Setbacks
- Condition 12, Wetland and Pond Avoidance and Minimization

In addition, VHP AMMs that would apply to geology and soils relate to erosion control, slope stability, and paleontological resources (that could be unearthed through erosion or landslide).

3.8.3.8 Thresholds of Significance

For the purposes of this analysis, the Project would result in a significant effect related to geology and soils if it would:

GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault (criterion a.i)

GEO-2: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking (criterion a.ii)

GEO-3: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction (criterion a.iii)

GEO-4: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides (criterion a.iv)

GEO-5: Result in substantial soil erosion or the loss of topsoil (criterion b)

GEO-6: 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 (criterion c)

GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature (criterion f)

3.8.3.9 Issues Dismissed from Further Review

CEQA Guidelines Appendix G also suggests that projects may have a significant effect on geology and soils if the project involves structures located on expansive soils, as defined in **Table 18-1-B** of the Uniform Building Code (criterion d) or if they 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 (criterion e). Because the Project would not be located on expansive soils (refer to discussion in Section 3.8.2.2) or include the installation of septic tanks or alternative wastewater disposal systems, the IS dismissed criteria d and e from further analysis (Appendix B) (Valley Water 2013). These topics are therefore not discussed in this section.

In addition, the erosion analysis in this section focuses on erosion impacts that could lead to future erosion, result in changes to the ground surface, or involve loss of topsoil and does not consider water quality or sedimentation issues. Impacts related to mobilization of particles in sediment deposited during historic operation of the reservoir through the course of Coyote Creek through these sediments would not result in future erosion as defined for this section. This is because, when the reservoir is refilled, these sediments will no longer be subject to erosion through Coyote Creek, because any loss of these sediments would not change the ground surface, and because no topsoil would be affected. Therefore, this impact is not discussed further in this section. Impacts related to downstream water quality and sedimentation are discussed in Section 3.14, *Water Quality* and Section 3.11, *Hydrology*.

3.8.4 Impact Analysis

Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault **(Less than Significant)**

Seismic Retrofit Construction

As described above, the Coyote Creek Range fault zone and Calaveras fault are located within the Project Area (**Figure 3.8-4**). The Coyote Creek Range fault traverses the dam face and the Calaveras fault is located 1 mile east of the dam along the east side of the reservoir and traverses across the southeastern leg of Anderson Reservoir. Although both faults are considered active (having surface ruptured in the last 250 years or shown displacement in the last 11,700 years), only the Calaveras fault is delineated as an Alquist-Priolo fault under the Alquist-Priolo Earthquake Fault Zoning Act. However, effects associated with the potential for rupture at both faults are included in this analysis.

The Project could directly or indirectly cause substantial adverse effects related to surface fault rupture if vibration generated by Seismic Retrofit construction would affect local seismicity. Although the Seismic Retrofit Project ~~project~~ component would involve ground disturbing activities such as excavation, tunneling, and blasting within an active fault zone, these proposed excavation methods are not known to have any effect on local seismicity or on-site response to seismic activity, including fault rupture (URS 2022). Furthermore, the location of where rock on either side of a fault is locked, where stress develops, and energy is ultimately released when an earthquake occurs is located in the range of 3.5 to 10 miles bgs. Peak ground accelerations (PGA) during blasting similar to what would occur at the Project area were measured at the Calaveras Dam Replacement Project. The measured PGAs dropped off to near 0 within 350 feet of the blast, which is much shallower than the depth at which the fault is locked. Tunneling and excavation impart lower energy to the ground than blasting activities. Because of the shallow depth to which would not exacerbate fault rupture at the site. Therefore, Seismic Retrofit construction activities would not directly or indirectly exacerbate the effects of a surface fault rupture, reasonably increase the likelihood of an earthquake, or increase the force or magnitude of a surface fault rupture.

While the Coyote Creek Range fault transects the location of Anderson Dam, changes to the dam would not increase load on the fault such that risk of surface fault rupture would increase. In addition, Seismic Retrofit components would be designed to withstand the MCE on the Coyote Creek Front Range and Calaveras faults, such that any offset from surface fault rupture on these faults would not affect dam stability or affect downstream people or structures.

Therefore, construction of Seismic Retrofit components would not exacerbate the effects of a known earthquake fault and accordingly would not directly or indirectly expose people or structures to substantial adverse effects involving the rupture of a known earthquake fault. Therefore, the impact would be less than significant.

Conservation Measures Construction

Earthwork and new structures would be constructed as part of the Ogier Ponds CM, the Phase 2 Coyote Percolation Dam CM, and the Maintenance of the North Channel Reach ~~Extension~~ CM. Although construction of the conservation measures would be exposed to seismic risks including fault rupture from nearby active faults, construction methods would not directly or indirectly exacerbate the effects of rupture (URS 2022). These actions could include ground disturbance, potentially including actions that would involve placing or moving sediment. Any increased load from placed sediment would be too small to increase likelihood of surface fault rupture. Furthermore, as discussed under *Seismic Retrofit Construction* above-ground-disturbing activities involving vibration would not exacerbate fault rupture at the site. Placement of sediments would not increase load on nearby faults and would accordingly not increase likelihood of surface fault rupture. Accordingly, conservation measure construction activities would not increase the likelihood of an earthquake or exacerbate risk of fault rupture and therefore would not directly or indirectly expose people or structures to substantial adverse effects involving the rupture of a known earthquake fault. Therefore, the impact would be less than significant.

Post-Construction Anderson Dam Facilities Operations

Operational changes proposed for nonemergency flow releases would not exacerbate the effects of surface fault rupture of the known earthquake faults.

The Project could not directly or indirectly cause substantial adverse effects related to surface fault rupture because there would be no change in the range of reservoir depths from the Pre-FERC Order Conditions Baseline conditions. Deep reservoirs in seismically active areas can result in reservoir-induced seismicity (RIS). RIS occurs when deep (80 meters or 263 feet) or very deep (deeper than 150 meters or 492 feet) reservoirs are located on or near active faults (USGS 1996). The mechanism is a combination of increased load and increased lubrication on the fault. However, the Project would not increase the depth of the reservoir over the Pre-FERC Order Conditions Baseline and therefore would not exacerbate risk of RIS and according to surface fault rupture.

No earth moving activities would be required, so vibration would not affect the underground locked fault, which is at considerable depth bgs and would not be affected by earth-moving activities. Furthermore, operation of the Anderson Dam would not increase load on or lubrication of the faults by increasing depth of water because there would be no increase in dam capacity compared to the Pre-FERC Order Conditions Baseline. On the contrary, implementation of the Project would increase the seismic safety of the dam and associated infrastructure with respect to surface fault rupture, reducing the likelihood of seismic failure during an earthquake event, resulting in a beneficial impact related to seismic safety. Thus, because operations would not increase the likelihood of an earthquake nor exacerbate risk of fault rupture, post-construction Anderson Dam facilities operations would not directly or indirectly expose people or structures to substantial adverse effects involving the rupture of the known earthquake faults, and the impact would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek watershed such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These actions would occur when conservation measures are not functioning as intended or not meeting measurable objectives.

These actions could include ground disturbance, potentially including actions that would involve placing or moving sediment. Any increased load from placed sediment would be too small to increase the likelihood of surface fault rupture. Similarly, any vibration generated from sediment movement would be too small to affect the underground locked fault. Although these adaptive actions would occur within the Coyote Creek channel and adjacent lands, they would not have the potential to exacerbate the likelihood of fault rupture. Therefore, post-construction FAHCE adaptive management would not increase the likelihood of an earthquake nor exacerbate the likelihood of surface fault rupture and therefore would not directly or indirectly expose people or structures to substantial adverse effects involving the rupture of the known earthquake faults. If necessary, additional CEQA review would be undertaken for any adaptive management that is proposed for the Project that would result in impacts that are not addressed in this EIR. Therefore, the impact would be less than significant.

Significance Conclusion Summary

The Project, including both Seismic Retrofit and Conservation Measure components, is located within a seismically active region. The nearby active Calaveras fault lies just east of Anderson Reservoir and the active Coyote Creek Range fault transects Anderson Dam. However, construction and operation of the Project would not exacerbate the risk of fault rupture that may occur in the vicinity of the Project area. The reservoir is not deep enough to cause RIS, vibrations associated with blasting and tunneling activities would not affect the earth at depths of where the underlying faults are locked (URS 2022), and no Project-related actions would increase the likelihood of seismic activity and associated surface fault rupture. Accordingly, neither construction nor operation of the Project would increase the likelihood of an earthquake or exacerbate the likelihood of surface fault rupture in the Project area or directly or indirectly expose people or structures to substantial adverse effects involving rupture of a known earthquake fault. Therefore, Therefore, the impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

***Impact GEO-2: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking* (Less than Significant)**

Seismic Retrofit Construction

As shown in **Figure 3.8-4**, Anderson Dam is located within a highly seismically active area surrounded by numerous faults. In addition, the Coyote Creek Front Range fault traverses the dam face and the Calaveras fault located a mile east of the dam along the east side of Anderson Reservoir traverses across the southeastern leg of the reservoir within the Project area. Given the quantity of faults and proximity of the faults to the dam, the entire region would be subject to strong seismic ground shaking in the event of an earthquake.

Specifically, a high-magnitude earthquake on either the Coyote Creek Front Range fault or the Calaveras fault would create severe seismic ground shaking at the Project area. As discussed above in Section 3.8.1.3, the MCE for the Coyote Creek Front Range fault was identified to be a 6.6M event that would generate PGA levels of 1.14g at the site (URS 2021a). The MCE on the Calaveras fault was identified to be a 7.25M event that would generate PGA levels of 0.85g at the site (URS 2021a). This PGA level translates to severe perceived intensity with heavy damage (Bolt 1993) (**Table 3.8-2**). Accordingly, whether an MCE event were to occur on the Coyote Creek Front Range fault or the Calaveras fault, severe ground shaking at Anderson Dam would occur during an earthquake on either fault. Seismic effects could also include surface faulting (discussed under Impact GEO-1 above) and deformation (i.e., where rocks bend, twist or fracture). Thus, because these faults are located within the Project area, earthquakes along these two faults were considered in the design of the Project. The Embankment Basis of Design technical memorandum (URS 2021a) evaluates tectonic stresses on materials used for the replacement dam as well as materials underlying and neighboring the dam in order to affirm that the dam as designed would withstand the MCE on either fault.

The Project could directly or indirectly cause substantial adverse effects related to surface fault rupture if vibration generated by Project construction would affect local seismicity. While Seismic Retrofit construction activities, including tunneling and blasting, would be located in areas susceptible to earthquakes, these excavation methods are not known to have any effect on local seismicity or onsite response to seismic activity, including seismic ground shaking (URS 2022). The location of where rock on either side of a fault is locked, where stress develops and energy is ultimately released when an earthquake occurs, is located in the range of 3.5 to 10 miles bgs. Because of the shallow depth to which energy from blasting and tunneling activities extends, those activities during construction would not exacerbate ground shaking at the site. Therefore, the Project would not cause ground shaking or reasonably exacerbate the effects of ground shaking that may occur in the Project Area. The dam embankment, spillway, diversion system, outlet works systems, and permanent roadways and recreation facility modifications would be designed in accordance with existing laws and regulations related to geological and seismic stability. Specifically, the Seismic Retrofit components would be designed in accordance with DSOD and CBC/IBC standards and regulations intended to ensure construction would withstand damage from ground rupture and seismic shaking. Additionally, these facilities would not be used for human occupancy. Because seismic retrofit construction would not exacerbate the effects of seismic ground shaking and would not directly or indirectly expose people or structures to substantial adverse effects involving seismic ground shaking, the impact would be less than significant.

Conservation Measure Construction

Earthwork and new structures would be constructed as part of the Ogier Ponds CM, the Phase 2 Coyote Percolation Dam CM, and Maintenance of the North Channel Reach ~~Extension~~ CM. Although construction of the Conservation Measures would be exposed to seismic risks including strong seismic ground shaking during an earthquake on nearby faults, excavation methods would not directly or indirectly cause or exacerbate the effects of strong seismic ground shaking (URS 2022). These actions could include ground disturbance, potentially including actions that would involve placing or moving sediment. Any increased load from placed sediment would be too small to increase likelihood of surface fault rupture. As discussed under *Seismic Retrofit Construction* above, ground disturbing activities involving vibration would not exacerbate seismic ground shaking at the site. Placement of sediments would not increase load on nearby faults and would accordingly not increase likelihood of surface fault rupture. Accordingly, Conservation Measure construction activities would not exacerbate the effects of seismic ground shaking and therefore would not directly or indirectly expose people or structures to substantial adverse effects involving seismic ground shaking. Therefore, the impact would be less than significant.

Post-Construction Anderson Dam Facilities Operations

Operations (i.e., reservoir filling and flow releases) would not exacerbate the effects of seismic ground shaking as earth moving activities would not be required.

The Project could directly or indirectly cause substantial adverse effects related to seismic ground shaking if the increased depth of the reservoir could result in RIS. RIS occurs when deep (80 meters or 263 feet) or very deep (deeper than 150 meters or 492 feet) reservoirs are located on or near active faults (USGS 1996). However, the Project would not increase the depth of the reservoir over the Pre-FERC Order Conditions Baseline, and therefore would not exacerbate the risk of RIS or strong seismic ground shaking.

Implementation of the Project would increase the seismic safety of the dam with respect to strong seismic ground shaking over the Pre-FERC Order Conditions Baseline, reducing the likelihood of seismic failure during an earthquake event, resulting in a beneficial impact related to seismic safety. Thus, because post-construction Anderson Dam operations would not exacerbate likelihood of seismic ground shaking and therefore would not directly or indirectly expose people or structures to substantial adverse effects involving seismic ground shaking, the impact would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek watershed such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These actions would occur when conservation measures are not functioning as intended or not meeting measurable objectives.

These actions could include ground disturbance, potentially including actions that would involve placing or moving sediment. Any increased load from placed sediment would be too small to increase likelihood of surface fault rupture. Similarly, any vibration generated from sediment movement would be too small to affect the underground locked fault. Although these adaptive actions would occur within the Coyote Creek channel and adjacent lands, they would not exacerbate the likelihood of seismic ground shaking. Therefore, post-construction FAHCE adaptive management would not exacerbate the likelihood of seismic ground shaking and therefore would not directly or indirectly expose people or structures to substantial adverse effects involving seismic ground shaking. If necessary, additional CEQA review would be undertaken for any adaptive management that is proposed for the Project that would result in impacts that are not addressed in this EIR. Therefore, the impact would be less than significant.

Significance Conclusion Summary

The Project, including both Seismic Retrofit and Conservation Measure components, is located within a seismically active region that would experience strong seismic ground shaking during an earthquake. However, construction and operation of the Project would not cause or exacerbate the risk of seismic ground shaking that may occur in the Project area. The reservoir is not deep enough to cause RIS, vibrations associated with blasting and tunneling activities would not affect the earth depths of where the faults are locked (3.5 to10 miles bgs), and no Project-related actions would increase likelihood of seismic activity and associated seismic ground shaking. Construction activities would not have the potential to exacerbate seismic ground shaking at the site. Accordingly, neither construction nor operation of the Project would expose people or structures to substantial adverse effects involving seismic ground shaking. The Seismic Retrofit and Conservation Measures components would not exacerbate the likelihood of seismic ground shaking in the Project Area and therefore would not directly or indirectly expose people or structures to substantial adverse effects involving seismic ground shaking. Therefore, the impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact GEO-3: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction (Less than Significant)

Seismic Retrofit Construction

Anderson Dam and the majority of work areas needed for Seismic Retrofit construction are situated on Quaternary alluvial and artificial fill in a known liquefaction hazard area in a region that is susceptible to strong seismic ground shaking. As shown in **Figure 3.8-5**, areas immediately downstream of the dam along Coyote Creek are susceptible to liquefaction in response to seismic ground shaking. Accordingly, the presence of liquefiable soil layers in the existing dam embankment and foundation of the dam could result in major slumping and failure of the embankment following a large earthquake (AMEC 2011, URS 2021b). Subsequently, this could lead to a failure of Anderson Dam by either overtopping or piping through large cracks resulting in an uncontrolled release of reservoir water. Placement of the replacement dam materials onto liquefiable soils, failing to remove existing liquefiable soils in the dam embankment, or constructing the dam using soils susceptible to liquefaction could increase likelihood of liquefaction during seismic ground shaking, potentially leading to seismic densification, settlement, and overtopping of the dam. In addition, construction of the Seismic Retrofit components could increase the likelihood of liquefaction of susceptible soils through vibration caused by blasting, which would be used to facilitate tunneling and borrow activities.

Furthermore, the placement of excavated soils that are susceptible to liquefaction could increase the likelihood of liquefaction at the disposal site if structures are placed on these disposed materials. As described in Section 3.8.1.2, *Soils*, soils at and near the dam site have low to moderate risk of liquefaction. While the dam would not substantially increase the load on underlying foundation soils, placement of the new dam materials could nevertheless exacerbate the slight risk of liquefaction. In case of the occurrence of the MCE, liquefaction could cause differential settlement that could cause the dam crest to lower in elevation and lead to overtopping of the dam. Investigations have demonstrated that, during an MCE event, the dam crest could lower by 1.25 to 4.75 feet due to settlement (URS 2021a). Analysis has shown, however, that the freeboard remaining following an earthquake would be sufficient to avoid overtopping the dam, even when the reservoir is full.

In addition, the interim dams constructed to contain water before the final embankment dam is completed could be damaged by seismically induced liquefaction. If this were to occur, the interim dams could be breached or overtopped. Analysis shows that vertical displacement of the interim dams as a result of seismic ground shaking would range from 0.2 to 0.7 feet, which is within the required range of performance to avoid overtopping the dams (URS 2021a).

While the embankment contains liquefiable soils, liquefiable materials in the existing dam would be removed (URS 2021a). The liquefiable materials in the existing embankment dam would be replaced with nonliquefiable earth fill materials that would be capable of withstanding the effects of large earthquake events on the nearby faults (e.g., seismic ground shaking). In addition, the dam would be constructed to minimize conditions that could lead to liquefaction. Specifically, the replacement dam would include special-purpose zones[13] designed to resist liquefaction. The central core, being constructed of clay, would not be susceptible to liquefaction. Although the transition zone surrounding the central core could contain sands that could liquefy if saturated with water, adjacent filter and drain zones would allow any water in the dam to exit the embankment and avoid saturation of transition zone sands. By using properly compacted earth materials and drainage systems, the new dam embankment itself would not be prone to liquefaction (URS 2021a). Furthermore, construction activities associated with the Seismic Retrofit component of Anderson Dam would be conducted in accordance with all relevant provisions of the current DSOD and IBC/CBC standards to minimize effects resulting from dam failure caused by liquefaction.

Although Seismic Retrofit construction activities would include blasting, which has the potential to generate ground motion that could induce liquefaction in the liquefiable soils of the existing dam, ground motion induced by blasting would not induce liquefaction during construction of the seismic retrofit components. The closest blast source to liquefiable materials in the existing embankment would occur as part of the construction of the tunnel, which would occur at least 250 feet away (URS 2022). PGA generated from the ground motions of blasting would substantially decrease within a short distance from the blast source. It is estimated that PGA values would be less than the 100-year level (0.36g) event at a distance of 200 to 250 feet from the blast source. In addition, materials at Anderson Dam would need to be shaken between at least 9 and 12 seconds during a design-level earthquake in order to liquefy, whereas blasting activities would be considerably shorter in duration (i.e., ground motions would last generally

[13] Larger embankment dams are generally *zoned* with fine soils such as silts or clays at the core to hold the water in the reservoir, sand, gravel, or rock fill to provide the stability needed for the embankment (termed *transition zones*), and filters and drains to remove the water to resist seepage (University of California, Davis Civil and Environmental Engineering n.d.).

less than 1 second). Analyses for Anderson Dam with these assumptions have shown that the embankment would be stable after a 100-year level event. Thus, because ground motions would be short in duration, and because blasting activities would occur over 250 feet away from potentially liquefiable materials, blasting during construction would not induce liquefaction within the potentially liquefiable layers of the dam (URS 2022). Furthermore, construction activities associated with the Seismic Retrofit of Anderson Dam would be conducted in accordance with all relevant provisions of the current DSOD and IBC/CBC standards to minimize effects resulting from dam failure caused by liquefaction.

Liquefiable materials from the dam embankment that cannot be reused would be disposed of within the designated Reservoir Disposal Area. The Reservoir Disposal Area would be located on the reservoir bottom (URS 2021d ~~2023~~). Excavated waste materials, including the liquefiable soils removed from the existing dam embankment, would be placed on a prepared multi-layered surface consisting of geotextile, geogrid, and fill on top of reservoir sediment 10 to 24 feet deep. No structure or other load would be placed on these disposed materials. Therefore, any liquefiable soils removed from the existing dam embankment and disposed of would not present an increased risk of liquefaction in the Reservoir Disposal Area.

Construction of the Seismic Retrofit components would also not increase the groundwater table or otherwise increase soil saturation in the area that would increase the potential for liquefaction.

Soils at the site of the Seismic Retrofit components are rated as having low to moderate liquefaction potential, so risk of liquefaction from placement on liquefiable soils is low. Liquefaction caused by an MCE earthquake could cause the dam crest to lower in elevation, but the freeboard remaining following an earthquake would be sufficient to avoid overtopping the dam. Implementation of the Seismic Retrofit component would remove the liquefiable soils from the existing embankment and replace them in a zoned embankment with nonliquefiable soils with good drainage, thereby reducing the potential for dam failure caused by liquefaction. Construction activities such as blasting would not generate strong ground motion close to liquefiable materials that would induce liquefaction in these materials. Disposal of liquefiable soils would not be placed in a location where they would support a new structure. Furthermore, construction activities associated with the Seismic Retrofit component of Anderson Dam would be conducted in accordance with all relevant provisions of the current DSOD and IBC/CBC standards to minimize effects resulting from dam failure caused by liquefaction. Thus, because Seismic Retrofit component construction would not substantially exacerbate the effects of liquefaction and would not directly or indirectly expose people or structures to substantial adverse effects involving liquefaction, the impact would be less than significant.

Conservation Measure Construction

As discussed in Section 3.8.1.4 under *Liquefaction*, areas along Coyote Creek downstream of Anderson Dam are susceptible to liquefaction, including at all Conservation Measure components (CGS 2003, 2004). All of the Conservation Measures involve placement of at least some fill (though expected to be negligible for Maintenance of the North Channel Reach and Live Oak Restoration Reach), including gravels and riprap, on liquefiable soils. Thus, new facilities associated with these Conservation Measure components that add load to these liquefiable sediments could increase likelihood of liquefaction during seismic ground shaking.

Construction of the Ogier Ponds CM would require the import of approximately 450,000 cy of soil materials to completely fill Ponds 1 and 5, partially fill Ponds 2 and 4, expand the floodplain, and create a new overflow bypass levee to reestablish the original Coyote Creek alignment. ~~The North Channel Extension would involve grading of the North Channel through County parks and private property to connect with the confluence of the North and South Channels of Coyote Creek. Construction of the North Channel Extension would consist of grading activities and habitat enhancement.~~ The Sediment Augmentation Program would involve placing approximately 500 ~~55,000~~ cy of suitable sediment in Coyote Creek in the Live Oak Restoration Reach (initially), and in the Live Oak Restoration Reach or Ogier Ponds Reach over time, as determined by monitoring during adaptive management ~~at multiple locations~~. The Phase 2 Coyote Percolation Dam CM at Metcalf Ponds would involve removal of 9,650 ~~3,200~~ cy of cut material and placement of 12,192 ~~8,800~~ cy of large rock and engineered fill. The Live Oak Restoration Area may also include the addition of gravels necessary to sustain steelhead habitat. The area surrounding Coyote Creek consists of liquefiable materials.

For all of the Conservation Measures components, placement of materials on liquefiable soils could result in consolidation and associated subsidence after seismic ground shaking as a result of liquefaction of the foundation soils. While subsidence of foundation soils under pond, floodplain, and instream sediments would not expose people or structures to substantial adverse effects involving liquefaction, liquefaction of foundation soils under the levee and the fish ramp could result in deformation, subsidence, and possibly failure such that water could overtop the structures. Project placement of materials associated with the levee could, therefore, exacerbate the likelihood of liquefaction and thereby directly or indirectly expose people or structures to substantial adverse effects involving liquefaction.

Required compliance with CBC/IBC standards and regulations, which require geotechnical investigations including soils studies as well as measures to minimize geotechnical risks, for all Conservation Measure improvements and structures would reduce the potential for liquefaction-induced effects. Therefore, construction of the Conservation Measures would not substantially exacerbate the effects of liquefaction and would therefore not directly or indirectly expose people or structures to substantial adverse effects involving liquefaction. There, the impact would be less than significant.

Post-Construction Anderson Dam Facilities Operations

Once the Seismic Retrofit construction is complete, all liquefiable soils from the embankment would be removed; therefore, soils inside the embankment would no longer be at risk of failure from liquefaction following an earthquake. The capacity of the reservoir would not increase compared to the Pre-FERC Order Conditions Baseline, so the load on underlying foundation soils caused by water in the reservoir would not increase and exacerbate any existing risk of seismically induced liquefaction. The dam would be larger than the original dam and therefore would increase load on underlying foundation soils; however, a geotechnical evaluation has not identified the risk of liquefaction at the location of soils under the dam. Operations (i.e., reservoir filling and flow releases) would resume, and reservoir releases would continue to flow within Coyote Creek. Flows down Coyote Creek would also not exacerbate the likelihood of liquefaction.

Overall, the Project would reduce potential adverse impacts on people and structures due to dam failure caused by liquefaction by removing liquefiable materials from the existing dam embankment. Thus, because operations would not exacerbate liquefaction and thereby directly or indirectly expose people or structures to adverse effects involving liquefaction, the impact would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek watershed such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These actions would occur when Conservation Measures are not functioning as intended or not meeting measurable objectives. Adaptive actions would occur within the Coyote Creek floodplain. Placement of sediments on liquefiable soils could increase likelihood of liquefaction. However, consequences of liquefaction would include consolidation and potentially subsidence of the underlying soils and would not include damage or injury to structures or people. Therefore, although post-construction FAHCE adaptive management could exacerbate the likelihood of liquefaction, these actions would not directly or indirectly expose people or structures to substantial adverse effects involving liquefaction. If necessary, additional CEQA review would be undertaken for any adaptive management that is proposed for the Project that would result in impacts that are not addressed in this EIR. The impact would be less than significant.

Significance Conclusion Summary

The Seismic Retrofit and Conservation Measure components are located in areas susceptible to liquefaction. Placement of dam materials could increase the load on liquefiable soils, which may densify and settle during an earthquake. However, analysis has shown that such settlement would not cause overtopping of the newly constructed dam. Furthermore, construction of the Seismic Retrofit component would not substantially exacerbate the effects of liquefaction at the Seismic Retrofit Project site because of the zoned construction of the embankment, the short duration of blasting activities, the distance of blasting activities to the potentially liquefiable materials, and disposal of liquefiable waste materials in the middle of the reservoir in an area where no structural load would be placed on top. In addition, construction of the Seismic Retrofit component would remove the liquefiable soils from the existing Anderson Dam embankment, thereby reducing the potential for dam failure caused by liquefaction.

Placement of structures associated with the Conservation Measures on liquefiable soils during construction could exacerbate liquefaction hazards. However, construction of the Project would adhere to DSOD and CBC/IBC standards and regulations as applicable, reducing potential liquefaction risks. Other than Post-Construction FAHCE Adaptive Management, operations associated with the Project would not involve ground disturbance that could exacerbate liquefaction. Post-Construction FAHCE Adaptive Management could involve the placement of sediments in Coyote Creek and Ogier Ponds, but in the unlikely event that impacts are greater than those addressed in this EIR, additional CEQA review would be undertaken. Thus, the Project would not substantially exacerbate the effects of liquefaction and would not directly or indirectly expose people or structures to substantial adverse effects involving liquefaction. The impact would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

Impact GEO-4: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides **(Less than Significant with Mitigation)**

Seismic Retrofit Construction

Anderson Dam is located in a mountainous area with steep slopes susceptible to landslides due to weak ground from faults and historic landslides that predate the reservoir. As shown in **Figure 3.8-5**, areas susceptible to seismically induced landslides surround the reservoir, and five landslide areas exist along the southern portion of Anderson Reservoir on the west and east side; these include the Boat Marina landslide, Hoot Owl Way landslide, and the East Dunne landslides (consisting of the East Dunne Avenue landslide, Woodchopper landslide, and one possible additional slide in the north side of the area).These landslides have a history of movement during previous drawdowns of the reservoir and during months of heavy rainfall. During a recent drawdown, a landslide within the area of the Packwood Gravel Borrow Pit area was also observed (URS 2021d ~~2023~~). Although landslides are a regular occurrence and some of the landslides entered the reservoir water, there is no history of seiches.

Given the existing geologic and soils conditions, landslides are part of the existing conditions that have occurred before this Project and are expected to continue to occur after completion of Project construction activities in the same manner as they do now. Therefore, the only condition that would be changed due to the Project in the Seismic Retrofit construction area would be the construction activities themselves and short-term and temporary drawdown of the reservoir to below deadpool levels during the retrofit of the dam, as analyzed below.

Construction-related activities could increase the risk of landslides. Earth moving activities could disturb the toe of a landslide, removing the buttress that serves to hold the landslide sediments in place. In addition, the reservoir drawdown to below deadpool levels followed by refilling could increase risk of landslides. Much of the reservoir drawdown was achieved as part of the FOCP and is therefore considered as part of the existing conditions baseline. The mechanisms that would cause movement of landslides during drawdown and subsequent refilling include change in pore water pressure conditions and loss of toe support that was provided by the water at the base of the reservoir bank prior to drawdown.

If a landslide were to occur on the west or east side of the reservoir during construction, Valley Water would in most cases leave the landslide in place, as it does now. The only landslides that would be repaired are those that would impact existing improvements. Existing improvements include roads, utilities, structures, fill or cut slopes, and other man-made features. Ground stabilization methods may include removal of slumped or cracked material, placement of engineered fill, slope drainage, retaining walls, slope reinforcement, anchor installation, or other ground stabilization work. Monitoring and potential repair activities would continue through seismic retrofit construction and initial filling of the reservoir. Implementation of **Mitigation Measure GEO-1**, described further below, would reduce impacts to less than significant**.**

During Seismic Retrofit construction, nine stockpile areas would be used for temporary storage and processing of embankment and fill materials. Some of the stockpile areas on the western slope of the reservoir would be located within areas known to be susceptible to landslides. These landslides could be reactivated during construction, affecting personnel and equipment at the stockpile areas during preparation and use.

During construction, soil and earthen material would be removed from the BHBA and PGBP for use in the new dam embankment. To reduce landslides and rock falls from the freshly exposed faces at the BHBA where there are areas of fractured or weathered rock, the slopes would be stabilized with steel-fiber-reinforced shotcrete or steel mesh as described in Chapter 2, *Project Description* (URS 2021d ~~2023~~). Based on performed stability analyses, the slopes at PGBP would remain stable during construction (URS 2021d ~~2023~~).

Construction of all facilities associated with the Seismic Retrofit would be conducted in accordance with all relevant provisions of the current FERC and DSOD standards that reduce risks associated with geologic and slope stability. However, even with compliance with these requirements, construction of the Seismic Retrofit components could increase the risk of landslides, as previously discussed. The impact would be significant. Implementation of **Mitigation Measure GEO-1**, as described further below, will reduce impacts to less than significant with mitigation.

Once constructed, the reservoir levels would return to the pre-existing baseline range of levels prior to safety restrictions by FERC and DSOD. Landslide ground movement may continue to occur but would occur as they had prior to imposed restrictions and would not constitute a change for post-construction conditions.

Conservation Measure Construction

Other than Maintenance of the North Channel Reach ~~Extension~~, the Conservation Measure components downstream of the dam (i.e., Ogier Ponds CM, Sediment Augmentation Program, and Phase 2 Coyote Percolation Dam CM) would not be located within areas identified as susceptible to landslides (CGS 2003, 2004). No steep slopes are located within this portion of the Project Area. Therefore, construction of these Conservation Measures would not exacerbate likelihood of landslide.

The North Channel Reach ~~Extension~~ is located in the vicinity of steep slopes that are identified by CGS as being susceptible to landslide (CGS 2004). A majority of the activities in the North Channel Reach would be limited to minor and intermittent maintenance (e.g., vegetation management). ~~Excavation associated with construction~~ Maintenance of the North Channel Reach would not occur near the foot of this slope~~. Because of the distance from the slope, it is considered~~, and therefore, it is unlikely that maintenance ~~excavation~~ at this site would increase risk of landslide. Accordingly, ~~construction of the~~ Maintenance of the North Channel Reach ~~Extension Conservation Measure~~ would not exacerbate existing landslide hazards in the vicinity and therefore would not directly or indirectly expose people or structures to potential substantial adverse effects involving landslides. Therefore, impact would be less than significant.

Post-Construction Anderson Dam Facilities Operations

Following construction, the pre-existing reservoir capacity would be restored and storage of water would resume similar to conditions prior to ~~seismic~~ restrictions. As noted above in Impact GEO-1 and GEO-2, the depth of the reservoir would not increase, so there would be no increased risk of RIS. Furthermore, although the landslides along the reservoir rim would still exist and could be reactivated by seismic ground shaking, exacerbated by the fluctuation of reservoir storage volumes during normal operations (including during drought conditions), likelihood of seismically induced landslide would be similar to the likelihood during Pre-FERC Order Baseline Conditions. Furthermore, any such landslide would be addressed in accordance with the DMP, as described above. Thus, post-construction operations would not exacerbate existing landslide hazards in the seismic retrofit Project area and therefore would not directly or indirectly expose people or structures to potential substantial adverse effect involving seismically induced landslides. Therefore, this impact would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek watershed, such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These actions would occur when conservation measures are not functioning as intended or not meeting measurable FAHCE objectives. Adaptive actions would occur within the Coyote Creek floodplain downstream of the Anderson Dam. While the Ogier Ponds CM, Sediment Augmentation Program, and Phase 2 Coyote Percolation Dam CM would not be located within areas identified as susceptible to landslides, the North Channel Reach ~~Extension conservation measure~~ is located adjacent to slopes that have been mapped by CGS as susceptible to landslide (CGS 2004). However, no specific excavation or other activity that could affect risk of landslide is proposed as a result of Project and FAHCE adaptive management. Therefore, post-construction Project and FAHCE adaptive management would not exacerbate likelihood of landslide and therefore would not directly or indirectly expose people or structures to potential substantial adverse effects involving landslides. If necessary, additional CEQA review would be undertaken for any adaptive management that is proposed for the Project that would result in impacts that are not addressed in this EIR. Therefore, the impact would be less than significant.

Significance Conclusion Summary

Ground disturbance associated with construction of the seismic retrofit of Anderson Dam, including drawdown of the reservoir, construction of stockpiles near landslides, removal of materials from the BHBA and the PGBP, and refilling of the reservoir could exacerbate likelihood of landslides by destabilizing landslide deposits. All construction activities would be performed in accordance with DSOD, IBC, and CBC standards as applicable. In addition, Valley Water would continue to monitor slope stability and landslide movement through the use of installed survey monuments and satellite reflectors within the reservoir as part of its normal operations.

Although maintenance activities ~~excavation~~ associated with the Maintenance of the North Channel Reach CM ~~Extension conservation measure~~ would occur ~~near~~ in the vicinity of slopes that are mapped by CGS (2004) as susceptible to landslide, all ~~construction~~ maintenance activities would be performed in accordance with IBC and CBC standards as applicable, and the distance of ~~construction~~ maintenance activities from the foot of the slope, and the limited scale of these activities, makes increasing the risk of landslide unlikely.

Operations of the reservoir after completion of the seismic retrofit components would return the reservoir to similar conditions with respect to landslide risk as existed during the Pre-FERC Order Condition Baseline. While landslides could occur during the Project operation period, the seismic retrofit components would not exacerbate likelihood of landslide. Similarly, adaptive management conducted under FAHCE would involve activities near an existing landslide near the North Channel Reach ~~Extension~~ ~~conservation measure~~. However, none of the activities would change the likelihood of landslide occurrence or exacerbate likelihood.

Construction of most of the conservation measures and operation of the Project would not cause landslides or exacerbate existing landslide hazards in the vicinity, and the impact for these aspects of the Project would be less than significant.

However, construction of the Seismic Retrofit components has potential to exacerbate landslide likelihood and thereby expose people or structures to potential substantial adverse effects involving landslides. This impact is significant. Implementation of **Mitigation Measure GEO-1** will reduce impacts to **less than significant with mitigation** by requiring Valley Water to remediate landslides caused by the construction activities and pose risks to private property.

Mitigation Measures

GEO-1 Repair Landslides Caused by Construction Activities

Valley Water will reduce impacts to less than significant with mitigation by requiring Valley Water to monitor the five active landslide areas during the Seismic Retrofit Construction and initial filling of the reservoir. If landslide movement is determined to have been caused by the Seismic Retrofit Construction activities and found to impact existing improvements, then Valley Water will ~~would~~ implement ground stabilization methods to prevent further movement. Existing improvements include roads, utilities, structures, fill or cut slopes, and other man-made features. Ground stabilization methods may include removal of slumped or cracked material, placement of engineered fill, slope drainage, retaining walls, slope reinforcement, anchor installation, or other ground stabilization work.

Impact GEO-5: Result in substantial soil erosion or the loss of topsoil (Less than Significant)

Seismic Retrofit Construction

Erosion can result in multiple effects: loss of growing medium for plants (loss of topsoil), destabilization of the ground surface including slopes and stream banks from mobilization and movement of sediment particles, changes in water quality, and sedimentation. This impact analysis focuses on loss of topsoil and mobilization of sediment particles that could lead to future erosion or result in changes to the ground surface. Impacts related to change in water quality are addressed in Section 3.14, *Water Quality*. Impacts related to sedimentation from increased erosion are addressed in Section 3.11, *Hydrology*.

Excavation and ground-disturbing activities associated with construction of the seismic retrofit could result in soil erosion or the loss of topsoil compared to the existing conditions baseline. Erosion increases when vegetation and other ground covers are moved, subjecting the underlying soil to erosive forces such as wind and water. Construction activities for the seismic retrofit components that would expose soil to erosive forces include clearing and preparing staging and stockpile areas; cofferdam construction; constructing the temporary water diversion system; dam excavation and fill; excavation of borrow materials, establishing new access and haul roads; constructing the new outlet works and spillway; constructing the permanent bladder dam; and use of unpaved access roads. Rain and wind events in areas where these activities would occur could result in erosion of soil into adjacent waterways.

Adhering to applicable BMPs and other erosion-focused measures can reduce erosion during construction. Because the Project occupies an area greater than 1 acre, as described in detail in Section 3.11, *Hydrology*, Valley Water would be required to obtain coverage under the SWRCB's General Permit for Storm Water Discharges Associated with Construction Activity Order 2022-0057-DWQ (Construction General Permit), which would require development and implementation of a SWPPP for out-of-reservoir construction activities. The SWPPP would include measures to control erosion and sedimentation from seismic retrofit construction activities outside of the reservoir. Erosion-control measures included in the SWPPP may include scheduling or limiting activities to certain times of the year (i.e., during the dry season); installing sediment barriers, such as silt fence and fiber rolls along the perimeter of construction areas; and implementing sediment-tracking controls, such as stabilizing entrances to the construction site. Furthermore, adherence to requirements of the applicable BMPs within and outside the reservoir would reduce the potential for erosion by implementing erosion control measures around stockpiled soils and staging areas, stabilizing construction entrances and exits, and removing temporary fill: GEN-20 (Erosion and Sediment Control Measures), GEN-21 (Staging and Stockpiling of Materials), AQ-1 (Use Dust Control Measures), WQ-4 (Limit Impacts from Staging and Stockpiling Materials), WQ-5 (Stabilize Construction Entrances and Exits), and BANK-1 (Bank Stabilization Design to Prevent Erosion Downstream). In addition, adherence to requirements of the following VHP conditions would minimize impacts related to erosion: VHP conditions 3 (Maintain Hydrologic Conditions and Protect Water Quality), 4 (Avoidance and Minimization for In-Stream Projects), and 5 (Avoidance and Minimization for In-Stream Operations and Maintenance). In addition, the Project would adhere to requirements of VHP Conditions and AMMs. Upon completion of construction, any temporary fill other than the cofferdam to be constructed on the floor of Anderson Reservoir would be removed, and site restoration measures would be implemented to return individual sites to preconstruction conditions, as specified in BMPs BI-3 (Remove Temporary Fill), BI-8 (Choose Local Ecotypes of Native Plants and Appropriate Erosion Control Seed Mixes), WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), and REVEG-1 (Seeding).

In addition to excavation and ground-disturbing activities associated with construction, materials excavated from the existing Anderson Dam embankment and the borrow areas would be stockpiled before use and could be subject to erosive forces. Construction of the seismic retrofit components would reuse embankment and fill materials excavated from the existing Anderson Dam embankment and would augment these materials with additional materials from the BHBA and PGBP to replace the dam embankment. In order to prepare the BHBA for use, topsoil and rock that cannot be used for the dam embankment would be removed and disposed either in the designed Reservoir Disposal Area or hauled to the Ogier Ponds ~~supplemental~~ staging or stockpiling areas for reuse as part of the geomorphic and habitat restoration effort. In addition, approximately 6 to 12 inches of topsoil from the west facing slope of the BHBA would be stripped, stockpiled, and reused during restoration. These excavated materials would be stored at the designated stockpile areas for use in the replacement dam. SWPPP erosion control measures for out-of-reservoir construction activities and applicable ~~,~~ BMPs~~,~~ and VHP conditions listed above within and outside the reservoir would protect the soil stockpiles from storm events and stabilize stockpiles during times of inactivity by revegetation or temporary cover to reduce the potential for substantial soil erosion and loss of soil. Stockpile areas would also be moisture-treated to reduce fugitive dust, as discussed in Chapter 2, *Project Description*.

Furthermore, implementation of BMP AQ-1 (Use Dust Control Measures) would require a variety of measures to reduce fugitive dust during construction, which would also serve to minimize loss of topsoil and reduce erosion (see discussion in Section 3.3, *Air Quality*). The SWPPP erosion control measures for out-of-reservoir construction activities, applicable BMPs listed above, and applicable VHP conditions and AMMs listed above would require implementation of approaches and technologies to retain sediment in place and prevent its movement. Therefore, construction of the seismic retrofit components would not result in substantial soil erosion or loss of topsoil, and this impact would be less than significant.

Conservation Measures Construction

Construction of some of the Conservation Measure components (e.g., Ogier Ponds ~~G~~CM, Phase 2 Coyote Percolation Dam CM, Live Oak Restoration Reach, and Maintenance of the North Channel Reach ~~Extension~~) would disturb the ground through clearing, grubbing, and excavation and expose soil to erosive forces. Construction of these conservation measures involves not only the conservation measures themselves but also temporary access roads and temporary stockpiles. Intense rain or wind events in areas where these activities would occur could result in soil erosion into adjacent waterways. Similar to the seismic retrofit and in compliance with the Construction General Permit, a SWPPP would be required, which would include measures to control erosion and sedimentation from construction activities. Furthermore, adherence to requirements of BMPs GEN-20 (Erosion and Sediment Control Measures), GEN-21 (Staging and Stockpiling of Materials), AQ-1 (Use Dust Control Measures), WQ-4 (Limit Impacts from Staging and Stockpiling Materials), WQ-5 (Stabilize Construction Entrances and Exits), and BANK-1 (Bank Stabilization Design to Prevent Erosion Downstream) will reduce erosion by implementing erosion control measures around stockpiled soils and staging areas and stabilizing construction entrances and exits. Upon completion of construction, any temporary fill would be removed, and site restoration measures would be implemented to return individual sites to pre-construction conditions, as specified in BMPs BI-3 (Remove Temporary Fill), BI-8 (Choose Local Ecotypes of Native Plants and Appropriate Erosion Control Seed Mixes), WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), and REVEG-1 (Seeding). In addition, the Project would adhere to requirements of VHP conditions 3 (Maintain Hydrologic Conditions and Protect Water Quality), 4 (Avoidance and Minimization for In-Stream Projects), and 5 (Avoidance and Minimization for In-Stream Operations and Maintenance). In addition, the Project would adhere to VHP Conditions and AMMs described in Section 3.8.3.7 ~~3.8.3.8~~.

The Sediment Augmentation Program would involve ~~removing and stockpiling suitable sediment from the exposed reservoir and~~ placing coarse sediment ~~the materials~~ in Coyote Creek at multiple locations between Anderson Dam and Ogier Ponds, initially at the Live Oak restoration reach. Sediment loads would be delivered by trucks, transported on conveyer belts, and placed using standard construction equipment. Each sediment augmentation site would require the establishment of access roads (or use of existing roads and trails) and a means to deliver sediment to channel, which may require some minor grading and/or vegetation removal. Rain and wind events in areas where these activities would occur could result in soil erosion into adjacent waterways. Constructing the access roads would involve ground disturbance in the form of grading and excavation. Using the access roads would compact the soil, leading to increased water velocity, which could in turn increase erosion both on the access roads and in the areas adjacent to the roads. Placement of sediment onto the streambed would not involve ground disturbance. However, it could change the hydraulic characteristics of the stream, potentially changing water velocity at the water's edge and thus increasing erosion of the stream bank. In addition, high flows from Anderson Dam could wash away these added sediments, and movement of the coarse sediments against the streambank could erode the streambank. However, adherence to requirements of the SWPPP, applicable BMPs and applicable VHP conditions and AMMs would ensure that impacts remain less than significant.

In addition, stockpiling suitable sediment for the Sediment Augmentation Program near the augmentation sites could expose this unconsolidated stockpiled material to erosion from rain or wind. SWPPP erosion control measures, BMPs listed above, and VHP conditions and AMMs listed above would protect the stockpiles from storm events and stabilize stockpiles during times of inactivity by revegetation or temporary cover to reduce the potential for substantial soil erosion and loss of soil. Stockpile areas would also be moisture-treated to reduce fugitive dust, as discussed in Chapter 2, *Project Description*. Furthermore, adherence to BMP AQ-1 (Use Dust Control Measures) will require a variety of measures to reduce fugitive dust during construction, which would also serve to minimize loss of topsoil and reduce erosion (see discussion in Section 3.3, *Air Quality*).

With adherence to the requirements of the SWPPP erosion control measures, BMPs listed above, and VHP conditions listed above, Conservation Measures construction would not result in substantial soil erosion or loss of topsoil, and impacts would be less than significant.

Post-Construction Anderson Dam Facilities Operations

Conditions at the dam and reservoir relating to erosion would be largely similar to the Pre-FERC Order Conditions Baseline. Although the downstream slope of the replacement embankment would be steeper than the existing embankment (i.e., 1.9:1 and 2.2:1, as opposed to 2.5:1), it would be well compacted and would not require erosion protection measures on the downstream or upstream side (URS 2021a). In addition, during post-construction dam operations, the reservoir levels would continue to fluctuate depending on seasonal conditions and water demand, leaving in some cases exposed slopes of the reservoir rim that could be subject to erosion. The Project would ~~not~~ increase the height of the dam but not ~~or~~ the capacity of the reservoir, so it is not expected that any new bank area would be disturbed by wave action compared to the Pre-FERC Order Conditions Baseline. Therefore, operations of the reservoir would not result in a large net loss of topsoil or erosion compared to the pre-FERC order conditions baseline at the dam and reservoir.

Operational and peak discharges into Coyote Creek under the Project would generally be higher under the Project than under Pre-FERC Order Conditions Baseline, because maximum capacity for releasing water through the dam would increase from 500 cfs under Pre-FERC Order Conditions Baseline to 6,800 cfs in the future after Project implementation. This would represent a substantial increase in the potential peak releases/flows from the dam; however, very high flows can potentially pass over the spillway during uncontrolled releases under the Pre-FERC Order Conditions Baseline. In addition, under FAHCE, there would be release of “pulse” flows of 50 cfs for 5 days, occurring up to two times from February 1 to April 30.

High flows can increase the potential for erosion downstream, as greater volumes of water traveling at greater velocities would increase the erosive power of the flows. Therefore, these higher discharges could result in increased streambank erosion from increased streamflow compared to Pre-FERC Order Conditions Baseline. However, many of the conservation measures would minimize potential adverse effects associated with peak flows. Reconnecting Coyote Creek to the historic channel through the Ogier Ponds CM would reestablish a more continuous, uninterrupted flow path for creek waters. Planting of native vegetation in areas along the floodplain in this area to create riparian habitat would also serve to reduce erosion along the reach. The North Channel Extension, constructed as part of FOCP, ~~and Habitat Enhancement measure~~ would allow high flows to be split between the north and south channels of Coyote Creek, minimizing water velocity and therefore erosive power. The Sediment Augmentation Program would replenish sediment that a high flow event would remove, as necessary based on monitoring results. Plantings if implemented under the FAHCE Adaptive Management measure would restore lost vegetation and provide ground cover, minimizing future risk of erosion. With operation of the conservation measures, high discharges under Project operation are unlikely to substantially increase streambank erosion within Coyote Creek.

Operation of the individual Conservation Measures even in the absence of high flows would also improve conditions with respect to erosion potential on Coyote Creek. As mentioned in the previous paragraph, the North Channel Extension, constructed as part of FOCP, would allow high flows to be divided between the North Channel and the South Channel of Coyote Creek, lowering both velocity and erosive power. The Sediment Augmentation Program would lower risk of erosion and incision in the creek by replacing and augmenting coarse sediment that would be less likely to mobilize except under higher flows. The disconnection of Ogier Ponds from Coyote Creek would likely be a benefit with respect to hydrology over the longer term. Reconnecting Coyote Creek to the historic channel would reestablish a more continuous, uninterrupted flow path that could increase sediment transport further downstream. Planting of native vegetation in areas along the floodplain in this area to create riparian habitat would also serve to reduce erosion along the reach. Accordingly, the conservation measures are unlikely to increase erosion.

Maintenance activities for Anderson Reservoir and conservation measures during the post-construction period would be relatively minor and would have low potential to result in substantial erosion and siltation on- or offsite. Activities such as repair or replacement of dam components or facilities, vegetation management, debris removal, sediment removal, and related activities for Anderson Reservoir and/or conservation measures could result in some erosion and potential siltation/sedimentation, but these effects would be less than significant with adherence to requirements of applicable BMPs and VHP conditions and AMMs.

Thus, post-construction operations would not result in substantial soil erosion or loss of topsoil, and impacts would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek watershed such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These actions would occur when conservation measures are not functioning as intended or not meeting measurable objectives. Adaptive actions occurring within the Coyote Creek floodplain downstream of the Anderson Dam could result in temporary ground disturbance or restoration treatments, such as invasive plant removals, that could result in erosion or loss of topsoil. Implementation of BMPs GEN-20 (Erosion and Sediment Control Measures), GEN-21 (Staging and Stockpiling of Materials), BI-8 (Choose Local Ecotypes of Native Plants and Appropriate Erosion Control Seed Mixes), WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BANK-1 (Bank

Stabilization Design to Prevent Erosion Downstream), and REVEG-1 (Seeding) as well as applicable VHP conditions and AMMs would minimize the potential for adaptive actions to result in substantial soil erosion or loss of topsoil. Furthermore, if necessary, additional CEQA review would be undertaken for any adaptive management that is proposed for the Project that would result in impacts that are not addressed in this EIR. Impacts would be less than significant.

Significance Conclusion Summary

Construction activities associated with Seismic Retrofit and Conservation Measure components, including FAHCE adaptive management actions, would involve ground-disturbing activities that have the potential to disturb soils and increase the potential for erosion and loss of topsoil. Such activities include clearing and preparing staging and stockpile areas; constructing, using, and maintaining stockpiles; excavating materials at borrow sites and conservation measures sites; placing sediment; and constructing and using unpaved roads. Implementation of a SWPPP (in compliance with the Construction General Permit) for out-of reservoir construction activities would require the implementation of measures to control erosion and sedimentation from construction activities. Furthermore, adherence to requirements of applicable BMPs, VHP conditions, and aquatic habitat AMMs will reduce erosion by implementing erosion control measures around stockpiled soils and staging areas, stabilizing construction entrances and exits, removing any temporary fill, restoring the site to its preconstruction condition, and reducing fugitive dust.

Changes in dam releases under future operations would increase the frequency of downstream inundation, which would in turn potentially cause erosion. However, the conservation measures would minimize potential adverse effects associated with peak flows by minimizing water velocity and replenishing sediment lost during high flows. Even in the absence of high flows, conservation measures would improve conditions with respect to erosion potential on Coyote Creek by the same mechanisms. Furthermore, adherence to requirements of applicable BMPs, VHP conditions, and VHP AMMs described will reduce erosion through replanting, enhancing coarse sediments in streams, and protecting and restoring stream banks.

Thus, with adherence to requirements of the SWPPP for out-of-reservoir construction activities, Valley Water, and applicable BMPs, ~~and~~ VHP conditions and AMMs listed above, substantial soil erosion or loss of topsoil resulting from the Project would not occur, and this impact would be **less than significant.** While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Mitigation Measures

No mitigation measures are required.

Impact GEO-6: 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 (Less than Significant)

While landslides, liquefaction, and lateral spreading can occur without a seismic event, the impacts if these were to occur would be the same. Impacts relative to landslides, liquefaction, and lateral spreading are analyzed under Impact GEO-4 and are not repeated here. Subsidence and collapse are analyzed below.

Seismic Retrofit Construction

Subsidence is typically caused by the extraction of groundwater or crude oil on a large scale. The Project would not include either of these activities.

Excavation associated with construction of the Seismic Retrofit components, including borrow sites, tunnel portals, and tunneling for the HLOWs, would present conditions that could lead to the collapse of excavated walls and the tunnel roof through lateral earth pressures (URS <u>2021c</u> ~~2021e~~). Groundwater at the level of tunnel excavation would increase risk of tunnel collapse. However, standard construction procedures consistent with requirements of the IBC and Occupational Safety and Health Administration (OSHA) require lateral earth pressure designs to be developed and submitted. In addition, the tunnel lining systems would be designed to withstand lateral round pressures. Furthermore, excavation and construction of the tunnel would be subject to DSOD requirements. Accordingly, risk of collapse through lateral earth pressures is low.

During excavation of the dam embankment, tunnels, portals, and borrow areas, unusable materials would be disposed of at the designated Reservoir Disposal Area. Placement of up to 1,150,000 cy of material would have the potential to compress the underlying lake sediment resulting in differential settlement if appropriate methods are not implemented. To reduce the potential for differential settlement to occur, the contractor would be required to cover the entire disposal area with 5 feet of material before starting the next layer. Each successive layer would be placed in 2-foot thicknesses across the entire area so that the lake sediment would consolidate evenly under the weight of the disposed materials. Overall, Seismic Retrofit construction would be conducted in accordance with all relevant provisions of the current DSOD and IBC/CBC standards related to geologic and slope stability to minimize effects resulting from unstable geologic units. Risk of collapse from lateral earth pressure would be managed through adherence to current DSOD and IBC/CBC standards related to geologic and slope stability. Risk of subsidence would not occur because the <u>Project</u> ~~project~~ does not include the withdrawal of groundwater or crude oil. Thus, impacts related to collapse and subsidence would be less than significant.

Conservation Measure Construction

Construction of the Conservation Measures would not require actions that would affect groundwater levels, such as extensive dewatering. While some dewatering would be conducted at Ogier Pond, the volumes and dewatering time would not be sufficient to cause subsidence. Accordingly, subsidence as a result of lowered groundwater levels is not anticipated. The Conservation Measures would not involve excavation that could create unsupported faces that could collapse due to lateral earth pressure. Therefore, operation would not increase risk of collapse. Thus, impacts related to collapse and subsidence would be less than significant.

Post-Construction Anderson Dam Facilities Operations

Operation of the Project would not include the extraction of groundwater or crude oil and subsidence would not occur. Operation of the Project after construction would not involve excavation that could create unsupported faces that could collapse due to lateral earth pressure. Therefore, the operation of the Project would not increase risk of collapse.

Operation of the Project would not increase risk of subsidence or collapse at the Seismic Retrofit components or at the Conservation Measures. Thus, this impact would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek watershed such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These actions would occur when conservation measures are not functioning as intended or not meeting measurable objectives. Adaptive actions occurring within the Coyote Creek floodplain downstream of the Anderson Dam could result in temporary ground disturbance or restoration treatments, such as invasive plant removals. However, these adaptive actions would not change conditions with respect to subsidence or collapse. Due to the mild slopes and because ground disturbance would be limited, implementation of adaptive actions would not exacerbate any instability in underlying geologic units or soil resulting in subsidence or collapse. Furthermore, if necessary, additional CEQA review would be undertaken for any adaptive management that is proposed for the Project that would result in impacts that are not addressed in this EIR. Therefore, the impact would be less than significant.

Significance Conclusion Summary

Anderson Dam is located on unstable ground conditions; soils at the reservoir rim, adjacent to the dam, and downstream of the dam are susceptible to subsidence or collapse, which could lead to a significant impact if the Project exacerbated such instability. Construction of the Project would be conducted in accordance with all relevant provisions of the current DSOD and IBC/CBC standards related to geologic and slope stability to minimize effects resulting from unstable geologic units, which would sufficiently minimize effects. The Seismic Retrofit component construction would not exacerbate any instability in underlying geologic units or soil resulting in subsidence or collapse. Therefore, the impact would be **less than significant**.

Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature (Less than Significant with Mitigation)

A unique geological feature is a discrete and clear geologic feature that has a clear identity distinct from other geologic features (e.g., Grand Canyon, Yellowstone Geysers). None of the geologic units that underlie any of the Project components contain unique geologic features. The geologic units are common and widespread throughout the region. Therefore, there would be no impact related to unique geologic features and are not discussed further.

Seismic Retrofit Construction

As described above in Section 3.8.1.5, the Santa Clara Formation underlying the Project area has a high-fossil yield ranking due to the known and diverse significant paleontological resources occurring in this unit. As identified in the archaeological field study conducted for the Project Paleontological Resources Impact Assessment (Far Western 2021) and the Post-Paleontological Survey for the Anderson Dam Drawdown to Deadpool Project, Santa Clara County, California (Far Western 2023), 52 fossils were previously recorded in the county in the Santa Clara Formation, as well as two significant fossil discoveries around the reservoir rim. As described in Section <u>3.8.1.5</u> ~~3.8.2.5~~, *Paleontological Resources*, Far Western (2023) conducted and reported on a surface collecting survey for paleontological resources in the reservoir drawdown area. Several significant mammalian fossils were retrieved from the Santa Clara Formation and were properly curated consistent with professional standards, fully mitigating for impacts on paleontological resources resulting from reservoir drawdown conducted by the time of the survey (at deadpool).

These discoveries suggest that further reservoir dewatering below deadpool, grading of native sediments, and other ground disturbing activities such as quarrying at the borrow sites associated with Seismic Retrofit construction could uncover further paleontological resources within the underlying Santa Clara Formation. Because Seismic Retrofit construction activities could directly or indirectly destroy such paleontological resources, the Project could result in a significant impact.

Mitigation Measure GEO-3 (Paleontological Construction Monitoring) requires paleontological construction monitoring during excavation in regions underlain by the Santa Clara Formation and other locations with high probability of a discovery. **Mitigation Measure GEO-4** (Paleontological Discoveries Treatment Plan) outlines the appropriate procedures to follow in the event that fossils are discovered. The potential for inadvertently destroying any significant paleontological resources would be reduced through the procedures outlined in the mitigation measures listed above, which provide for the protection, evaluation, and preservation/ documentation of any discovered resources. Thus, the potential for construction of the seismic retrofit to directly or indirectly destroy a unique paleontological resource or site or unique geologic unit would be minimized, and this impact would be less than significant with mitigation.

Conservation Measure Construction

A geologic unit, known to have yielded significant paleontological resources and categorized with paleontological sensitivity 4—High, Santa Clara Formation (QTs), occurs in the conservation measures area.

Construction of the Ogier Ponds CM, <u>Maintenance of</u> the North Channel <u>Reach</u> ~~Extension~~, and <u>Phase 2</u> Coyote Percolation Dam CM would involve excavation associated with creating new stream channels. Excavation for the new and altered stream channels ~~at the Conservation Measures~~ at Ogier Ponds ~~and North Channel Extension~~ have potential to excavate into Santa Clara Formation, depending on precise location and depth of the excavation, with potential to uncover significant paleontological resources. If excavation conducted for the Conservation Measures activities were to directly or indirectly destroy such paleontological resources, the Project would result in a significant impact. Implementation of **Mitigation Measures <u>GEO-2,</u> GEO-3,** <u>and</u> **GEO-4,** ~~and **GEO-5**~~ will provide for a survey for the presence of surface fossils in the Conservation Measures, area as well as the protection, evaluation, and preservation/

documentation of any resources discovered during excavation. The impact would be less than significant with mitigation.

Post-Construction Anderson Dam Facilities Operations

Operations would not involve any excavation or ground-disturbing activities that would impact paleontological resources. However, operational and peak discharges into Coyote Creek under the Project would generally be higher under the Project than under Pre-FERC Order Conditions Baseline because capacity for releasing water through the dam would increase from 500 cfs under Pre-FERC Order Conditions Baseline to a maximum of 6,800 cfs in the future after Project implementation. This would represent a substantial increase in the potential peak releases/flows from the dam; however, very high flows can potentially pass over the spillway during uncontrolled releases under the Pre-FERC Order Conditions Baseline. In addition, under FAHCE, there would be releases of "pulse" flows of 50 cfs for 5 days, occurring up to two times from February 1 – April 30.

Higher flows could increase potential for erosion downstream. Therefore, these higher discharges could result in increased streambank erosion from increased streamflow compared to Pre-FERC Order Conditions Baseline. The erosion could result in unearthing significant paleontological resources if the erosion occurs in Santa Clara Formation. While the resources may not be damaged by erosion, they would be removed from their original context, and therefore their scientific significance could be compromised. However, adherence to requirements of BMPs GEN-20, WQ-9, BI-8, BANK-1, and REVEG-1; VHP conditions 3, 4, and 5; and VHP AMMs will reduce erosion through replanting, enhancing coarse sediments in streams, and protecting and restoring stream banks, thereby limiting risk of damage to paleontological resources through erosion. Furthermore, many of the Conservation Measures would minimize potential adverse effects associated with peak flows as well as improve conditions with respect to erosion during lower flows. Thus, post-construction operations would not directly or indirectly destroy a unique paleontological resource or site or unique geologic unit. The impact would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek Watershed, such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These actions would occur when conservation measures are not functioning as intended or not meeting measurable objectives. Adaptive actions occurring within the Coyote Creek floodplain downstream of the Anderson Dam could result in temporary ground disturbance or restoration treatments, such as invasive plant removals, that involve ground disturbance. Any ground disturbance into Santa Clara Formation or any sufficiently deep ground disturbance into other geologic units near Santa Clara Formation (QTs) could unearth significant paleontological resources. However, no adaptive actions are currently proposed that would involve excavation into this unit or into geological units that are located close to outcroppings of the Santa Clara Formation (QTs).

If necessary, additional CEQA review would be undertaken for any adaptive management that is proposed for the Project that would result in impacts that are not addressed in this EIR. Therefore, the impact would be less than significant.

Significance Conclusion Summary

Excavation and ground-disturbing activities associated with Seismic Retrofit or Conservation Measures construction occurring in regions underlain by the Santa Clara Formation could expose paleontological resources. In addition, higher peak flows released from Anderson Dam during Project operation could increase risk of erosion downstream, which could increase risk of erosion uncovering significant paleontological resources and removing them from the original context, thereby potentially reducing their scientific significance. However, the Conservation Measures would minimize risk of erosion. Furthermore, adherence to requirements of BMPs GEN-20, WQ-9, BI-8, BANK-1, and REVEG-1; VHP conditions 3, 4, and 5; and VHP AMMs will reduce erosion through replanting, enhancing coarse sediments in streams, and protecting and restoring stream banks, thereby limiting risk of damage to paleontological resources through erosion. Because the Project could directly or indirectly destroy such paleontological resources, the Project could result in a significant impact. However, the Project would adhere to conditions 3, 4, and 5; and VHP AMMs, which would reduce erosion through replanting, enhancing coarse sediments in streams, and protecting and restoring stream banks. Reducing erosion would reduce risk of damage to paleontological resources that could be unearthed by erosion. However, even with adherence to BMPs, conditions, and AMMs, this impact could be significant. **Mitigation Measures GEO-2, GEO-3** and **GEO-4~~, and GEO-5~~** will require surveys and monitoring by paleontological monitors and require that the proper procedures to evaluate and protect paleontological resources are followed in the event of a discovery and would reduce impacts to paleontological resources to **less than significant with mitigation**. Operational activities would result in **less-than-significant impacts** to paleontological resources.

Mitigation Measures

GEO-2 Paleontological Initial Survey

Valley Water will require that a trained Paleontological Monitor under the supervision of a qualified Paleontologist (as defined by the BLM 2008) conduct ~~and~~ initial field surveys of the Conservation Measures area prior to any ground-disturbing activities. The qualified paleontologist will meet the Society for Vertebrate Paleontology's criteria for a qualified paleontologist. The initial survey will map the lithologic boundaries and sedimentary facies of the survey area. If any fossils are discovered during surveys, the Paleontological Monitor will recommend that ~~ensure~~ no Project activities will occur within 50 feet of the discovery, and the Qualified Paleontologist will assess the significance of the fossil and to document the discovery.

GEO-3 Paleontological Detailed Survey and Construction Monitoring

Prior to excavation activities, Valley Water will require that a trained Qualified Paleontological Monitor reporting to a Qualified Paleontologist conduct a detailed field survey of the Project area, consistent with recommendations in BLM (2016) to establish the boundaries of the Santa Clara Formation and the surrounding units and provide an estimate on the thickness of the Quaternary alluvium near Santa Clara Formation outcroppings.

A Paleontological Monitor reporting to a Qualified Paleontologist will further be present during excavation activities occurring in the Santa Clara Formation and other locations having a high potential for fossils according to the PFYC (BLM 2016), as identified by the results of the more detailed survey conducted. Depending on the results of the field survey, namely, the likelihood that significant paleontological resources would be uncovered based on depth of excavation and location of ground disturbance, monitoring will either involve constant monitoring (at locations of direct excavation into Santa Clara Formation (QTs) or into other geologic units underlain at excavation depth near Santa Clara Formation) or spot monitoring (at locations of excavation into other geologic units underlain by Santa Clara Formation below that depth of excavation). Monitoring will not be required into geologic units with low or moderate paleontological sensitivity not underlain by a geologic unit with high paleontological sensitivity. Monitoring will also follow protocols outlined in Scott and Springer (2003) and Murphey et al. (2019), with field monitor(s) reporting to a Qualified Paleontologist.

GEO-4 Paleontological Discoveries Treatment Plan

In the event of a fossil discovery, Valley Water and its contractors will require that all work cease within a 50-foot radius of the discovery and that the discovery be protected from further impacts until the qualified Paleontologist assesses the significance of the fossil and documents its discovery. The Paleontologist will make recommendations regarding the fossil's significance. If the paleontologist determines the fossil to be significant (i.e., the fossil can provide significant information about the history of life), the following treatment actions will be implemented as appropriate for the resource.

For each encountered paleontological resource, selected l treatment actions would range from excavation with protective jackets to surface collection to notation only, depending on the value of the resource. The choice of treatment actions will depend on the condition of the fossil, the potential for articulation of separate elements, and the nature of the enclosing sediments. Potential treatment actions include, but are not limited to:

1. Salvage unearthed paleontological resources, including simple excavation of exposed specimens or, if necessary, plaster-jacketing of large and/or fragile specimens or more elaborate quarry excavations of extensive paleontological resources
2. Record stratigraphic and geologic data to provide context for the recovered resources, typically including detailed descriptions of all resource locations and the associated rock types
3. Prepare collected resources for curation
4. Curate, catalog and identify all resources to the lowest taxon possible and document with site records and photographs
5. Transfer resources to an accredited institution (e.g., University of California, Berkeley) for archival storage and/or display
6. Prepare a report that documents the discovery, and steps taken to protect and conserve the discovery

3.8.5 Cumulative Impacts

The geographic study area for the cumulative impact analysis for geology and soils encompasses the future Project areas the southern San Francisco Bay Area that would be susceptible to ground shaking, liquefaction, landslides, topsoil erosion, or destroy a unique paleontological resource.

This section describes the Project's contribution to cumulative geology and soils impacts, as summarized in **Table 3.8-4**.

Table 3.8-4. Summary of Project Contribution to Cumulative Geology and Soils Impacts I

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault	No	No	NCC	None	No
Cumulative Impact GEO-2: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking	No	No	NCC	None	No
Cumulative Impact GEO-3: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction	No	No	NCC	None	No
Cumulative Impact GEO-4: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides	Yes	No	CC	MM GEO-1	No
Cumulative Impact GEO-5: Result in substantial soil erosion or the loss of topsoil	No	No	NCC	None	No
Cumulative Impact GEO-6: 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	No	No	NCC	None	No
Cumulative Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	Yes	Yes	CC	MM GEO-2 MM GEO-2 MM GEO-4	No

Cumulative Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault **(Not Cumulatively Considerable)**

The nearby active Calaveras fault lies just east of Anderson Reservoir and the active Coyote Creek Range fault transects Anderson Dam. However, construction and operation of the Project would not exacerbate the risk of fault rupture. The reservoir is not deep enough to cause RIS, vibrations associated with blasting and tunneling activities would not affect the earth at depths of where the underlying faults are locked (URS 2022), and no Project-related actions would increase the likelihood of seismic activity and associated surface fault rupture. As the Project would not increase the likelihood of an earthquake or exacerbate the likelihood of surface fault rupture in the Project area it would have no contribution to cumulative effects, and Project impacts would **not be cumulatively considerable.**

Cumulative Impact GEO-2: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking **(Not Cumulatively Considerable)**

The Project is located within a seismically active region that would experience strong seismic ground shaking during an earthquake. However, construction and operation of the Project would not cause or exacerbate the risk of seismic ground shaking that may occur in the Project area. The reservoir is not deep enough to cause RIS, vibrations associated with blasting and tunneling activities would not affect the earth depths of where the faults are locked, and no Project-related actions would increase likelihood of seismic activity and associated seismic ground shaking. As the Project would not increase the likelihood of seismic ground shaking it would have no contribution to cumulative effects**,** and Project impacts would **not be cumulatively considerable.**

Cumulative Impact GEO-3: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction **(Not Cumulatively Considerable)**

The Project is in an area susceptible to liquefaction. Placement of dam materials could increase the load on liquefiable soils, which may densify and settle during an earthquake. Placement of structures associated with the Conservation Measures, namely the levee at Ogier Ponds and the fish ramp at the Coyote Percolation Pond on liquefiable soils could exacerbate liquefaction hazards in those areas.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they occur in liquifiable soils at or near the Project sites.

Cumulative Effects of Project with the FOCP

FOCP construction of the Anderson Dam tunnel would involve tunneling through rock and other material at low risk of liquefaction and controlled detonations and use of boring equipment would generate groundborne vibration. Although liquefiable soils exist beneath both the upstream and downstream slopes of the dam embankment vibrations tunnel construction would not likely produce earth shaking at a strength sufficient to trigger liquefaction.

As construction activities for the FOCP would occur prior to the start of Project construction, there is no possibility of groundborne vibrations from FOCP related tunneling to affect dam material during or after construction of the Project or Conservation Measure components. Cumulative liquefaction impacts t are not significant with the FOCP and Project together, and the Project's contribution is not cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

None of projects listed in Table 3.0-2 would occur in the same area as the rebuild dam, therefore they would not contribute to cumulative liquification impacts at this site.

Certain future projects, such as the SMP and County Parks Planning Projects and Natural Resource Management, could occur in the vicinity as the Ogier levee and fish ramp at the Coyote Percolation Pond. However, these projects would not involve the placement of fills at these Project sites or involve strong ground shaking that could induce liquefaction in saturated soils. Overall, the risk of liquification is not a significant cumulative impact, and the Project’s contribution to the risk of liquefaction would not be cumulatively considerable.

Significance Conclusion Summary

Cumulative liquefaction impacts would not be significant, and the Project’s contribution to the risk of liquefaction would **not be cumulatively considerable**.

Mitigation Measures

None

Cumulative Impact GEO-4: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides **(Not Cumulatively Considerable)**

Anderson Dam is in a mountainous area with steep slopes susceptible to landslides due to weak ground from faults and historic landslides that predate the reservoir. Ground disturbance associated with construction of the seismic retrofit of Anderson Dam, including drawdown of the reservoir, construction of stockpiles near landslides, removal of materials from the BHBA and the Packwood Gravels Borrow Site, and refilling of the reservoir could exacerbate likelihood of landslide by destabilizing landslide deposits. ~~Excavation associated with~~ Maintenance of the North Channel Reach ~~Extension~~ conservation measure would occur ~~near~~ in the vicinity of slopes that are mapped by California Geological Survey (2004) as susceptible to landslide; however, due to the distance from the foot of the slope, it is unlikely that maintenance at this site would increase risk of landslide.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they create ground disturbances near the same areas of potential landslide risk as the Project.

Cumulative Effects of Project with the FOCP

The FOCP involved draining Anderson Reservoir to deadpool. Drawing down the reservoir increased the risk of landslides around the rim by exposing unstable and saturated slopes. In addition, tunneling activities generate ground vibrations that could trigger nearby landslides.

Construction activities take place at different times, such that ground borne vibrations during the FOCP would not affect construction or operation of the Project. However, the Project increases the period that the reservoir is drained and thus increases the potential for landslides on the unstable slopes around the reservoir. Given the extended period that the reservoir would be dewatered and various stockpiles in and around the reservoir, the Project and FOCP impacts combined would be cumulatively significant, and the Project's landslide risk contribution would be cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

None of projects listed in Table 3.0-2 would occur in the same area as the reservoir, BHBA or North Channel Reach ~~Extension~~, where the Project would have activities near areas with landslide risk, therefore they would not contribute to cumulative landslide impacts at this site. The Project would not have a significant cumulative effect on landslide risk with other future projects.

Significance Conclusion Summary

All Project construction activities would be performed in accordance with DSOD, IBC, and CBC standards as applicable. In addition, Valley Water would continue to monitor slope stability and landslide movement through installed survey monuments and satellite reflectors within the reservoir as part of its normal operations. For the FOCP Valley Water implemented the Anderson Dam Seismic Retrofit Project Landslide Monitoring and Mitigation Plan, Dewatering and Sediment Management Plan, and Slope Stability Plan. All these measures serve to reduce landslide risks by taking action to minimize soil instability and monitoring for signs of land movement, but cumulative landslide risks with the FOCP are nevertheless significant. The Project would implement **Mitigation Measure GEO-1** to reduce the risk of landslides. As such, ~~that~~ the Project's contribution to significant cumulative landslide risks post-mitigation is **not cumulatively considerable**.

Mitigation Measure

GEO-1 Repair Landslides Caused by Construction Activities

Cumulative Impact GEO-5: Result in substantial soil erosion or the loss of topsoil (Not Cumulatively Considerable)

Excavation and ground-disturbing activities associated with construction of the Project could result in soil erosion or the loss of topsoil. Such activities include clearing and preparing staging and stockpile areas; constructing, using, and maintaining stockpiles; excavating materials at borrow sites and conservation measures sites; placing sediment; and constructing and using unpaved roads.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they create ground disturbances near the same areas as the Project.

Cumulative Effects of Project with the FOCP

Construction of the Anderson Dam tunnel involved creation of temporary gravel roads and the transportation of excavated material from the tunnel site to a stockpile/disposal site, increasing the potential for soil erosion at the reservoir. Both projects create similar impacts to soil erosion in the same areas around the reservoir. However, both projects implement a SWPPP in compliance with the Construction General Permit, and a set of erosion control BMPs (BMPs GEN-20, GEN-21, WQ-4, WQ-5, BI-3, BI-8, WQ-9, AQ-1, BANK-1, and REVEG-1) to minimize erosion around stockpiled soils and staging areas, stabilizing construction entrances and exits, removing any temporary fills, restoring the site to its pre-construction condition, and reducing fugitive dust. With adherence to requirements of the SWPPP and BMPs, substantial soil erosion or loss of topsoil caused by the projects would not cause a significant cumulative impact**.**

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Projects in the same area as the reservoir, Conservation Measure sites, and Coyote Creek include the SMP, Coyote Creek Flood Protection Project, Santa Clara County Parks Planning Projects and Natural Resource Management, as well as development projects in the County where ground disturbing activities could contribute to erosion and the loss of topsoil. All construction projects that disturb more than one acre are subject to the Construction General Permit ~~CGP~~ and the requirements of a SWPPP. Other Valley Water projects, and most other projects, also include a set of erosion control BMPs. With adherence to requirements of the SWPPP and BMPs, substantial soil erosion or loss of topsoil caused by the Project and other probable projects would not cause a significant cumulative impact.

Significance Conclusion Summary

All Project construction activities would be performed in accordance with a SWPPP for out-of-reservoir construction activities and other applicable erosion control BMPs that minimize the potential for erosion and loss of topsoil. Cumulative soil erosion impacts would not be significant, and the Project's contribution to cumulative soil erosion or loss of topsoil is **not cumulatively considerable**. While not required to reduce cumulative impacts to less than significant, Mitigation Measure WQ-1 would further reduce impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Mitigation Measure

None

Cumulative Impact GEO-6: 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 (Not Cumulatively Considerable)

Anderson Dam is located on unstable ground conditions; soils at the reservoir rim, adjacent to the dam, and downstream of the dam are susceptible to landslides, liquefaction, lateral spreading, settlement, and subsidence. Excavation and construction of new stream channels or other features associated with the Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, and Phase 2 Coyote Percolation Dam CM into liquefiable soils could increase risk of lateral spreading. Long-term, the Project would stabilize the embankment of Anderson Dam and reduce potential adverse impacts on people and structures due to dam failure caused by unstable geologic conditions.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they create ground disturbances near the same areas of potential unstable soils as the Project.

Cumulative Effects of Project with the FOCP

FOCP project elements occurred in bedrock with low potential for soil instability. Construction activities take place at different times, such that ground borne vibrations during the FOCP would not affect construction or operation of the Project. Construction of both the FOCP and Project would be in accordance with all relevant provisions of the current DSOD and IBC/CBC standards related to geologic and slope stability to minimize effects resulting from unstable geologic units, which would sufficiently minimize effects. Neither project would exacerbate instability in underlying geologic units or soil resulting in subsidence or collapse. The cumulative impact of the Project and FOCP would be less than significant, and the Project would have a not cumulatively considerable contribution related to unstable soils.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Certain future projects, such as the SMP and County Parks Planning Projects and Natural Resource Management, could occur in the vicinity as the Ogier Ponds CM, North Channel Reach ~~Extension~~, and Phase 2 Coyote Percolation Pond CM. However, these projects would not involve the placement of fills or substantial soil disturbance at these Project sites. Overall, the Project and other probable future projects would not have significant cumulative impact on the risks of soil instability, and the Project's contribution would not be cumulatively considerable.

Significance Conclusion Summary

All Project construction activities would be performed in accordance with DSOD, IBC, and CBC standards as applicable. In addition, Valley Water would continue to monitor slope stability and landslide movement through installed survey monuments and satellite reflectors within the reservoir as part of its normal operations. For the FOCP Valley Water implemented the Reservoir Bank and Rim Stability Mitigation and Monitoring Plan, Dewatering and Sediment Management Plan, and Slope Stability Plan. All these measures serve to reduce soil instability risks by taking action to minimize soil instability. Cumulative impacts are less than significant and the Project's contribution to on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse is **not cumulatively considerable**.

Mitigation Measure

No mitigation is required.

Cumulative Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature (Not Cumulatively Considerable)

Santa Clara Valley is known for yielding significant fossils from alluvium (Maguire and Holroyd 2016). In addition, other geologic units of Pleistocene age and older in the county are documented to have yielded significant fossils, including vertebrate fossils. One of these is the

Santa Clara Formation in the Project area known locally as the Packwood Gravels. Excavation and ground-disturbing activities associated with Seismic Retrofit construction occurring in regions underlain by the Santa Clara Formation could expose paleontological resources. In addition, higher peak flows released from Anderson Dam during Project operation could increase risk of erosion downstream, which could increase risk of erosion uncovering significant paleontological resources and removing them from the original context, thereby potentially reducing their scientific significance.

Cumulative projects, plans, and programs could result in incrementally adverse impacts through ground disturbance activities that would disturb geologic units with high paleontological sensitivity in Santa Clara County.

Cumulative Effects of Project with the FOCP

The FOCP lowered the reservoir level to deadpool which exposed extensive swaths of the Santa Clara Formation, potentially revealing new significant paleontological resources. Construction could affect deposits of the Santa Clara Formation in Coyote Creek channel just downstream of the reservoir. The remainder of the Project Area ~~project area~~ is underlain by units that are either too young or of the wrong geological nature to harbor significant fossils.

The Project would maintain the reservoir at a low level for an additional seven years which extends the period that uncovered fossils are exposed to weathering. Construction activities of both projects could impact uncovered paleontological resources through excavation and grading of Project ~~project~~ components. The projects together have a significant cumulative impact and the Project's contribution is cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the projects in Table 3.0-2 include ground disturbance, which have potential to affect paleontological resources, depending on whether the project's ground disturbance would be located on geologic units that are documented as having yielded scientifically significant fossils.

Because of the widespread nature of high paleontological sensitivity in Santa Clara County, it is likely that other projects could encounter and potentially damage or destroy paleontological resources during ground disturbance. While widely adopted mitigation is available to mitigate complete any such impact, including preparing a PRMMP, conducting construction worker education, conducting construction monitoring, stopping work in case of discovery of paleontological resources, and curating any significant finds, it is not guaranteed that all ground disturbance into geologic units with high paleontological sensitivity would be mitigated. Accordingly, a significant cumulative impact on paleontological resources exists in the geographic scope for this resource and the Project's contribution to this risk is cumulatively considerable.

Significance Conclusion Summary

Excavation and ground-disturbing activities associated with both the Project and other projects, occurring in regions underlain by the Santa Clara Formation could expose paleontological resources, a significant cumulative impact. The Project would implement **Mitigation Measure GEO-2** (Paleontological Initial Survey), **Mitigation Measure GEO-3** (Paleontological Detailed Survey and Construction Monitoring), and **Mitigation Measure GEO-4** (Paleontological

Discoveries Treatment Plan) that would require a pre-construction survey, construction monitoring, and plan for discovery of resources. These mitigation measures would reduce the contribution of the Project to significant impacts on paleontological resources to a level that is **not cumulatively considerable**.

Mitigation Measure

GEO-2 Paleontological Initial Survey

GEO-3 Paleontological Detailed Survey and Construction Monitoring

GEO-4 Paleontological Discoveries Treatment Plan

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3.9 Greenhouse Gas Emissions

This section provides information about applicable regulations related to GHG emissions and climate change, the existing setting, and evaluates GHG impacts of the Project, including emissions generation and consistency with applicable GHG reduction plans and polices. The information in this section is based in part on the ~~Anderson Dam Seismic Retrofit CEQA~~ Air Quality, Greenhouse Gas, and Health Risk Assessment Technical Report, which is included in Appendix E[1].

The study area for GHG emissions focuses on California statewide.

3.9.1 Environmental Setting

3.9.1.1 Greenhouse Gases and Climate Change

Anthropogenic (human-caused) emissions of GHGs are widely accepted in the scientific community as contributing to global climate change. The Intergovernmental Panel on Climate Change (IPCC) was commissioned by the World Meteorological Organization and United Nations Environment Program to assess scientific, technical, and socio-economic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. According to *Climate Change 2007: The Physical Science Basis: Summary for Policymakers* (IPCC 2007 ~~2007a~~), there is no doubt that the climate is warming. In 2023, the IPCC issued an updated report, known as the *Sixth Assessment Report* (AR6 Synthesis Report) that summarizes the state of knowledge of climate change, its widespread impacts and risks, and climate change mitigation and adaptation, based on many independent scientific analyses (IPCC 2023).

Climate change is a global problem, and GHGs are global air pollutants, unlike criteria air pollutants (such as ozone precursors) and TACs that are pollutants of regional and local concern, respectively. GHGs include CO_2, methane (CH_4), and N_2O, among other pollutants. Emissions of CO_2 and N_2O are byproducts of stationary- and mobile-related fossil fuel combustion, among other sources. CH_4, a highly potent GHG, results from off-gassing associated with agricultural practices and landfills, and incomplete combustion of fossil fuels among other sources. The impacts from GHGs aside from CO_2 are often converted to carbon dioxide equivalents (CO_2e), a measure of how much global warming a given type and mass of GHG may cause compared to the equivalent amount of CO_2. For California, projected effects from climate change are described in *California's Fourth Climate Change Assessment* (CCCC 2019). Based on projections using climate modeling, temperatures in California are expected to rise between 5.6°F and 8.8°F by above 2000 averages by 2050 (CCCC 2019). The predicted changes in the future climate have been found to affect the natural environment in California in the following ways (CCCC 2012, CCCC 2019):

- Increased wildfire risk
- Adverse effects on native freshwater fish species

[1] Appendix E has been revised in support of this Final EIR.

- Increased ground-level ozone levels and particulate air pollution
- Earlier snowmelt and runoff
- Faster-than-historical sea-level rise and increased coastal flooding
- Impacts on the agricultural industry from population decreases of pollinators and increases of pests and disease

These changes in California's climate and ecosystems are projected to occur as California's population is expected to increase ~~from 40 million in 2020~~ to 42 ~~45~~ million by 2050 (California Department of Finance 2023 ~~2019~~). As the population increases, the demand for water, power, and transportation as well as other commodities and services, will increase correspondingly, resulting in an increase in the amount of anthropogenic GHG emissions anticipated under a "business as usual" scenario.

3.9.1.2 Statewide and Regional GHG Emissions

California Statewide GHG Emissions Generation

GHG emissions emitted in California are attributable to human activities associated with the industrial/manufacturing, utilities, transportation, residential, and agricultural sectors, as well as natural processes. According to CARB, total California GHG emissions were 369.2 MMT CO_2e in 2020 (CARB 2022a). The major source of GHGs in California is associated with transportation, contributing nearly 37 percent of statewide GHG emissions in 2020. The industrial sector is the second largest source, contributing 20 percent of statewide GHG emissions, and the electricity sector accounted for approximately 16 percent (CARB 2022a).

Santa Clara County GHG Emissions Generation

The county follows a similar pattern as the statewide GHG emissions, with the majority of county emissions originating from transportation sources. Transportation accounted for 49 percent of the county's 2017 GHG emissions, followed by commercial and residential (natural gas) and electrical power which accounted for 23 percent and 22 percent of the county's GHG emissions, respectively. Waste, water, and wastewater sources contributed to the remainder of the county's GHG emissions (County 2021). **Table 3.9-1** compares the relative contributions from the key sectors of anthropogenic GHG emissions for the county and the state of California.

Table 3.9-1. Santa Clara County and California GHG Emissions by Sector

	Santa Clara County[a] (2017)		California[b] (2020)	
Economic Sector	**MMT CO_2e**	**Percent**	**MMT CO_2e**	**Percent**
Transportation	5.4	49%	135.8	37%
Industrial		--	73.3	20%
Electric Power[1]	2.4	22%	59.5	16%
Commercial and Residential[2]	2.5	23%	38.7	11%
Agriculture		--	31.6	9%
High Global Warming Potential[3]	--	--	21.3	6%
Recycling and Waste	0.6	5%	8.9	2%

	Santa Clara County[a] (2017)		California[b] (2020)	
Economic Sector	MMT CO_2e	Percent	MMT CO_2e	Percent
Water	0.04	0.3%	--	--
Wastewater	0.01	0.1%	--	--
Total	11.1		396.2	

Sources: a) Santa Clara County 2021, b) CARB 2022b

Notes:

The most recent years of published data are 2017 for Santa Clara County and 2020 for California.

Due to rounding, percent totals do not equal 100% exactly.

[1] Electricity generation includes GHGs attributable to both in-state-generated and imported power.

[2] Commercial and Residential for Santa Clara County includes GHGs attributable to commercial and residential natural gas usage.

[3] Includes emissions from refrigerants and evaporative losses and ozone depleting substances substitute use, which could not be attributed to an individual sector.

Key: MMT CO_2e: million metric tons per year CO_2 equivalent.

3.9.1.3 Valley Water and Anderson Dam

Valley Water GHG Emissions Generation and Offsets

Valley Water has successfully achieved carbon neutrality since 2014 based on their GHG emissions inventory and offsets that are available through 2017. **Table 3.9-2** shows the source of GHG emissions and offset or sequestered emissions for Valley Water from 2015 through 2017 (Valley Water 2021).

Table 3.9-2. Valley Water GHG Emissions Generation and Offsets

CALENDAR YEAR	2015	2016	2017[1]
Emissions in MT of CO_2e[7]	22,200	16,200	15,300
Scope 1: Direct Emissions from District Operations	2,100	2,100	2,400
Scope 2: Emissions from Purchased Electricity	6,300	200	200
Scope 3: Other Emissions	13,800	13,900	12,700
Reduction/Sequestration	24,235	19,135	19,235
1. Water Conservation Program	17,800[2]	13,900[2]	14,400
2. Recycled water	3,400	3,200	2,800
3. Carbon sequestration	500	500	500
4. Green Business Program	2,200	1,200	1,200
5. Energy Optimization Measures	335[3]	335[3]	335
Carbon Neutrality (positive value indicates exceeding neutrality)	2,035	2,935	3,935

Source: Valley Water 2021.

Notes:

[1] This has been updated using reported energy productions and EFs for each corresponding year. Dates beyond 2017 are currently being finalized. Updated greenhouse gas emissions will be brought to the Board regularly through the CCAP implementation process.

[2] Adjusted based on decreases in PG&E EFs as compared to the 3-year averages of CY 2005 to 2007.

[3] The update includes energy Conservation Measures completed in FY 2015 in addition to zero-emission energy production through on site solar and Anderson Hydro. CO_2e indicates the amount of carbon dioxide that has the equivalent global warming impact as other greenhouse gasses. This creates a common unit to measure greenhouse gas emissions regardless of the type of greenhouse gas.

Key: MT CO_2e: metric tons per year CO_2 equivalent.

3.9.2 Regulatory Setting

3.9.2.1 Federal Laws, Regulations, and Policies

Federal Vehicle Emission Standards

In 1975, Congress enacted the Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the USEPA and NHTSA are responsible for establishing additional vehicle standards. In August 2012, standards were adopted for model year 2017 through 2025 for passenger cars and light-duty trucks. Notably, the State of California harmonized its vehicle efficiency standards through 2025 with the federal standards through the Advanced Clean Cars Program.

In March 2022, CAFE standards were finalized for model years 2024 through 2026. The final rule establishes standards that require an industry-wide fleet average of approximately 49 mpg for passenger cars and light trucks. Current rulemaking is working on establishing (NHTSA 2022):

- standards for model years 2027 and beyond for passenger cars and light trucks
- fuel efficiency standards for model years 2029 and beyond for heavy-duty pickup trucks and vans
- fuel efficiency standards for model years 2030 and beyond for medium and heavy duty on-highway vehicles and work trucks

3.9.2.2 State Laws, Regulations, and Policies

State of California Executive Orders for GHG Emissions

- ***Executive Order B-55-18.*** On September 10, 2018, Governor Brown signed EO B-55-18, committing California to total, economy-wide carbon neutrality by 2045. EO B-55-18 directs CARB to work with relevant State agencies to develop a framework to implement and track progress toward this goal.

Executive Order N-79-20. In EO N-79-20, Governor Newsom states that “clean renewable fuels play a role as California transitions to a decarbonized transportation sector”. EO N-79-20 directs as follows: “[T]o support the transition away from fossil fuels consistent with the goals established in this Order and California’s goal to achieve carbon neutrality by no later than 2045, the California Environmental Protection Agency and the California Natural Resources Agency, in consultation with other State, local, and federal agencies, shall expedite regulatory processes to repurpose and transition upstream and downstream oil production facilities ...”. The Governor’s Order also directs CARB to “develop and propose strategies to continue the State’s current efforts to reduce the carbon intensity of fuels beyond 2030 with consideration of the full life cycle of carbon.

Assembly Bill 32 and Senate Bill 32 - California Global Warming Solutions Act

In September 2006, Governor Schwarzenegger signed the California Global Warming Solutions Act (AB 32). AB 32 (Health and Safety Code, Division 25.5) establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. CARB adopted a Scoping Plan in in 2008, and updated it in 2014, to set the State strategy for achieving AB 32's 2020 GHG reduction target.

In 2016, SB 32 and its companion bill AB 197 amended Health and Safety Code Division 25.5 and established a new GHG reduction target of 40 percent below 1990 levels by 2030 and included provisions to ensure that the benefits of State climate policies reach into disadvantaged communities. CARB adopted an updated Scoping Plan in 2017 to set the state strategy for achieving SB 32's 2030 GHG reduction target.

Assembly Bill 1279 and CARB 2022 California Climate Change Scoping Plan

The Legislature enacted AB 1279, The California Climate Crisis Act, on September 16, 2022. AB 1279 establishes the State policy to achieve net-zero GHG emissions, as soon as possible but no later than 2045, and to achieve and maintain net-negative GHG emissions thereafter. Additionally, AB 1279 mandates that by 2045, statewide anthropogenic GHG emissions are to be reduced at least 85 percent below 1990 levels. SB 1279 also requires CARB to ensure that the Scoping Plan identifies and recommends measures to achieve carbon neutrality, and to identify and implement policies and strategies for CO_2 removal solutions and carbon capture, utilization, and storage technologies.

The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan, CARB 2022c), adopted by CARB in December 2022, responds to AB 1279, outlining a strategy to achieve the state's climate target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045 and achieving carbon neutrality by 2045 or earlier. The 2022 Scoping Plan outlines the strategies that the State will implement to achieve carbon neutrality by reducing GHG emissions to meet the anthropogenic target, and by expanding actions to capture and store carbon through the State's natural and working lands and using a variety of mechanical approaches. The major element of the 2022 Scoping Plan is the decarbonization of every sector of the economy, including rapidly moving to zero-emissions transportation for cars, buses, trains, and trucks.

Appendix E of the 2022 Scoping Plan provides guidance for GHG analyses in local agency CEQA documents. The guidance is focused on land use plans and projects, but some of it can also apply to water and infrastructure projects. In particular, Section 3.2.2 generally endorses a net-zero threshold of significance, while noting that it may not be feasible or appropriate for every project. Also, Section 4.1 recommends a "mitigation hierarchy" not found in the *CEQA Guidelines*. CARB recommends prioritizing CEQA GHG mitigation according to a geographic hierarchy includes carbon offsets as an option. Regarding carbon offset credits, Appendix E of the 2022 Scoping Plan recommends that the offsets credits be registered with a recognized and reputable carbon registry in the voluntary market, such as those also used for the Cap-and-Trade Program. However, CARB does not recommend importing all the strict regulatory requirements of the Cap-and-Trade program when determining the adequacy of offset credits used as CEQA mitigation measures. Rather, CARB recommends that offset credits, as well as their GHG mitigation measures, be consistent with more general CEQA and *CEQA Guidelines* requirements for mitigation (e.g., not otherwise required, enforceable, and supported by substantial evidence).

Low Carbon Fuel Standard (Executive Order S-1-07)

The LCFS, established in 2007 through EO S-1-07 and administered by CARB, requires producers of petroleum-based fuels to reduce the carbon intensity of their products that started with a 0.25 percent reduction in 2011 and culminated in a 10 percent total reduction in 2020. In September 2018, CARB extended the LCFS program to 2030, making significant changes to the design and implementation of the program, including a doubling of the carbon intensity reduction to 20 percent by 2030.

Petroleum importers, refiners, and wholesalers can either develop their own low carbon fuel products or buy LCFS credits from other companies that develop and sell low carbon alternative fuels, such as biofuels, electricity, natural gas, and hydrogen.

CARB Clean Cars Programs

The Advanced Clean Cars emissions-control program was approved by CARB in 2012 and is closely associated with the Pavley regulations (CARB 2017a). The program requires a greater number of zero-emission vehicle models for years 2015 through 2025 to control smog, soot, and GHG emissions. This program includes the low-emissions vehicle (LEV) regulations to reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles and the ZEV regulations to require manufactures to produce an increasing number of pure ZEV's (meaning battery and fuel cell electric vehicles) with the provision to produce plug-in hybrid electric vehicles (PHEV) between 2018 and 2025.

California recently adopted the new Advanced Clean Car II in August 2022, which dramatically reduces emissions from passenger vehicles for model years 2026 through 2035. Advanced Clean Cars II would require more aggressive tailpipe emission standards for gasoline cars and heavier passenger trucks and require all new vehicles sold by 2035 be ZEVs (CARB 2023).

CARB Mobile Source Strategy

The Mobile Source Strategy (2016) includes an expansion of the Advanced Clean Cars program and further increases the stringency of GHG emissions for all light-duty vehicles, and 4.2 million zero-emission and plug-in hybrid light-duty vehicles by 2030. It also calls for more stringent GHG requirements for light-duty vehicles beyond 2025 as well as GHG reductions from medium-duty and heavy-duty vehicles and increased deployment of zero-emission trucks primarily for classes 3 through 7 "last mile" delivery trucks in California. Statewide, the Mobile Source Strategy would result in a 45 percent reduction in GHG emissions and a 50 percent reduction in the consumption of petroleum-based fuels. CARB's Mobile Source Strategy includes measures to reduce total light-duty vehicle miles travelled (VMT) by 15 percent compared to business-as-usual in 2050.

In 2004, the CARB adopted an ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 CCR section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 hp such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007 aims to reduce emissions through the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models (13 CCR section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets. Current rulemaking of this regulation anticipated to be finalized in 2023 includes additional updates to ensure fleet compliance by requiring public agencies and prime contractors to verify compliance with these fleet requirements annually and to report non-compliant fleets. In addition, starting in 2024, fleets will be required to use 99 or 100 renewable diesel.

California Renewable Portfolio Standard

The State of California adopted standards to increase the percentage of energy from renewable resources that retail sellers of electricity, including investor-owned utilities and community choice aggregators, must provide in their portfolio. The RPS was established in 2002 under SB 1078, accelerated in 2006 under SB 107, and expanded in 2011 under SB 2. The standards are referred to as the RPS. Qualifying renewables under the RPS include bioenergy such as biogas and biomass, small hydroelectric facilities (30 MW or less), wind, solar, and geothermal energy. The CPUC and the CEC jointly implement the RPS program.

In November 2008, then-Governor Schwarzenegger signed EO S-14-08, which expanded the State's RPS to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the RPS by signing EO S-21-09, which directed the CARB under its AB 32 authority to enact regulations to help the State meet its RPS goal of 33 percent renewable energy by 2020.

Clean Energy and Pollution Reduction Act (SB 350)

SB 350, also known as the Clean Energy and Pollution Reduction Act of 2015, was enacted on October 7, 2015, and provides a new set of objectives in clean energy, clean air, and pollution reduction by 2030. The objectives include the following:

1. To increase from 33 percent to 50 percent by December 31, 2030, the procurement of California's electricity from renewable sources
2. To double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation

100 Percent Clean Energy Act (SB 100)

On September 10, 2018, then-Governor Brown signed SB 100, establishing that 100 percent of all electricity in California must be obtained from renewable and zero-carbon energy resources by December 31, 2045. SB 100 also creates new standards for the RPS goals that were established by SB 350 in 2015. Specifically, the bill increases required energy from renewable sources for both investor-owned utilities and publicly owned utilities from 50 percent to 60 percent by 2030. Incrementally, these energy providers are also required to have a renewable energy supply of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. The updated RPS goals are considered achievable, since many California energy providers are already meeting or exceeding the RPS goals established by SB 350.

Clean Energy, Jobs, and Affordability Act (SB 1020)

SB 1020, also known as The Clean Energy, Jobs, and Affordability Act of 2022, establishes the requirement that eligible renewable energy resources and zero-carbon resources supply 90 percent of all retail sales of electricity to California end-use customers by December 31, 2035; 95 percent of all retail sales of electricity to California end-use customers by December 31, 2040; 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045; and 100 percent of electricity procured to serve all state agencies by December 31, 2035.

ZEV Executive Orders

In March 2012, then-Governor Brown issued EO B-16-12 establishing a goal of 1.5 million ZEVs on California roads by 2025.In addition to the ZEV goal, the executive order stipulated that by 2015 all major cities in California will have adequate infrastructure and be "zero-emission vehicle ready"; that by 2020 the State will have established adequate infrastructure to support 1 million ZEVs; and that by 2050, virtually all personal transportation in the state will be based on ZEVs, and GHG emissions from the transportation sector will be reduced by 80 percent below 1990 levels.

On January 26, 2018, then-Governor Brown issued EO B-48-18 establishing a goal of 5 million ZEVs on California roads by 2030 and spurred the installation and construction of 250,000 plug-in electric vehicle chargers, including 10,000 direct current fast chargers, and 200 hydrogen refueling stations by 2025.

In September 2020, Governor Newsom signed EO N-79-20, which sets a new State goal that 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035; that 100 percent of medium- and heavy-duty vehicles in the state be zero-emission by 2045 for all operations, where feasible, and by 2035 for drayage trucks; and that 100 percent of off-road vehicles and equipment will be zero emission by 2035, where feasible. This order calls upon state agencies, including CARB, the CEC, the CPUC, the Department of Finance, and others to develop and propose regulations and strategies to achieve these goals.

California Cap-and-Trade Program

Initially authorized by the California Global Warming Solutions Act of 2006 (AB 32), and extended through the year 2030 with the passage of AB 398 (2017), the California Cap and Trade Program is a core strategy that the State has used to meet its GHG reduction targets for 2020 and 2030. CARB designed and adopted the California Cap and Trade Program to reduce

GHG emissions from “covered entities” (e.g., electricity generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 $MTCO_2e$ per year), setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve reductions. Under the Cap-and-Trade Program, an overall limit is established for GHG emissions from capped sectors. The statewide cap for GHG emissions from the capped sectors commenced in 2013. The cap declines over time. Facilities subject to the Cap-and-Trade permits to emit GHGs. Per the 2022 Scoping Plan Update, the Cap-and-Trade Program would undergo programmatic changes, so that the State can continue to work towards accelerated emissions reductions goals for 2030.

Up to 8 percent of a covered entity’s compliance obligation can be met using carbon offset credits, which are created through the development of projects, such as renewable energy generation or carbon sequestration projects, that achieve a reduction of emissions or an increase in the removal of carbon from the atmosphere from activities not otherwise regulated, covered under the cap, or resulting from government incentives. Offsets are verified reductions of emissions whose ownership can be transferred to others. As required by AB 32, any reduction of GHG emissions used for compliance purposes must be real, permanent, quantifiable, verifiable, enforceable, and additional. Offsets used to meet regulatory requirements must be quantified according to CARB-adopted methodologies, and CARB must adopt a regulation to verify and enforce the reductions. The criteria developed will ensure that the reductions are quantified accurately and are not double counted within the system (CARB 2008 ~~2009b~~).

3.9.2.3 Regional and Local Laws, Regulations, and Policies

Bay Area Air Quality Management District

BAAQMD 2017 Clean Air Plan

BAAQMD and other air districts prepare clean air plans in accordance with the state and federal Clean Air Acts. On April 19, 2017, the BAAQMD Board of Directors adopted the 2017 Clean Air Plan: Spare the Air, Cool the Climate, an update to the 2010 Clean Air Plan. The Clean Air Plan is a comprehensive plan that focuses on the closely-related goals of protecting public health and protecting the climate. The plan lays the groundwork for a long-term effort to reduce GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050 (BAAQMD 2017 ~~2017a~~).

The 2017 Clean Air Plan includes a wide range of proposed control measures to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. The Clean Air Plan contains 85 measures to address reduction of GHG emissions and several criteria air pollutants and air toxics. The control measures are categorized based on the economic sector framework including stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, and water measures.

BAAQMD 2022 CEQA Guidelines

In 2023, BAAQMD adopted its 2022 *CEQA Guidelines*, which updated and superseded prior *BAAQMD 2017 CEQA Guidelines*. (BAAQMD 2022 ~~2023~~). The 2022 *CEQA Guidelines* provide BAAQMD-recommended procedures for evaluating air quality and climate impacts in CEQA documents. The 2022 *CEQA Guidelines* recommend GHG thresholds of significance for land use plans and projects, but do not recommend GHG thresholds of significance directly relevant to the Project (i.e., for large construction projects or for operation of water projects such as dams and reservoirs). Even though the 2022 *CEQA Guidelines* do not set a GHG threshold for construction projects, to minimize GHG and air pollutant emissions, the Guidelines recommend that projects incorporate 18 BMPs for reducing construction emissions listed in **Table 6-1** of the 2022 *CEQA Guidelines*.

BAAQMD's 2022 *CEQA Guidelines* discuss general GHG mitigation approaches for land use plans and projects, and for stationary sources, but do not specifically recommend GHG mitigation measures for large construction projects or water project operations. The Guidelines do, however, refer to California Air Pollution Control Officers Association's (CAPCOA) *Handbook for Analyzing GHG Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity: Designed for Local Governments, Communities, and Project Developers* (CAPCOA 2021) for several examples of construction GHG mitigation measures that should be considered.

Santa Clara County General Plan

The Santa Clara County General Plan's Health Element (2015) contains the following policies relevant to GHGs:

> **Policy HE-G.1:** Air quality environmental review. Continue to utilize and comply with the Air District's project- and plan-level thresholds of significance for air pollutants and GHG emissions.
>
> **Policy HE-G.3:** Fleet upgrades. Promote Air District mobile source measures to reduce emissions by accelerating the replacement of older, dirtier vehicles and equipment, and by expanding the use of zero emission and plug-in vehicles.
>
> **Policy HE-G.4:** Off-road sources. Encourage mobile source emission reduction from off-road equipment such as construction, farming, lawn and garden, and recreational vehicles by retrofitting, retiring, and replacing equipment and by using alternate fuel vehicles.
>
> **Policy HE-G.5**: GHG reduction. Support efforts to reduce GHG emissions from mobile sources, such as reducing vehicle trips, vehicle use, vehicle miles traveled (VMT), vehicle idling, and traffic congestion. These efforts may include improved transit service, better roadway system efficiency, state-of-the-art signal timing and Intelligent Transportation Systems (ITS), transportation demand management, parking and roadway pricing strategies, and growth management measures.

Santa Clara County Sustainability Master Plan

The Santa Clara County Sustainability Master Plan (2021) was created to help the County reduce climate pollution, adapt to global climate change, and enhance natural resources and the environment. The following strategies are relevant to GHG emissions and climate change:

Goal 1: Carbon Neutrality: Become a carbon neutral County that supports a transition to zero waste and zero emissions.

> **Strategy 1.1** Clean Energy: Transition to a zero-emission energy system.

Strategy 1.3 Clean, Safe, and Active Transportation. Expand zero-emission transportation/travel choices and create safe and accessible streets for all users.

Strategy 1.5 Zero Waste. Reduce overall waste generation by supporting the sustainable consumption of resources and diverting or reusing materials.

Strategy 1.6 Carbon Sequestration. Explore and implement practices that sequester carbon, including agricultural practices and urban ecology to help offset greenhouse gas emissions.

Goal 2: Resilient and Prepared County: Increase preparedness and resilience to respond to the shocks and stressors that impact Santa Clara County and the services it provides.

Strategy 2.1 Planning and Assessment. Conduct and continually maintain a multi-hazard risk assessment to understand vulnerabilities across the County and regularly update resilience and climate adaptation plans and policies to address changing hazard risks and potential impacts to the efficient delivery of County services.

Strategy 2.2 Emergency Preparedness and Response. Implement hazard mitigation and climate adaptation strategies to increase preparedness and response and ensure the existing infrastructure/personnel are adequate to meet the existing levels of service while accommodating for future growth.

City of Morgan Hill 2035 General Plan

The City of Morgan Hill General Plan (2017 ~~2016~~) contains the following goals, policies, and actions relevant to GHG emissions:

Natural Resources and Environment (NRE)

Goal NRE-15: An adaptive and resilient community that responds to climate change.

Policy NRE-15.1: GHG Emission Reduction Targets. Maintain a GHG reduction trajectory that is consistent with the GHG reduction targets of Executive Orders B-30-15 (40 percent below 1990 levels by 2030) and S-03-05 (80 percent below 1990 levels by 2050) to ensure the City is consistent with statewide efforts to reduce GHG emissions.

Policy NRE-15.10: VMT Reduction. Continue to work with the Santa Clara Valley Transportation Authority on regional transportation solutions that will reduce vehicle miles traveled and GHG emissions.

Policy NRE-15.11: Green Building. Promote green building practices in new development.

Morgan Hill Climate Action Plan

The City of Morgan Hill adopted its CAP on December 15, 2021, with the main goal of reducing Morgan Hill's net CO_2 emissions in the building and transportation sectors to 35 percent below 2020 baseline levels by 2030 and 100 percent below 2020 baseline levels by 2045. The CAP focuses on the adoption of electric vehicles and the process of decarbonizing existing buildings by reducing the use of fossil fuels. The City's CAP includes the following sub-goals for the transportation and building sectors (City of Morgan Hill 2021):

Transportation Sector

Utilizing a baseline of 2020,

- Install electric vehicle (EV) charging stations for at least 10 percent of available parking spaces in new non-residential projects.

Building Sector

Utilizing a baseline of 2020,

- Transition 95 percent of existing buildings (roughly 14,000) in Morgan Hill to be all-electric by 2045, with additional targets every five years consisting of:
  - 1 percent of existing buildings by 2025
  - 10 percent of existing buildings by 2030
  - 35 percent of existing buildings by 2035
  - 70 percent of existing buildings by 2040

Envision San José 2040 General Plan

The Envision San José 2040 General Plan (2023 ~~2011~~) contains the following policies/actions relevant to GHG emissions:

Goal MS-10: Minimize air pollutant emissions from new and existing development.

Policy MS-10.1: Assess projected air emissions from new development in conformance with BAAQMD CEQA Guidelines and relative to state and federal standards. Identify and implement feasible air emission reduction measures.

Action MS-10.14: Review and evaluate the effectiveness of site design measures, transit incentives, and new transportation technologies and encourage those that most successfully reduce air pollutant emissions.

Action MS-11.8: For new projects that generate truck traffic, require signage which reminds drivers that the State truck idling law limits truck idling to five minutes.

Goal MS-14: Reduce Consumption and Increase Efficiency: Reduce per capita energy consumption by at least 50% compared to 2008 levels by 2022 and maintain or reduce net aggregate energy consumption levels equivalent to the 2022 (Green Vision) level through 2040.

Policy MS-14.3: Consistent with the California Public Utilities Commission's California Long Term Energy Efficiency Strategic Plan, as revised, and when technological advances make it feasible, require all new residential and commercial construction to be designed for zero net energy use.

Policy MS-14.4: Implement the City's Green Building Policies so that new construction and rehabilitation of existing buildings fully implements industry best practices, including the use of optimized energy systems, selection of materials and resources, water efficiency, sustainable site selection, passive solar building design, and planting of trees and other landscape materials to reduce energy consumption.

Climate Smart San José

Climate Smart San José was adopted by the San José City Council in 2018 and is the City's overarching visionary plan to reduce emissions geared toward the Paris Agreement. Climate Smart San José serves as a roadmap to deep carbon reductions aligned with the State's GHG targets set by AB 32, SB 32, and EO S-3-05, as well as the decarbonization goals of the Paris Agreement, while supporting 40 percent growth in the city's population by 2050 and continued economic growth. It employs a people-centered approach, encouraging the entire San José community to join an ambitious campaign to reduce GHG emissions, save water, and improve the community's quality of life, while also promoting economic growth (City of San José 2018). In November 2021, the City Council set a goal of community-wide carbon neutrality by 2030, thereby accelerating Climate Smart. The proposed Pathway to Carbon Neutrality by 2030 was heard by City Council on June 14, 2022, which contains four strategies to achieve carbon neutrality by 2030: move to zero-emission vehicles, reduce the miles travelled in vehicles by at least 20 percent, switch appliances from fossil fuels to electric, and power the community with 100 percent carbon-neutral electricity (City of San José 2022).

Valley Water Climate Change Action Plan

The Valley Water CCAP was adopted in July 2021 (Valley Water 2021). The CCAP contains the following goals and strategies relevant to GHG emissions:

Goal 1: Reduce Direct GHG Emissions (Scope 1).

- Strategy: Reduce GHG emissions associated with Valley Water fleet.
- Strategy: Reduce GHG emissions from trips between Valley Water offices and work sites.
- Strategy: Reduce GHG emissions associated with Valley Water-owned equipment.
- Strategy: Minimize GHG emissions associated with planning, design, construction, operation, and maintenance of capital projects.
- Strategy: Increase GHG sequestration in Valley Water properties and other areas.
- Strategy: Continue to update Valley Water's GHG accounting practices.

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

- Strategy: Continue to support increased renewable energy in the agency's energy portfolio
- Strategy: Continue to improve energy efficiency at agency facilities.

Goal 3: Reduce Indirect GHG Emissions (Scope 3).

- Strategy: Reduce emissions from Valley Water employee commutes.
- Strategy: Reduce waste produced at facilities.
- Strategy: Continue to create and expand other efforts to minimize indirect emissions.

Goal 4: Water Supply Adaptation.

- Strategy: Diversify local water supplies and expand drought-resistant water supply.

- Strategy: Increase flexibility and resilience of water utility operations and assets.

Goal 6: Ecosystem Adaptation in Santa Clara County

- Strategy: Protect and enhance riverine, coastal, and other watershed ecosystems to improve climate change resilience and wildlife habitat.
- Strategy: Develop and expand programs and plans that support more climate-resilient ecosystems.
- Strategy: Expand the availability of data on regional ecosystems to avoid detrimental climate change-related ecosystem impacts.

Goal 7: Emergency Preparedness

- Strategy: Maximize Valley Water's emergency preparedness for climate-related impacts.

Valley Water Greenhouse Gas Reduction Plan

Valley Water is preparing a Greenhouse Gas Reduction Plan (GHGRP) (Valley Water 2024) that is consistent with the framework outlined under the CEQA Guidelines §15183.5 and is anticipated to be adopted in 2025. The GHGRP will provide an inventory of Valley Water's GHG emissions through 2021, a forecast of future GHG emissions, and a list of measures to achieve a goal of net zero emissions by 2045. It will provide specific measures to reduce GHG emissions and metrics to measure progress and will be considered for adoption in a public process following preparation of a CEQA document analyzing potential environmental impacts of the GHGRP.

Although the GHGRP will include an updated Valley Water GHG emissions inventory, forecast, and emissions goal, the GHGRP was still under preparation and had not been considered for adoption at the time that the ADSRP EIR was being prepared.

3.9.3 Methodology and Approach to Impact Analysis

This impact analysis considers whether implementation of the Project would result in significant impacts related to GHG emissions. This section includes an evaluation of GHG emissions generated by the Project and if the Project would conflict with any applicable plan or policy for GHG emission reductions. The analysis evaluates the GHG emissions that would occur as a result of the following activities:

- Seismic Retrofit Construction
- Conservation Measure Construction
- Construction Monitoring
- Post-construction Anderson Dam Facilities Operations and Maintenance
- Post-construction Conservation Measures Operations and Maintenance
- Post-construction Project and FAHCE Adaptive Management

3.9.3.1 Seismic Retrofit Construction

As described in Section 3.0, *Introduction*, the baseline for evaluating the Seismic Retrofit construction effects is the existing conditions at the time of EIR preparation modified by the

FOCP implementation (referred to as the existing conditions baseline). Existing baseline operations for the Project reflect a seismically restricted capacity (e.g., maintenance of the reservoir at deadpool), and flow releases and maintenance activities projected to occur following completion of the FOCP, presently under construction. Similarly, the construction baseline assumes completion of facility upgrades and physical changes associated with the FOCP.

The ~~CEQA~~ Air Quality, Greenhouse Gas, and Health Rise Assessment Technical Report (Ramboll 2024 ~~2023~~) (Appendix E), which supports the GHG emissions assessment in this section, primarily used the methodology from the CalEEMod version 2022.1~~.0~~ to quantify the GHG emissions for the Project. CalEEMod incorporates numerous default assumptions and CARB emission factors for on-road and off-road vehicles. The emission factors for off-road equipment and mobile sources were obtained from the latest versions of CARB's OFFROAD and EMFAC models, respectively. Emissions calculations associated with off-road construction equipment were based on the construction schedule and the type, size, fuel type, tier level, hours of operation and utilization factor for each piece of equipment. For diesel-powered off-road construction equipment, methodologies consistent with CalEEMod were used to estimate emissions. Where Project-specific equipment information was not available, CalEEMod default horsepower was used. Load factors for each piece of equipment were based on default factors from CalEEMod. On-site boat emissions were estimated using emission factors and methodology from CARB's Pleasure Craft Model Database, matched to their respective gasoline-fueled boat classifications. Emissions from on-road construction trips for workers, vendors, and haul trucks were estimated using emissions factors from EMFAC2021. EMFAC2021 incorporates the Pavley Clean Car Standards and the Advanced Clean Cars program.

Project construction activities would be completed using a combination of off-road and portable construction equipment. It was assumed that all construction off-road equipment is diesel powered except for those specified as electric or gasoline powered. Specific construction equipment assumptions for each phase and construction trip assumptions for workers, vendors, and haul trucks are provided in Appendix E.

Electrical equipment for the Seismic Retrofit component consists primarily of ventilation fans and small excavators, as provided by Valley Water. The equipment would make a negligible contribution to overall ~~project~~ Project GHG emissions and thus is not quantified in this EIR.

Seismic Retrofit construction is anticipated to span a 7-year period. The specific construction phasing schedule is provided in Appendix E. Annual GHG emissions were calculated for the Seismic Retrofit component and reported as MT of CO_2e.

3.9.3.2 Conservation Measures Construction

As described in Section 3.0, *Introduction*, the baseline for evaluating Conservation Measure construction effects is the existing conditions at the time of EIR preparation modified by FOCP implementation (i.e., existing conditions baseline). Conservation Measures involving construction activities with a potential to adversely affect GHG emissions that are evaluated in the impact analysis include:

- Ogier Ponds Conservation Measure
- Maintenance of the North Channel Reach ~~Extension~~

- Sediment Augmentation Program
- Phase 2 Coyote Percolation Dam Conservation Measure
- Maintenance of the Live Oak Restoration Reach

The GHG emissions impacts from the construction of the Conservation Measure components were analyzed using the same methodologies as the Seismic Retrofit construction. Construction activities associated with the Ogier Ponds CM would occur from Year 6 through Year 8 ~~9,~~ Sediment Augmentation Program would initially occur following ADSRP construction (Year 8) and would continue throughout the Project and FAHCE AMP[2] ~~from Year 2 through Year 15~~, and Phase 2 Coyote Percolation Dam CM would occur in Year 1 and Year 2 ~~from Year 4 through Year 5~~. Maintenance of ~~The~~ the North Channel Reach ~~Extension~~ and Live Oak Restoration Reach would occur during the Project's entire construction phase (though intermittently). ~~Conservation Measure would occur for two months in Year 1 and Year 7.~~ Due to the short duration, small number of equipment and workers required, and lack of high-emissions activities, impacts from Maintenance of the North Channel Reach and Live Oak Restoration Reach ~~Extension~~ are anticipated to be negligible in absolute terms in comparison to the impacts of the Seismic Retrofit and other Conservation Measures. Thus, a quantitative analysis of these ~~this~~ Conservation Measures was not performed. A detailed construction schedule for the Conservation Measures, specific construction equipment assumptions for the Conservation Measures, and construction trip assumptions for the Conservation Measures for workers, vendors, and haul trucks are provided in Appendix E.

3.9.3.3 Construction Monitoring

Construction Monitoring activities are not included in the impact analysis, as monitoring would involve data and information collection and assessment and would not result in any meaningful amount of GHG emissions. Thus, construction monitoring is not discussed further in this section.

3.9.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

Operation of the Anderson Dam following construction of the Project would involve implementation of the FAHCE rule curves and pulse flows, which would not result in additional GHG emissions compared to the existing conditions baseline.[3] In addition, a diesel generator is proposed at the new outlet works, which would replace an existing diesel generator in the same general area, resulting in no net increase of GHG emissions above baseline conditions. Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). No new long-term operational sources of GHG emissions would be generated by the Project and no new long-term operational sources requiring energy would be added by dam maintenance; therefore, this EIR quantifies and

[2] GHG emissions were only quantified for the initial placement of gravel, assumed to occur in Year 8. While GHG emissions associated with future gravel augmentation are assumed to be minor, their scale, timing, and duration are speculative and were not quantified.

[3] GHG emissions may be released from reservoirs through the natural decomposition process for organic matter. Methods for quantifying these emissions are still under development, and these emissions are not currently included in state or federal GHG emissions inventories. Any GHG emissions from Anderson Reservoir following refilling would be similar to GHG emissions from historical reservoir operations

evaluates construction emissions but does not quantify future maintenance and operations activities.

3.9.3.5 Post-Construction Conservation Measures Operations and Maintenance

Similar to the operation of the Anderson Dam, post-construction operations and maintenance of the Conservation Measures would involve minimal activities generating GHG emissions. Post-construction operation of the Phase 2 Coyote Percolation Dam would require maximum annual power usage of 25.2 kWh in any given year.[4] Besides post-construction operation of the Phase 2 Coyote Percolation Dam, no new long-term operational sources generating GHG emissions or requiring energy usage would be added by the post-construction Conservation Measure operations and maintenance. As described in Chapter 2, *Project Description*, Valley Water would maintain Coyote Percolation Dam per Valley Water's existing DMP. Maintenance of Coyote Percolation Dam facilities were previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). Therefore, operations and maintenance of the Conservation Measures components are not quantified in the impact analysis, because they would result in only negligible GHG emissions.

3.9.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because they would result in only negligible GHG emissions.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts

[4] Annual power usage of 25.2 kWh for the Phase 2 Coyote Percolation Dam equates to 0.011 MT of CO_2e which results in a negligible increase in GHG emissions (USEPA 2023).

of these adaptive actions are not evaluated in the impact analysis because they would result in only negligible GHG emissions.

3.9.3.7 Applicable Best Management Practices and VHP Conditions

No Valley Water BMPs or VHP Conditions are applicable to GHG emissions.

3.9.3.8 Thresholds of Significance

Significance Criteria

This EIR considers whether implementation of the Project would result in significant impacts to GHG levels pursuant to the applicable significance criteria in Appendix G of the *CEQA Guidelines* ~~(see Section 3.6.4.5)~~. For the purposes of this EIR, the Project would result in a significant impact related to GHG emissions if it would:

(a) generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment

(b) conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emission of GHGs

Specific Thresholds of Significance

This EIR applies the following GHG thresholds:

GHG Emissions Generation

Construction

For construction-related GHG emissions generation, this EIR uses a net-zero threshold consistent with CARB 2022 Scoping Plan guidance and the State's long-range GHG reduction targets. The net-zero threshold is used to determine whether the Project's construction GHG emissions would result in a significant environmental impact.

Operation

For operational GHG emissions, this EIR uses the following thresholds consistent with BAAQMD 2022 *CEQA Guidelines*. It should be noted that BAAQMD's operational GHG emissions were developed for residential and commercial land use projects and have been modified slightly to apply to the Project's operational GHG emissions considering the type of project. These thresholds are used to determine if the Project's operational GHG emissions would result in a significant environmental impact:

1. Buildings, appliances, and equipment:
   i. The project would include natural gas appliances or natural gas plumbing.
   ii. Project building, appliance, and equipment operation would result in wasteful, inefficient, or unnecessary energy, especially nonrenewable energy, usage as determined by the analysis required under CEQA section 21100(b)(3) and section 15126.2(b) of the *CEQA Guidelines*.

2. Mobile Emissions:
   - The project would generate a substantial change[5] or increase in long-term VMT.

GHG Emissions Reduction Plan Consistency

<u>Construction and Operation</u>

The following qualitative threshold is used to evaluate the significance of GHG emissions reduction plan consistency impacts resulting from implementation of the Project. The Project would have a significant GHG emissions impact if:

- Construction and operation of buildings, appliances, equipment, and vehicles would not adhere to the GHG emissions targets, measures, and guidance included in SB 32, AB 1279, CARB 2022 Scoping Plan, Valley Water CCAP, Morgan Hill 2021 CAP, and Climate Smart San José.

As discussed in the regulatory setting, the BAAQMD 2022 *CEQA Guidelines* do not recommend significance thresholds applicable to large construction projects or operations of water facilities.

3.9.4 Impact Analysis

***Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment* (Less than Significant with Mitigation)**

Construction

Construction of the Seismic Retrofit component would generate temporary GHG emissions primarily from use of construction equipment on site, as well as from vehicles transporting construction workers to and from the Project area and heavy-duty haul trucks transporting materials, equipment, and soil.

Seismic Retrofit Construction

Total GHG emissions for Seismic Retrofit construction are shown in **Table 3.9-3**. As shown in **Table 3.9-3**, Seismic Retrofit construction would generate a total of <u>156,171</u> ~~155,555~~ MT of CO_2e over the entire construction duration. This generation of GHG emissions would exceed the net zero threshold for construction GHG emissions. Therefore, Seismic Retrofit construction would generate GHG emissions that may have a significant impact on the environment and impacts would be significant.

However, implementation of **Mitigation Measure GHG-1**, described below, will require Valley Water and/or its construction contractors to use engine electrification and renewable fuels where feasible. **Mitigation Measure AQ-1** would require all on-road <u>truck</u> engines and boats used in construction to be model year 2010 or newer, which would reduce emissions <u>primarily</u> in Year 1 <u>(associated with the improvements in boat engines) and minimally in subsequent years.</u> Implementation of **Mitigation Measure GHG-2**, described below, will require Valley

[5] Substantial change is defined as an incremental change from existing conditions (e.g., from 1-2 percent)

Water to ~~implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. With implementation of these mitigation measures, Seismic Retrofit construction-related GHG emissions generation impacts would be less than significant.

Table 3.9-3. Seismic Retrofit Construction GHG Emissions

Construction Year	**Unmitigated Seismic Retrofit Construction GHG Emissions (MT of CO_2e)**	**Mitigated[1] Seismic Retrofit Construction GHG Emissions (MT of CO_2e)**	**Net GHG Emissions (MT of CO_2e) from Seismic Retrofit Construction with Implementation of Mitigation Measures GHG-1 and GHG-2**
Year 1	5,257 ~~5,215~~	4,292 ~~4,254~~	0
Year 2	26,381 ~~26,322~~	26,378 ~~26,322~~	0
Year 3	26,741 ~~26,660~~	26,735 ~~26,660~~	0
Year 4	34,604 ~~34,475~~	34,594 ~~34,475~~	0
Year 5	29,287 ~~29,173~~	29,279 ~~29,173~~	0
Year 6	29,847 ~~29,710~~	29,838 ~~29,710~~	0
Year 7	4,054 ~~4,000~~	4,051 ~~4,000~~	0
Total	**156,171 ~~155,555~~**	**155,167 ~~154,594~~**	**0**
Construction GHG Emissions Threshold	0	0	0
Exceed Threshold?	***Yes***	***Yes***	***No***

Source: Appendix E: Table 18, Table 19

Key: MT = metric tons; CO_2e = CO_2 equivalent emissions

Notes:

[1] *This column only reflects implementation of **Mitigation Measure AQ-1**'s requirement that on-road trucks and boat engines used in construction be model year 2010 or newer. As such, this measure primarily ~~only~~ reduces GHG emissions in Year 1, as the reductions associated with boat engines (used only in Year 1) are greatest. Given the type and duration of electrified equipment use is unknown at this time, to be conservative, reductions from **Mitigation Measure GHG-1** are not quantified in this column.*

Conservation Measures

Ogier Ponds CM

Total GHG emissions for Ogier Ponds CM construction are shown in **Table 3.9-4**. As shown in **Table 3.9-4**, Ogier Ponds CM construction would generate 28,813 ~~27,457~~ MT of CO_2e, which would exceed the net zero threshold for construction GHG emissions. Therefore, Ogier Ponds CM construction would generate GHG emissions that may have a significant impact on the environment and impacts would be significant.

However, implementation of **Mitigation Measure GHG-1**, described below, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2**, described below, will require Valley Water ~~to implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. With implementation of these mitigation measures, Ogier Ponds CM construction-related GHG emissions generation impacts would be less than significant.

Table 3.9-4. Ogier Ponds CM Construction GHG Emissions

Construction Year	**Unmitigated Ogier Ponds CM Construction GHG Emissions (MT of CO_2e)**	**Mitigated[1] Ogier Ponds CM Construction GHG Emissions (MT of CO_2e)**	**Net GHG Emissions (MT of CO2e) from Ogier Ponds CM with Implementation of Mitigation Measures GHG-1 and GHG-2**
Year 6	15,042 ~~14,210~~	15,018	0
Year 7	9,897 ~~9,384~~	9,888	0
Year 8	3,873 ~~3,863~~	*3,873*	0
Total	**28,813 ~~27,457~~**	**28,779**	**0**
Construction GHG Emissions Threshold	0	0	0
Exceed Threshold?	***Yes***	***Yes***	***No***

Source: Appendix E: Tables 28 and 29

Key: MT = metric tons; CO_2e = CO_2 equivalent emissions

Notes:

*[1] This column only reflects implementation of **Mitigation Measure AQ-1**'s requirement that on-road trucks used in construction be model year 2010 or newer. Given the type and duration of electrified equipment use is unknown at this time, to be conservative, reductions from **Mitigation Measure GHG-1** are not quantified in this column.*

Maintenance of the North Channel Reach ~~Extension~~

Maintenance of the North Channel Reach ~~Extension~~ was not quantified in terms of construction-related GHG emissions. Maintenance of the North Channel Reach ~~Extension~~ would involve minor and intermittent maintenance activities (e.g., maintaining the wetland bench, replacing plantings, etc.) ~~consist of grading over one dry season of Year 1, construction work over two months in Year 1, and planting of native vegetation during Year 7. Work would require a maximum of 20 onsite workers and an average of 10 onsite workers. Construction would require a bulldozer, motor grader, excavator, loader, dump, light trucks, and a water truck.~~ No material movement is expected to occur as part of this conservation measure, and no other high-emissions construction activities, such as grading, would occur. Maintenance of the North Channel Reach ~~Extension construction~~ would generate a minimal amount of GHG emissions. However, any amount of GHG emissions generated would exceed the net-zero threshold for construction GHG emissions. Therefore, Maintenance of the North Channel Reach ~~Extension~~

~~construction~~ would generate GHG emissions that may have a significant impact on the environment and impacts would be significant.

However, implementation of **Mitigation Measure GHG-1**, described below, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2**, described below, will require Valley Water to ~~implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. With implementation of these mitigation measures, Maintenance of the North Channel Reach ~~Extension~~ construction-related GHG emissions generation impacts would be less than significant.

Sediment Augmentation Program

Total GHG emissions for Sediment Augmentation Program construction are shown in **Table 3.9-5**. As shown in **Table 3.9-5**, Sediment Augmentation Program construction would generate 3 ~~89,091~~ MT of CO_2e, which would exceed the net zero threshold for construction GHG emissions. Therefore, Sediment Augmentation Program construction would generate GHG emissions that may have a significant impact on the environment and impacts would be significant.

However, implementation of **Mitigation Measure GHG-1**, described below, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2**, described below, will require Valley Water to ~~implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. With implementation of these mitigation measures, Sediment Augmentation Program construction-related GHG emissions generation impacts would be less than significant.

Table 3.9-5. Sediment Augmentation Program Construction GHG Emissions

Year	Unmitigated Sediment Augmentation Program Construction GHG Emissions (MT of CO_2e)	Mitigated[1] Sediment Augmentation Program Construction GHG Emissions (MT of CO_2e)	Net GHG Emissions (MT of CO2e) from Sediment Augmentation Program with Implementation of Mitigation Measures GHG-1 and GHG-2
~~Year 2~~	~~6,928~~		
~~Year 3~~	~~6,434~~		
~~Year 4~~	~~6,420~~		
~~Year 5~~	~~6,316~~		
~~Year 6~~	~~6,272~~		
~~Year 7~~	~~6,242~~		
Year 8	3 ~~6,296~~	3	0

Year	Unmitigated Sediment Augmentation Program Construction GHG Emissions (MT of CO_2e)	Mitigated[1] Sediment Augmentation Program Construction GHG Emissions (MT of CO_2e)	Net GHG Emissions (MT of CO2e) from Sediment Augmentation Program with Implementation of Mitigation Measures GHG-1 and GHG-2
~~Year 9~~	~~6,373~~		
~~Year 10~~	~~6,336~~		
~~Year 1~~1	~~6,267~~		
~~Year 12~~	~~6,227~~		
~~Year 1~~3	~~6,264~~		
~~Year 14~~	~~6,343~~		
~~Year 15~~	~~6,373~~		
Total	**3 ~~89,09~~1**	**3**	**0**
Construction GHG Emissions Threshold	0	0	0
Exceed Threshold?	***Yes***	***Yes***	***No***

Source: Appendix E: Tables 48 and 49

Key: MT = metric tons; CO_2e = CO_2 equivalent emissions

Notes:

*[1] This column only reflects implementation of **Mitigation Measure AQ-1**'s requirement that on-road trucks used in construction be model year 2010 or newer. Given the type and duration of electrified equipment use is unknown at this time, to be conservative, reductions from **Mitigation Measure GHG-1** are not quantified in this column.*

Phase 2 Coyote Percolation Dam CM

Total GHG emissions for Phase 2 Coyote Percolation Dam CM construction are shown in **Table 3.9-6**. As shown in **Table 3.9-6**, Phase 2 Coyote Percolation Dam CM construction would generate 1,979 ~~1,287~~ MT of CO_2e, which would exceed the net zero threshold for construction GHG emissions. Therefore, Phase 2 Coyote Percolation Dam CM construction would generate GHG emissions that may have a significant impact on the environment and impacts would be significant.

However, implementation of **Mitigation Measure GHG-1**, described below, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2**, described below, will require Valley Water and/or its contractors to ~~implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. With implementation of these mitigation measures, Phase 2 Coyote Percolation Dam CM construction-related GHG emissions generation impacts would be less than significant.

Table 3.9-6. Phase 2 Coyote Percolation Dam CM Construction GHG Emissions

Construction Year	**Unmitigated Phase 2 Coyote Percolation Dam CM Construction GHG Emissions (MT of CO_2e)**	**Mitigated[1] Phase 2 Coyote Percolation Dam CM Construction GHG Emissions (MT of CO2e)**	**Net GHG Emissions (MT of CO2e) from Phase 2 Coyote Percolation Dam CM with Implementation of Mitigation Measures GHG-1 and GHG-2**
Year 1	783	782	0
Year 2 4	1,196 ~~353~~	1,193 —	– 0
~~Year 5~~	934		
Total	**1,979 ~~1,287~~**	**1,975**	**0**
Construction GHG Emissions Threshold	0	0	0
Exceed Threshold?	***Yes***	***Yes***	– ***No***

Source: Appendix E: Tables 38 and 39

Key: MT = metric tons; CO_2e = CO_2 equivalent emissions

Notes:

*[1] This column only reflects implementation of **Mitigation Measure AQ-1**'s requirement that on-road trucks used in construction be model year 2010 or newer. Given the type and duration of electrified equipment use is unknown at this time, to be conservative, reductions from **Mitigation Measure GHG-1** are not quantified in this column.*

Maintenance of the Live Oak Restoration Reach

Maintenance of the Live Oak Restoration Reach was not quantified in terms of construction-related GHG emissions. Maintenance of the Live Oak Restoration Reach would involve minor and intermittent maintenance activities (e.g., placement of gravels and woody debris). No high-emissions construction activities, such as grading, would occur, and the Conservation Measure would generate a minimal amount of GHG emissions. However, any amount of GHG emissions generated would exceed the net-zero threshold for construction GHG emissions. Therefore, Maintenance of the Live Oak Restoration Reach would generate GHG emissions that may have a significant impact on the environment and impacts would be significant.

However, implementation of **Mitigation Measure GHG-1**, described below, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2**, described below, will require Valley Water to offset GHG emission before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. With implementation of these mitigation measures, Maintenance of the Live Oak Restoration Reach construction-related GHG emissions generation impacts would be less than significant.

Operations and Maintenance

As discussed in Section 3.9.3, *Methodology and Approach to Impact Analysis*, above, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures, as well as FAHCE Adaptive Management, is not anticipated to utilize any new natural gas in buildings or install any new non-EV charging spaces for maintenance employees or substantially increase operational VMT (see Chapter 3.19, *Transportation*). As such, the Project would result in negligible GHG emissions during operation. Therefore, there would be a less-than-significant Project operational impact related to generation of GHG emissions.

Significance Conclusion Summary

Project Seismic Retrofit construction and Conservation Measures construction would generate approximately 186,966 ~~273,390~~ MT CO_2e of construction GHG emissions, as shown in **Table 3.9-7**. Project operation would result in negligible generation of GHG emissions and would not utilize any new natural gas in buildings or install any new non-EV charging spaces for maintenance employees or substantially increase operational VMT.

Table 3.9-7. Total Project Construction GHG Emissions

Year	Total Unmitigated Project Construction GHG Emissions (MT of CO_2e)	Total Mitigated[1] Project Construction GHG Emissions (MT of CO_2e	Total Net GHG Emissions (MT of CO_2e) from Project Construction with Implementation of Mitigation Measures GHG-1 and GHG-2
Year 1	6,040 ~~5,215~~	5,075 ~~4,254~~	0
Year 2	27,577 ~~33,250~~	27,571 ~~33,250~~	0
Year 3	26,741 ~~33,093~~	26,735 ~~33,093~~	0
Year 4	34,604 ~~41,248~~	34,594 ~~41,248~~	0
Year 5	29,287 ~~36,42~~3	29,279 ~~36,42~~3	0
Year 6	44,889 ~~50,192~~	44,856 ~~50,192~~	0
Year 7	13,952 ~~19,627~~	13,939 ~~19,627~~	0
Year 8	3,876 ~~10,159~~	3,876 ~~10,159~~	0
~~Year 9~~	~~6,373~~	~~6,373~~	~~0~~
~~Year 1~~0	~~6,336~~	~~6,336~~	~~0~~
~~Year 1~~1	~~6,267~~	~~6,267~~	~~0~~
~~Year 12~~	6,227	6,227	0
~~Year 1~~3	~~6,264~~	~~6,264~~	~~0~~
~~Year 14~~	~~6,343~~	~~6,343~~	~~0~~
~~Year 1~~5	~~6,373~~	~~6,373~~	~~0~~
Total	**186,966 ~~273,390~~**	**185,925 ~~272,429~~**	**0**

Source: Appendix E: Table 52, Table 53

Key: MT = metric tons; CO_2e = CO_2 equivalent emissions

Notes:

[1] *This column only reflects implementation of **Mitigation Measure AQ-1**'s requirement that on-road trucks and boat engines used in construction be model year 2010 or newer. As such, this measure ~~only~~ primarily reduces GHG emissions in Year 1, as the reductions associated with boat engines (used only in Year 1) are greatest. Given the type and duration of electrified equipment use is unknown at this time, to be conservative, reductions from **Mitigation Measure GHG-1** are not quantified in this column.*

Implementation of **Mitigation Measure GHG-1**, described below, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. **Mitigation Measure AQ-1** would require all on-road truck engines and boats used in construction to be model year 2010 or newer, which would reduce emissions in Year 1. Implementation of **Mitigation Measure GHG-2**, described below, will require Valley Water to ~~purchase carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce any GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. With implementation of **Mitigation Measures GHG-1 and GHG-2**, overall Project construction GHG emissions impacts would be **less than significant with mitigation**.

Mitigation Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

During Project construction, and including in construction bid specifications, Valley Water will require all construction contractors to use engine electrification (including hybrid equipment) and renewable diesel or biodiesel for on- and off-road construction equipment. Use of electric or hybrid equipment and renewable diesel or biodiesel fuels will be subject to technical and economic feasibility findings by Valley Water as well as availability in the region prior to the commencement of construction activities.

GHG-2 ~~Purchase Carbon Offsets~~ Offset GHG Emissions Prior to and During Construction

Valley Water will offset Project-related construction GHG emissions to achieve no net increase in Project-related construction GHG emissions. Options for offsetting construction-related GHG emissions will include GHG reduction measures or programs related to Valley Water projects and operations as guided by the GHGRP once adopted, and/or the purchase of carbon offsets. Annual estimates of GHG mass emissions (including from maintenance activities at the North Channel and at Live Oak Restoration Reach) will be prepared by a qualified GHG specialist retained by Valley Water throughout the construction period and will be utilized to determine which option(s) to proceed with.

Valley Water will assess opportunities to reduce and/or offset construction-related Project emissions as guided by the GHGRP once it is adopted. Reduction or offset measures from the GHGRP may be applied to the Project to reduce the amount of offsets that must be purchased to achieve net-zero GHG emissions from Project construction as discussed as an additional option below.

As another option, ~~Carbon~~ carbon offsets will be purchased annually to offset GHG emissions for the coming construction year and prior to commencement of construction activities for that 12-month period. Purchased carbon offsets will be based on annual GHG estimates of mass GHG emissions based on **Table 3.9-7** in conjunction with calculated GHG emission reductions resulting from implementation of GHG-1 and/or use of other new GHG-efficient construction equipment technologies that may be available in the future. ~~Annual estimates of GHG mass emissions will be prepared by a qualified GHG specialist retained by Valley Water.~~

Valley Water will prioritize purchase of offsets that are not “otherwise required” (CEQA Guidelines Section 15126.4(c)(3)) using the following preference hierarchy: within the San Francisco Bay Area Air Basin, originating within California, and originating in other states with offset laws at least as strict as California's. However, all offset credits shall meet the following validation criteria as defined by 17 CCR 95802: the offset credits must be real, permanent, quantifiable, verifiable, enforceable, and additional. Offset protocols must also be consistent with CARB requirements under 17 CCR 95972. Offset credits shall be registered with a recognized and reputable carbon registry, e.g., Climate Action Reserve, the American Carbon Registry, or Verra. Annual estimates of GHG emissions and corresponding annual carbon offsets will be reported publicly by Valley Water annually in a publicly-available mitigation monitoring report. The mitigation monitoring report will also include documentation of any revised estimates of GHG emissions pursuant to the first paragraph.

If, based on the mitigation monitoring report, additional GHG offsets are required, they will be purchased at that time. If purchased offsets exceeded the preceding year's emissions, they will be applied to the GHG emissions for the next 12-month period.

Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases **(Less than Significant with Mitigation)**

Construction

Seismic Retrofit Construction and Conservation Measures Construction

Senate Bill 32, Assembly Bill 1279, and 2022 Scoping Plan Consistency

The first State policy on GHG reduction was AB 32, the California Global Warming Solutions Act of 2006, which was followed by SB 32 and AB 1279. The quantitative goal of AB 32 was to reduce GHG emissions to 1990 levels by 2020. According to CARB, California achieved its 2020 GHG emission reduction target in 2016. The goal of SB 32 is to reduce GHG emissions to 40 percent below 1990 levels by 2030. Pursuant to SB 32, the Scoping Plan was created to outline goals and measures for the state to achieve the reductions, the latest iteration of which is the 2022 Scoping Plan. The 2022 Scoping Plan outlines a path to achieving carbon neutrality and reduction of anthropogenic GHG emissions by 85 percent below 1990 levels by 2045 set under AB 1279. The 2022 Scoping Plan focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the State's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities. As described under Impact GHG-1, Project construction activities related to Seismic Retrofit construction and Conservation Measures construction would implement **Mitigation Measures GHG-1** and **GHG-2. Mitigation Measure GHG-1** will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2** will require Valley Water to ~~purchase carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to a net total of zero. As such, Project construction activities would not conflict with 2022 Scoping Plan goals, since Project construction activities would be carbon neutral with implementation and not conflict with SB 32, AB 1279, and the 2022 Scoping Plan, and after mitigation there would be a less-than-significant construction impact related to GHG emissions generation conflicting with SB 32, AB 1279, and the 2022 Scoping Plan, which were adopted for the purpose of reducing GHG emissions.

Valley Water CCAP Consistency

The Valley Water CCAP provides goals, strategies, and possible actions to address the ways that Valley Water is vulnerable to climate change impacts in each of Valley Water's mission areas, including water supply, flood protection, and ecosystem stewardship (Valley Water 2021b). The CCAP sets seven goals to guide Valley Water's response to climate change. Project construction consistency with the CCAP is demonstrated in **Table 3.9-8**. As shown therein, Project construction would be consistent with and not conflict with the Valley Water CCAP, and there would be a less-than-significant operational impact related to GHG emissions generation conflicting with the Valley Water CCAP, which was adopted for the purpose of reducing GHG emissions.

Table 3.9-8. Valley Water CCAP Strategies Consistency Analysis

Goals	Strategy	Description	Project Consistency
Reduce Direct GHG Emissions	1.1	Reduce GHG emissions associated with the Valley Water fleet.	Consistent. Implementation of **Mitigation Measure GHG-1** will require engine electrification (including hybrid equipment) and use of renewable fuels where feasible. These actions would reduce GHG emissions from Project construction equipment fleet. Additionally, implementation of **Mitigation Measure GHG-2** will require ~~the purchase of offsets to reduce~~ Valley Water to offset GHG emissions associated with the Valley Water fleet used during Project construction activities to net zero.
	1.2	Reduce GHG emissions from trips between Valley Water offices and work sites.	Consistent. Project construction would utilize maintenance routes that are optimized to minimize GHG emissions, encourage efficient use of sediment, and use efficient transportation alternatives. Additionally, implementation of **Mitigation Measure GHG-1** will require engine electrification (including hybrid equipment) and use of renewable fuels where feasible. Furthermore, implementation of **Mitigation Measure GHG-2** will require ~~the purchase of offsets to reduce~~ Valley Water to offset GHG emissions from trips between Valley Water offices and work sites during Project construction activities to net zero.

Goals	Strategy	Description	Project Consistency
	1.4	Minimize GHG emissions associated with planning, design, construction, operation, and maintenance of capital projects.	Consistent. Implementation of **Mitigation Measure GHG-1** will require engine electrification (including hybrid equipment) and use of renewable fuels where feasible. These actions would reduce GHG emissions from Project construction equipment fleet. Additionally, implementation of **Mitigation Measure GHG-2** will require ~~the purchase of offsets to reduce~~ Valley Water to offset GHG emissions from trips between Valley Water offices and work sites during Project construction activities to net zero..
	3.3	Create and expand other efforts to minimize indirect GHG emissions.	Consistent. Implementation of **Mitigation Measure GHG-1** will require engine electrification (including hybrid equipment) and use of renewable fuels where feasible. These actions would contribute to minimizing indirect Project GHG emissions. Additionally, implementation of **Mitigation Measure GHG-2** will require ~~the purchase of offsets to reduce~~ Valley Water to offset GHG emissions from trips between Valley Water offices and work sites during Project construction activities to net zero.

Morgan Hill 2021 Climate Action Plan Consistency

The City of Morgan Hill CAP centers around the main goal of reducing Morgan Hill's net CO_2e emissions in the building and transportation sectors to 35 percent below 2020 baseline levels by 2030 and 100 percent below 2020 baseline levels by 2045. Construction of the Project would generate GHG emissions; however, implementation of **Mitigation Measures GHG-1** and **GHG-2**, described under Impact GHG-1, will ensure that Project construction does not conflict with the CAP's goal. **Mitigation Measure GHG-1** will require Valley Water and/or its contractor to use engine electrification (including hybrid equipment) and renewable fuels where feasible. In addition, **Mitigation Measure GHG-2** will require Valley Water to ~~implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to net zero. As such, Project construction activities would be consistent with the CAP's main goal to reduce CO_2 emissions to 100 percent below 2020 baseline levels by 2045, since Project construction activities would be carbon neutral with implementation of **Mitigation Measures GHG-1** and **GHG-2**. Therefore, Project construction would be consistent with the Morgan Hill CAP, and after mitigation there would be a less-than-significant construction impact related to GHG emissions generation conflicting with the Morgan Hill CAP, which was adopted for the purpose of reducing GHG emissions.

Climate Smart San José Consistency

Climate Smart San José centers around the goal for San José to be carbon neutral by 2030. Construction of the Project would generate GHG emissions; however, implementation of **Mitigation Measures GHG-1** and **GHG-2**, described under Impact GHG-1, will ensure that Project construction does not conflict with the plan's goal. **Mitigation Measure GHG-1** will require Valley Water and/or its contractor to use engine electrification (including hybrid equipment) and renewable fuels where feasible. In addition, **Mitigation Measure GHG-2** will require Valley Water to ~~implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to net zero. As such, Project construction activities would be consistent with the Climate Smart San José's goal to achieve carbon neutrality in San José by 2030, since Project construction activities would be carbon neutral with implementation of **Mitigation Measures GHG-1** and **GHG-2**. Therefore, Project construction would be consistent with Climate Smart San José, and there would be a less-than-significant construction impact related to GHG emissions generation conflicting with Climate Smart San José, which was adopted for the purpose of reducing GHG emissions.

Operations and Maintenance

As discussed in Section 3.9.3, *Methodology and Approach to Impact Analysis*, above, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures, as well as FAHCE Adaptive Management, would result in the generation of negligible GHG emissions. As such, the Project would largely comply with and not conflict with SB 32, AB 1279, 2022 Scoping Plan, Valley Water CCAP, Morgan Hill 2021 CAP, and Climate Smart San José. Therefore, there would be a less-than-significant operational impact related to GHG emissions generation conflicting with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

Significance Conclusion Summary

Project construction would be consistent with SB 32, AB 1279, the 2022 Scoping Plan, the Valley Water CCAP, the Morgan Hill CAP, and Climate Smart San José with implementation of **Mitigation Measures GHG-1** and **GHG-2**. Project operation would not conflict with these GHG reduction policies and plans without mitigation. Therefore, the Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions, and overall impacts would be **less than significant with mitigation**.

Mitigation Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

GHG-2 ~~Purchase Carbon Offsets~~ Offset GHG Emissions Prior to and During Construction

3.9.5 Cumulative Impacts

GHG emissions generation and related global climate change represent cumulative impacts. Specifically, GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the GHG emissions from past, present, and future projects, plans, and programs and activities have contributed, currently are contributing, and would contribute to global climate change and its associated environmental impacts. In addition, given that the global atmosphere is the overarching cumulative setting with regard to GHG emissions, GHG emissions cumulative impacts are not location specific but rather time specific.

The approach to the cumulative impacts analysis and list of foreseeable future projects, programs, and plans considered in the cumulative impact analysis is included in Section 3.0.5, *Approach to Cumulative Impacts*.

This section describes the Project's contribution to cumulative GHG impacts, as summarized in **Table 3.9-9**. Cumulative impact thresholds for GHG emissions are the same as the impact thresholds presented in Section 3.9.3.8, *Thresholds of Significance*.

Table 3.9-9. Summary of Project Impact Contribution to Cumulative GHG Emissions Impacts

Impact	Significant Cumulative Impact with FOCP?	Significant Cumulative Impact with other Projects?	Incremental Project Contribution	Applicable Project Mitigations	Cumulatively Considerable after Mitigation?
Cumulative Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	Yes	Yes	CC	MM GHG-1 MM GHG-2	No
Cumulative Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases	Yes	Yes	CC	MM GHG-1 MM GHG-2	No

Key: CC = cumulatively considerable; MM = Mitigation Measure; NCC = not cumulatively considerable

***Cumulative Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment* (Not Cumulatively Considerable)**

Cumulative Effects of Project with the FOCP

Implementation of the FOCP would generate GHG emissions from off-road construction activity and other sources. The analysis of GHG emissions is cumulative in nature, as emissions affect the accumulation of GHGs in Earth's atmosphere. Projects that fall below thresholds are considered to have a less-than-significant impact, both individually and cumulatively.

As indicated under Impact GHG-1, Project operational GHG impacts would be less than significant. Project construction would have a significant impact pre-mitigation, which would add to FOCP GHG emissions, resulting in a significant cumulative impact. The Project would have a less-than-significant impact with mitigation incorporated related to GHG emissions. Implementation of **Mitigation Measure GHG-1**, described under Impact GHG-1, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2**, described under GHG Impact-1, will require Valley Water to ~~implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. As the Project will meet the net zero thresholds for construction GHG emissions with implementation of **Mitigation Measures GHG-1** and **GHG-2**, the Project will have a less-than-significant impact post-mitigation individually and cumulatively. Therefore, after mitigation the impact resulting from the Project in combination with the FOCP would be not cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur within the county. Construction or operation of future projects, programs, and plans could overlap in time with the 8 ~~15~~-year construction schedule that Seismic Retrofit components and Conservation Measures construction would occur. Cumulative development would generate GHG emissions from vehicle trips, off-road construction activity, electrical and water use, and other sources. The analysis of GHG emissions is cumulative in nature, as emissions affect the accumulation of GHGs in Earth's atmosphere. Projects that fall below thresholds are considered to have a less-than-significant impact, both individually and cumulatively.

As indicated under Impact GHG-1, Project operational GHG impacts would be less than significant. Project construction would have a significant impact pre-mitigation, which would add to probable future project GHG emissions, resulting in a significant cumulative impact. The Project would have a less-than-significant impact with mitigation incorporated related to GHG emissions. Implementation of **Mitigation Measure GHG-1**, described under Impact GHG-1, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2**, described under GHG Impact-1, will require Valley Water to ~~implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. As the Project will meet the net zero thresholds for construction GHG emissions with implementation of **Mitigation Measures GHG-1** and **GHG-2**, the Project will have a less-than-significant impact individually and cumulatively. Therefore, after mitigation the Project's contribution would be not cumulatively considerable.

Significance Conclusion Summary

The Project would have a significant cumulative GHG impact pre-mitigation, which would add other project GHG emissions, resulting in a significant cumulative impact. Valley Water would reduce the Project's incremental contribution to significant cumulative impacts on construction GHG emissions through implementation of **Mitigation Measures GHG-1** and **GHG-2**. Implementation of **Mitigation Measure GHG-1**, described under Impact GHG-1, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2**, described under GHG Impact-1, will require Valley Water and/or its contractors to ~~implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. Project construction GHG emissions would exceed the net zero threshold for construction GHG emissions without mitigation, and this impact would be a significant and cumulatively considerable impact before mitigation. With implementation of **Mitigation Measures GHG-1** and **GHG-2,** Project construction GHG emissions will not exceed the net zero thresholds for construction emissions. Post-mitigation, the Project's contribution to cumulative impacts on generation of GHG emissions is **not cumulatively considerable.**

Mitigation Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

GHG-2 ~~Purchase Carbon Offsets~~ Offset GHG Emissions Prior to and During Construction

Cumulative Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases **(Not Cumulatively Considerable)**

Cumulative Effects of Project with the FOCP

Implementation of the FOCP would generate GHG emissions from off-road construction activity and other sources. The analysis of GHG emissions is cumulative in nature, as emissions affect the accumulation of GHGs in Earth's atmosphere. Projects that fall below thresholds are considered to have a less-than-significant impact, both individually and cumulatively.

As indicated under Impact GHG-1, Project operational GHG impacts would be less than significant. Project construction would have a significant impact pre-mitigation, which would add to FOCP GHG emissions, resulting in a significant cumulative impact. The Project would have a less-than-significant impact with mitigation incorporated related to GHG emissions. Implementation of **Mitigation Measure GHG-1**, described under Impact GHG-1, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2**, described under GHG Impact-1, will require Valley Water to ~~implement carbon offsets~~ offset

GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. As the Project will meet the net zero thresholds for construction GHG emissions with implementation of **Mitigation Measures GHG-1** and **GHG-2**, the Project will have a less-than-significant impact individually and cumulatively. Therefore, after mitigation the impact resulting from the Project in combination with the FOCP would not be cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur within the county. Construction or operation of future projects, programs, and plans could overlap in time with the 8 ~~15~~-year construction schedule that Seismic Retrofit components and Conservation Measures construction would occur. Cumulative development would generate GHG emissions from vehicle trips, electrical and water use, and other sources that could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. The analysis of GHG emissions is cumulative in nature, as emissions affect the accumulation of GHGs in Earth's atmosphere. Projects that fall below thresholds are considered to have a less-than-significant impact, both individually and cumulatively. Thus, projects that have a less-than-significant impact would also not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

As indicated under Impact GHG-2, Project operational GHG impacts would be less than significant. Project construction would have a significant impact pre-mitigation, which would add to probable future ~~project~~ Project GHG emissions, resulting in a significant cumulative impact. The Project would have a less-than-significant impact with mitigation incorporated related to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Implementation of **Mitigation Measure GHG-1**, described under Impact GHG-1, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2**, described under GHG Impact-1, will require Valley Water to ~~implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. As the Project would meet the net-zero thresholds for construction GHG emissions with implementation of **Mitigation Measures GHG-1** and **GHG-2**, the Project will not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions and would have a less-than-significant impact individually and cumulatively. Therefore, after mitigation the impact resulting from the Project in combination with other probable future projects would not be cumulatively considerable.

Significance Conclusion Summary

The Project would have a significant cumulative GHG impact pre-mitigation, which would add other ~~project~~ Project GHG emissions, resulting in a significant cumulative impact. Valley Water would reduce the Project's incremental contribution to significant cumulative impacts on construction GHG emissions and, thus, to conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions through implementation of **Mitigation Measures GHG-1** and **GHG-2**. Implementation of **Mitigation Measure GHG-1**, described under

Impact GHG-1, will require Valley Water and/or its construction contractors to use engine electrification (including hybrid equipment) and renewable fuels where feasible. Implementation of **Mitigation Measure GHG-2**, described under GHG Impact-1, will require Valley Water to ~~implement carbon offsets~~ offset GHG emissions before construction activities commence each year in an amount sufficient to reduce GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. Project construction GHG emissions would exceed the net-zero threshold for construction GHG emissions without mitigation and would, thus, conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. This impact would be a significant and cumulatively considerable impact before mitigation. With implementation of **Mitigation Measures GHG-1** and **GHG-2**, Project construction GHG emissions will not exceed the net-zero thresholds for construction emissions and, thus, will not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. The Project's contribution to cumulative impacts on generation of GHG emissions and, thus, to conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions is **not cumulatively considerable.**

Mitigation Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

GHG-2 ~~Purchase Carbon Offsets~~ Offset GHG Emissions Prior to and During Construction

3.9.6 References

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3.10 Hazards and Hazardous Materials

This section evaluates the Project impacts related to hazards and hazardous materials in the study area, as described below. The *CEQA Guidelines* significance criteria for hazards and hazardous materials address impacts related to creating a significant hazard to the public and environment through the routine transport, use, disposal, or the accidental release of hazardous materials, emitting or handling hazardous materials within 0.25 miles of a school or near sensitive uses, being located on a known hazardous materials site, impairing implementation with an adopted emergency response plan or evacuation plan, and exposing people or structures to wildland fires. Additional impacts related to wildland fires are analyzed also in Section 3.22, *Wildfire*, and are not discussed further in this section.

The study area used to assess impacts related to hazards and hazardous materials includes the Project Area that includes the construction limits of all Seismic Retrofit and Conservation Measure components, as well as a 0.75-mile area surrounding these limits (refer to **Figure 3.10-1**).

Note that the Project is not located within an airport land use plan or within 2 miles of a public airport or public use airport. Therefore, impacts related to the use of hazards and hazardous materials within an airport land use planning area, or within 2 miles of an airport, are not analyzed in this section.

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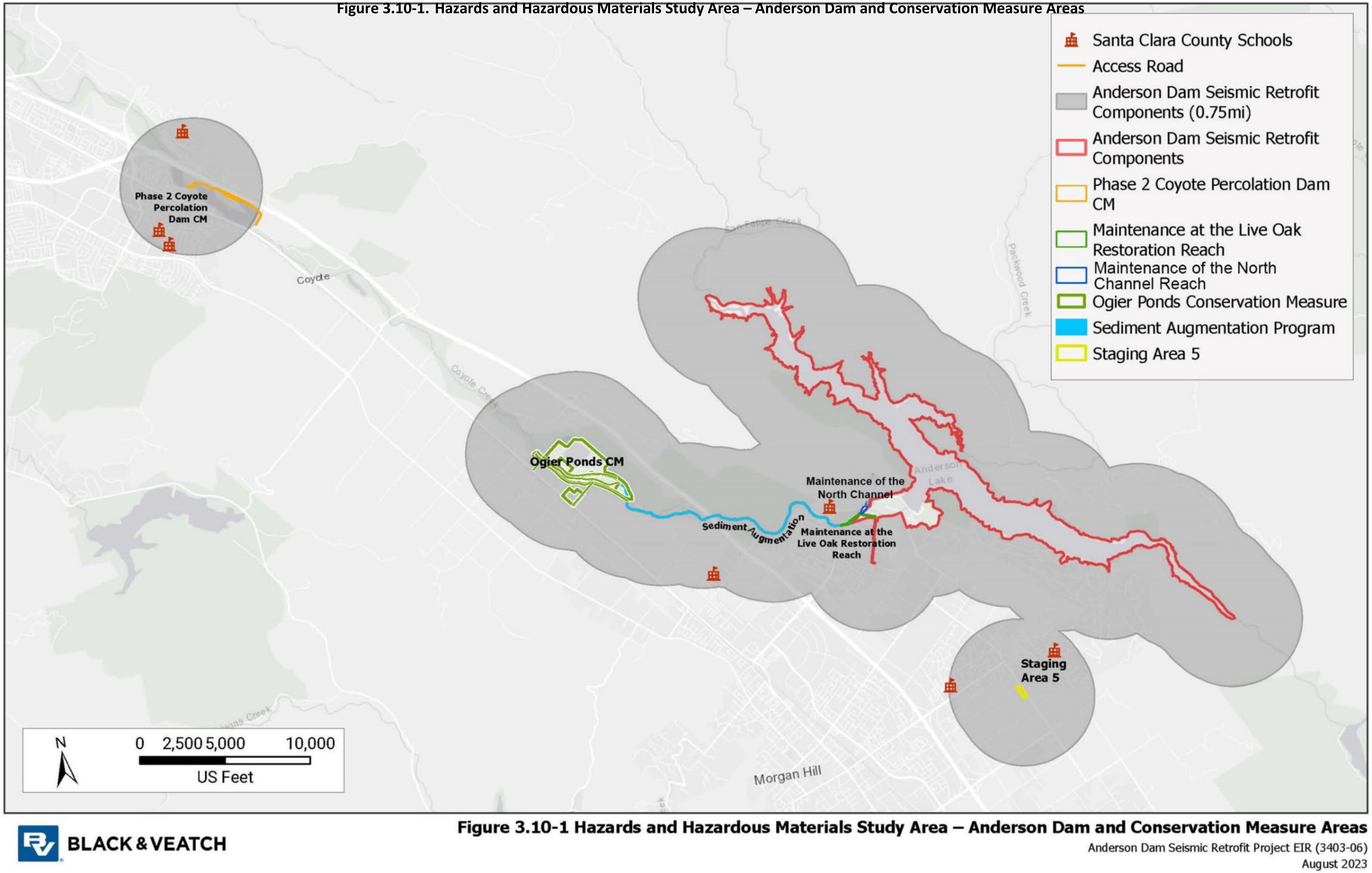
Figure 3.10-1. Hazards and Hazardous Materials Study Area – Anderson Dam and Conservation Measure Areas



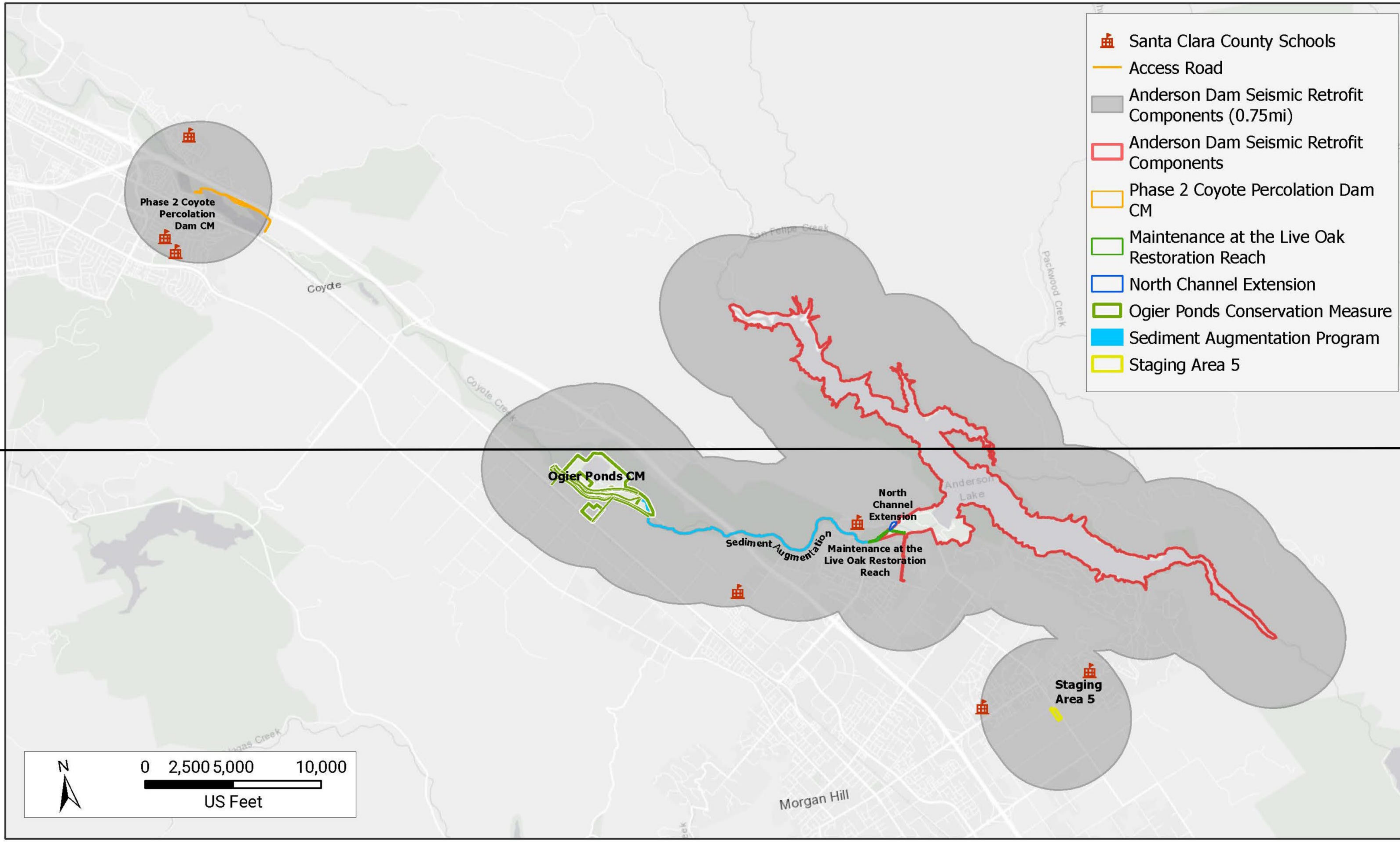


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Figure 3.10-1 Hazards and Hazardous Materials Study Area – Anderson Dam and Conservation Measure Areas

Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

3.10.1 Environmental Setting

3.10.1.1 Regional Setting and Existing Land Uses

Anderson Dam and Reservoir are located near the junction of Cochrane Road and Coyote Road in the county. The Project Area is located on land owned by Valley Water, the County, and private landowners. Anderson Lake County Park encompasses Anderson Reservoir; thus, the lands surrounding the Project Area are largely used by recreationalists. Existing land uses within and adjacent to the Project Area include agricultural and grazing lands, Coyote Creek, parklands and associated parking areas and hiking trails (Coyote Creek Trail, Serpentine Trail, Lakeview Trail, Rancho Laguna Seca Trail), Anderson Reservoir boat ramp, the Anderson Lake Visitor's Center, the County Justice Training Center, the William F. James Boys Ranch, Ogier Ponds, Coyote Percolation Dam, an orchard, and private residences. A large portion of the Coyote Creek corridor downstream of Anderson Dam is undeveloped open space, interspersed with trails and picnic tables.

3.10.1.2 ~~Figure 3.10-1~~ Schools

Several schools are located on lands around the Project Area within Morgan Hill and San José. None of these schools are located within 0.25 mile of the Project Area. Although not a typical public high school, the William F. James Boys Ranch, which is a juvenile detention facility operated by the County Juvenile Probation Department, houses youth year-round and is located approximately 0.11 miles west of the Project Area near the Live Oak Picnic Area within Anderson County Park. This facility is considered a sensitive use and has been evaluated in the analysis. **Table 3.10-1** lists the schools within the 0.75-miles buffer of the Project Area. These schools are also shown on **Figure 3.10-1**.

Table 3.10-1. Schools Within 0.75 Mile of the Project Area

Proposed Project or Conservation Measure	Nearest School	Location	Proximity (miles)
Anderson Dam	William F. James Boys Ranch	19050 Malaguerra Avenue, Morgan Hill	0.11
<u>Sediment Augmentation Program</u> ~~Ogier Ponds Supplemental Staging Area~~	Ann Sobrato High School	410 Burnett Avenue, Morgan Hill	<u>0.53</u> ~~0.43~~
Phase 2 Coyote Percolation Dam CM	Ledesma Elementary School	1001 Schoolhouse Road, San José	0.50
	Martin Murphy Middle School	141 Avenida España, San José	0.75
	Los Paseos Elementary School	121 Avenida Grande, San José	0.66

Note: Many of the conservation measures involve operational measures or the implementation of monitoring, plans, and/or programs that would not involve construction or the use of hazardous materials. Therefore, only schools within close proximity to Conservation Measure components that involve construction related disturbance are included.

3.10.1.3 Existing Hazardous Materials Sites

The provisions in California Government Code section 65962.5, regulated by CalEPA, are commonly referred to as the “Cortese List.” The list, or a site’s presence on the list, has bearing on the local permitting process and compliance with CEQA. The Cortese List, which includes the resources listed below, was reviewed for sites in the Project Area:

- Hazardous Waste and Substances sites from the California Department of Toxic Substances Control (DTSC) EnviroStor database
- Leaking Underground Storage Tank (LUST) Sites from the SWRCB GeoTracker database
- Solid waste disposal sites identified by the SWRCB with waste constituents above hazardous waste levels outside the waste management unit
- “Active” Cease and Desist Orders and Cleanup and Abatement Orders from SWRCB
- Hazardous waste facilities subject to corrective action identified by DTSC

According to the SWRCB GeoTracker database (SWRCB 2021a) and the DTSC EnviroStor database (DTSC 2021), no hazardous sites or facilities are located within the Project Area.

However, the following three sites are located within 0.75 mile of the Seismic Retrofit component area and associated staging areas, and are shown on **Figure 3.10-2**:

The Estates at San Sebastian – Phase I (located approximately 0.4 mile southwest of Anderson Dam) is listed as a DTSC Voluntary Cleanup site. The site is an agricultural area used for row crops, where onsite soils were determined to be contaminated by organochloride pesticides. The site was listed as a voluntary cleanup site in 2015. Based on assessment by DTSC, the site does not appear to pose a threat to human health or the environment under a residential land use scenario, and DTSC determined that no further action was necessary with respect to investigation and remediation of hazardous substances at the property. The voluntary cleanup agreement was completed in 2016 (SWRCB 2021b).

Borello St. Marks Property (located approximately 0.5 mile west of Anderson Dam) is listed as a DTSC Voluntary Cleanup site. The site is a former agricultural area used for row crops where on-site soils were determined to be contaminated by organochlorine pesticides. The site was listed as a voluntary cleanup site in 2006. Based on assessment by DTSC, the site does not appear to pose a threat to human health or the environment under a residential land use scenario, and DTSC determined that no further action was necessary with respect to investigation and remediation of hazardous substances at the property. The voluntary cleanup agreement was completed in 2006. The same site is listed as an Irrigated Lands Regulatory Programs site (SWRCB 2021c).

Borello Property (located approximately 0.75 mile southwest of Anderson Dam) has two listings; a DTSC Voluntary Cleanup site and a School Cleanup site because the site was selected by the Morgan Hill Unified School District as a future elementary school site. The site was a former agricultural area used for orchards, where onsite soils were determined to be contaminated by toxaphene and dieldrin pesticides. In 2005, the site was remediated to reduce the concentrations of organochlorine pesticides at the agricultural field. However, subsequent investigations in 2014 and early 2016 confirmed that elevated concentrations of dieldrin remain at the site. A Removal Action Workplan (RAW) was approved by DTSC in

November 2017. In November 2020, DTSC approved the Removal Action Completion Report and certified that the site has met the cleanup goals of the RAW (SWRCB 2021d).

Ushiba Property (located approximately 0.9 mile west of Staging Area 5) is listed as a LUST cleanup site. A diesel leak was discovered in 1997 that may have contaminated soil. However, the site was cleaned up and the case was closed in 1997 (SWRCB 2022a).

In addition to the sites identified within 0.75 mile of Seismic Retrofit component area, the SWRCB Geotracker database (SWRCB 2021a) and the DTSC EnviroStor database (DTSC 2021) identified the following 17 sites within 0.75 mile of the Conservation Measures components and associated staging areas, and are shown on **Figure 3.10-2**:

New Morgan Hill High School (located approximately 0.53 mile west of the Sediment Augmentation Program [Coyote Creek] ~~Ogier Ponds Supplemental Staging Area~~) is listed as a DTSC School Cleanup. This site was used historically for agriculture, and elevated levels of chlordane, dieldrin, endrin, lead, arsenic, and cadmium were detected in the soil. Approximately 150 cy of contaminated soil were removed from the site, and the site was certified as clean in 2003 (DTSC 2022).

Colombini Ranch (located approximately 0.69 ~~0.4~~ mile south of the Sediment Augmentation Program [Coyote Creek] ~~Ogier Ponds Supplemental Staging Area~~) is listed as a LUST cleanup site. A gasoline leak was discovered in 1987 that may have contaminated soil. However, the site was cleaned up and the case was closed in 1998 (SWRCB 2022b ~~2022a~~).

Bonner Packing (located approximately 0.11 mile west of Ogier Ponds) is listed as a LUST cleanup site. The site was utilized as a mobile home park, and for agriculture, gravel excavation, fruit packing, and related cold storage. The site contained a 1,000-gallon gasoline UST that contaminated a small amount of soil near the UST. The UST was removed in 1987 and no further remediation work was required. The case was closed in January 1991 (SWRCB 2021e) ~~December 1990 (Valley Water 1990)~~.

Kirby Canyon Landfill (located approximately 0.5 mile east of Ogier Ponds) is a Class III solid waste disposal facility that has been operating since 1986. The landfill is listed as having contaminated groundwater, soil, and surface water with high levels of benzene and toluene. Cleanup activities are ongoing (SWRCB 2022c ~~2022b~~).

Private Residence (Filice Estate Vineyards) (located approximately 0.07 mile west of Ogier Ponds) is listed as a LUST cleanup site. The site was formerly used for agricultural purposes, including vineyards and cherry orchards. The site contained one 350-gallon gasoline UST that contaminated soil near the UST. The UST was removed in 1988 and no further remediation work was required as the UST had no holes or ruptures when removed. The case was closed in December 1989 (Valley Water 1989).

Bonner Packing Parkway Lanes (located approximately 0.22 mile west of Ogier Ponds) is listed as a LUST cleanup site. Soil on the site was reported as contaminated from one gasoline UST. The site was cleaned up and no further remediation onsite was required. The case was closed in January 1991 (SWRCB 2021e).

Kikunaga Nursery (located approximately 0.5 mile west of Ogier Ponds) is listed as a LUST cleanup site. The site was a former nursery that contained one 500-gallon gasoline UST that contaminated soil near the UST. The site was cleaned up and the case was closed in October 1995 (SWRCB 2021f).

Sierra Precast, Inc. (located approximately 0.5 mile southwest of Ogier Ponds) has two listings as a LUST cleanup site. The site was formerly used for agricultural purposes. Contaminated soil was found onsite and three USTs were removed in 1993. Contaminated soil and groundwater used for drinking water supply were also detected onsite beneath a gasoline dispenser pump in 2002. The site was cleaned up and the case was closed in March 2004. Since that time, Valley Water has installed a water supply well at the property (SWRCB 2021g).

Aguilar Trucking (located approximately 0.5 mile southwest of Ogier Ponds) is listed as a LUST cleanup site. A diesel leak was discovered in 1992 that may have contaminated the soil. However, the site was cleaned up and the case has been closed since 1996 (SWRCB 2022d ~~2022c~~).

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Figure 3.10-2. Hazardous Sites within the Project Area and Immediate Vicinity

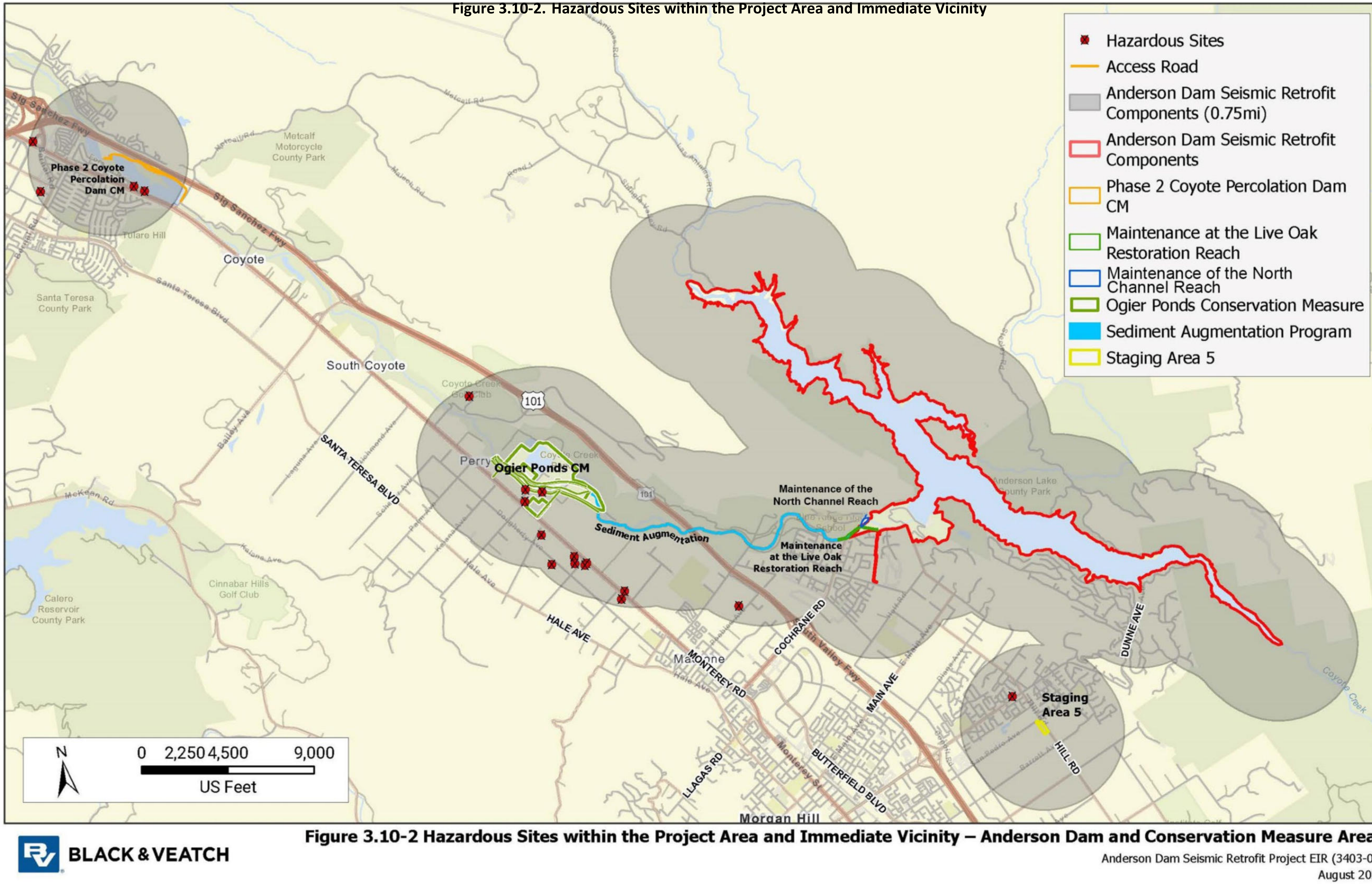

Figure 3.10-2 Hazardous Sites within the Project Area and Immediate Vicinity – Anderson Dam and Conservation Measure Areas
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

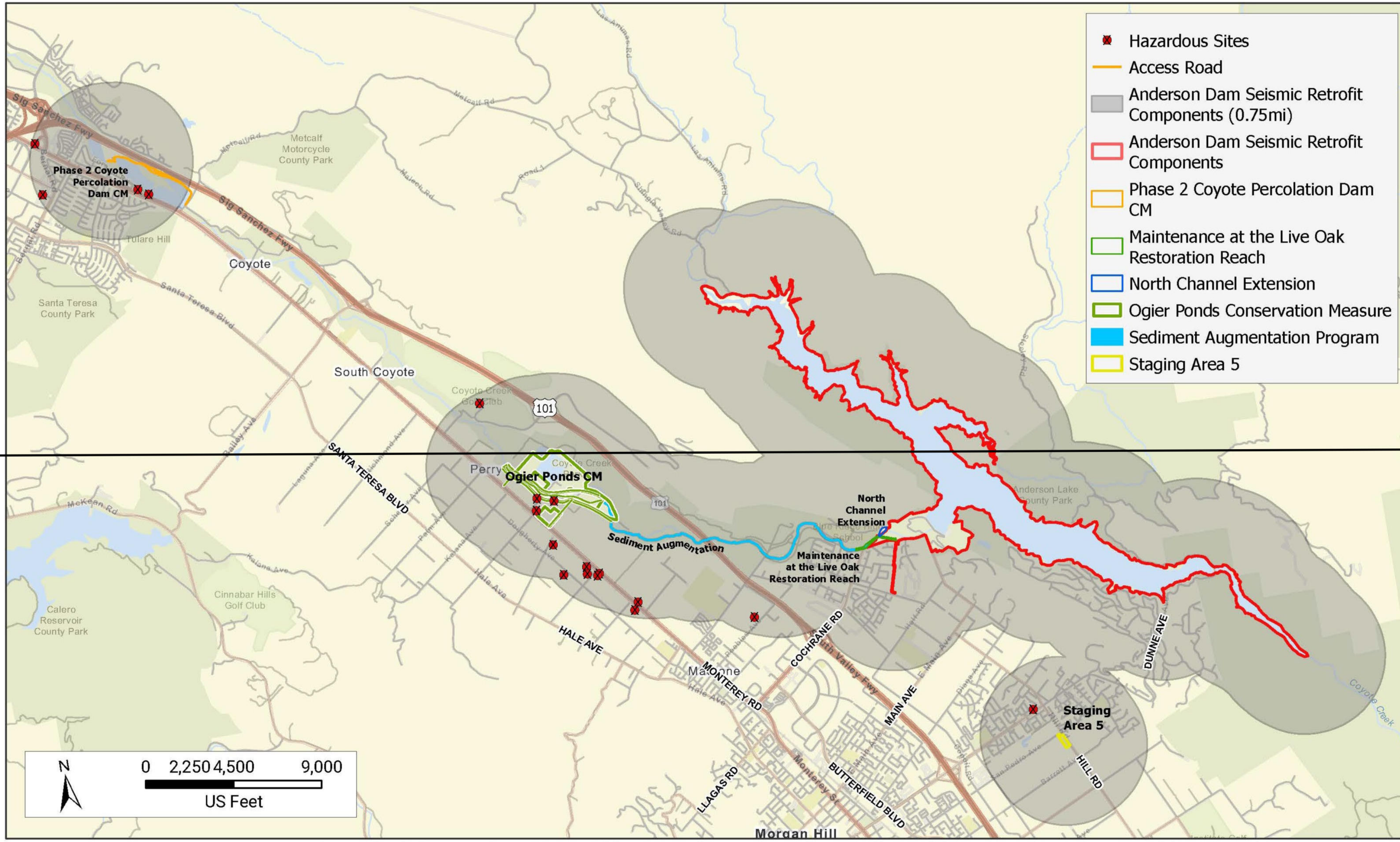

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Figure 3.10-2 Hazardous Sites within the Project Area and Immediate Vicinity – Anderson Dam and Conservation Measure Areas

Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

Fujita Farms (located approximately 0.5 mile southwest of Ogier Ponds) is listed as a LUST cleanup site. The site was formerly used for agricultural purposes. Soil was contaminated from two 550-gallon USTs that were removed in 1990; one UST had a pinhole leak. Contamination was localized and was removed during the UST removal. The case was closed in June 1995 (SWRCB 2021h).

Tellez Property (located approximately 0.5 mile southwest of Ogier Ponds) is listed as a LUST cleanup site. The site was formerly used for agricultural purposes. Contaminated soil beneath a 550-gallon UST was detected and the UST was removed in 1988. No further remediation of the site was conducted, and the case was closed in November 1990 (SWRCB 2021i).

Riverside Golf Course (located approximately 0.7 mile northeast of Ogier Ponds) is listed as a LUST cleanup site. The site was formerly a golf course that stored three gasoline USTs. When removed from the site in 1984 and 1990, a hole was detected in one of the USTs. Water used for drinking water could have been potentially contaminated; however, it was determined through further monitoring that no drinking wells were affected. The case was closed in April 2000 (SWRCB 2021j).

Kaufman & Broad-Site #1 (located approximately 0.4 mile southeast of the Coyote Percolation Dam) is listed as a LUST cleanup site. Eight gasoline USTs and contaminated soil were removed in 1998. Contaminated groundwater was also detected onsite. As of July 1999, residual groundwater and soil contamination remained; however, the residual levels do not impact human health or the environment. The case was closed in July 1999 (SWRCB 2021k).

Kaufman & Broad-Site #2 (located approximately 0.5 mile southeast of the Coyote Percolation Dam) is listed as a LUST cleanup site. The site was a former gasoline station that contaminated the soil. All LUSTs were removed with the demolition of the gasoline station in the 1970s. No further remediation was required, and the case was closed in June 1991 (SWRCB 2021l).

PG & E Substation (located approximately 0.9 mile southeast of the Coyote Percolation Dam) is listed as a LUST cleanup site. Petroleum hydrocarbons were released from a 150-gallon UST resulting in contaminated soil onsite. However, the site was cleaned up and the case has been closed since 1993 (SWRCB 2022e ~~2022d~~).

USA Petroleum #832 (located approximately 0.7 mile northwest of the Coyote Percolation Dam) is listed as a LUST cleanup site. This site was used to operate a gasoline and diesel service station since 1994 and contained three 12,000-gallon gasoline USTs. Soil and groundwater samples found contaminated levels of soil and groundwater within the site that may have affected drinking water supplies. Remediation activities took place from 2004 to 2009 and removed methyl tertiary butyl ether (MTBE) and non-methane hydrocarbons from the soil. As of 2010, verification monitoring had not yet been completed (SWRCB 2022f~~e~~).

Fairchild–San José (located approximately 0.7 mile southwest of the Coyote Percolation Dam) is listed as an open cleanup program site. The site was use as a manufacturing site that involved handling, repackaging, and storage of industrial solvents and volatile organic compounds (VOC) that stopped operating in 1983. In 1981, a waste solvent UST failed, releasing hazardous contaminants. VOCs were detected in subsurface soil and groundwater at the site in 1981. The owner has completed a series of remediation activities throughout the 1980s and is currently conducting monitoring. Since 2018, verification monitoring was still being conducted and the case is still considered open. Currently, the site is a retail shopping center with a paved parking lot (SWRCB <u>2022g</u> ~~2022f~~).

3.10.1.4 Previous Hazardous Assessments in the Project Area

Phase I Hazardous Substance Liability Assessments (HSLA) were prepared as part of the acquisition process for three properties located within the Project Area. Five HSLAs were also prepared for five properties located adjacent to the Project Area. A summary of the findings of these reports is provided below.

- A Phase I HSLA (Northgate 2020a) was prepared for a 0.65-acre parcel of vacant land located within Anderson Lake County Park at 2187 Cochrane Road (APN 728-34-020). This parcel was acquired by Valley Water for eventual construction of flood protection banks as part of the Project to protect construction trailers. This site historically consisted of the vacant stream bank and floodplain area adjacent to the historic channel of Coyote Creek before Coyote Creek was rechanneled during construction of the dam in the early 1950s. Serpentine and other ultramafic rock were discovered to be present on the surface of the site during the assessment. These rock types were determined to contain naturally occurring asbestos (NOA) at concentrations greater than 0.25 percent (Mandlekar 2020a).
- A Phase I HSLA (Northgate 2020b) was prepared for portions of the Giancola property located at 2290A Cochrane Road (APN 78-34-010). Valley Water acquired temporary construction easements on this parcel for eventual construction staging and material laydown as part of the Project. This site was historically used for agricultural purposes and thus, residual agricultural chemicals (e.g., pesticides such as DDT-related compounds and metals) could potentially be present in shallow soil at the site. In addition, geologic formations that are sometimes associated with NOA are located on the site; thus, soil onsite could potentially contain NOA (Mandlekar 2020b).
- A Phase I HSLA (Mandlekar 2014) was prepared for the vacant land adjacent to the western portion of Anderson Lake County Park immediately east of Cochrane Road (APN 728-34-016). This parcel was acquired by Valley Water for the Project long-term operations, and for access to the reservoir to support the Project. This parcel currently supports vacant land; however, some chemicals may have been used for maintenance of boats at the offsite boat storage facility west of Cochrane Road (Mandlekar 2014). The assessment found no recognized environmental conditions (REC) onsite but recommended that if any subsurface work is planned at the site that Valley Water prepare a subsurface soil and groundwater sampling and management plan to test soil and groundwater for metals, total petroleum hydrocarbons, and volatile organic compounds.
- A Phase I HSLA (Locus Technologies 2022a) was prepared for two parcels located on Monterey Road (APN 725-05-005 and APN 725-05-066) bordering the western boundary of Ogier Ponds CM and adjacent to the historical channel of Coyote Creek. The two parcels were previously used for agricultural purposes; thus, there is a high likelihood that pesticides were applied onsite that may have contaminated soil. Further investigation is required to test the soils for contamination. The site is currently used by a company that builds fireplaces. Although aboveground storage tanks were present

onsite, they were in clean condition and are not of environmental concern. Valley Water may acquire a fee interest or easement on the property for soil excavation and Coyote Creek improvements associated with the Ogier Ponds ~~Geomorphic and Habitat Restoration~~ CM.

- A Phase I HSLA (Locus Technologies 2022b) was prepared for two parcels located on Monterey Road (APN 725-05-015 and 725-05-016) bordering the western boundary of Ogier Ponds and adjacent to the historical channel of Coyote Creek. The two parcels were previously used for agricultural purposes; thus, there is a high likelihood that pesticides were applied onsite that may have contaminated soil. Further investigation would be required to test the soils for contamination. The site is currently an active ranch with livestock, vegetation, and mobile homes. Valley Water may acquire a fee interest or easement on the property for soil excavation and Coyote Creek improvements associated with the Ogier Ponds ~~Geomorphic and Habitat Restoration~~ CM.
- A Phase I HSLA (Locus Technologies 2022c) was prepared for a 104-acre parcel located in Morgan Hill (APN 725-04-002) at the southern end of Ogier Ponds adjacent to the historical channel of Coyote Creek. The parcel has been used as agricultural land for orchards since 1939; thus, there is a high likelihood that pesticides were and are still applied onsite. The historic and current agricultural land use is considered an environmental concern and further investigation is required to test the soils for contamination. Valley Water may acquire a fee interest or easement on the property for soil excavation and Coyote Creek improvements associated with the Ogier Ponds ~~Geomorphic and Habitat Restoration~~ CM.
- A Phase I HSLA (Locus Technologies 2022d) was prepared for an 11.5-acre commercial property located in Morgan Hill (APN 725-05-014) that borders the western boundary of Ogier Ponds. The parcel was previously used for agricultural purposes; thus, there is a high likelihood that pesticides were applied onsite. The historical agricultural land use is considered an environmental concern and further investigation is required to test the soils for contamination. The site is currently used for commercial purposes including food distribution, construction fencing, and home building services. Valley Water may acquire a fee interest or easement on the property for soil excavation and Coyote Creek improvements associated with the Ogier Ponds ~~Geomorphic and Habitat Restoration~~ CM.
- A Phase I HSLA (Locus Technologies 2022e) was prepared for a residential property owned by Parkway Lakes RV Park located in Morgan Hill (APN 725-05-011) that borders the western boundary of Ogier Ponds. The parcel was previously used for agricultural purposes; thus, there is a high likelihood that pesticides were applied onsite. The historical agricultural land use is considered an environmental concern. The property also has a closed LUST case onsite. Further investigation is required to test the soils for contamination. The site is currently used as a recreational vehicle park. Valley Water may acquire a fee interest or easement on the property for soil excavation and Coyote Creek improvements associated with the Ogier Ponds ~~Geomorphic and Habitat Restoration~~ CM.

3.10.1.5 Naturally Occurring Asbestos

Asbestos is a known carcinogen, and inhalation of asbestos may result in lung cancer or mesothelioma. Exposure and disturbance of rock and soil that contains asbestos can result in the release of fibers to the air and consequent exposure to the public. As noted in Section 3.10.1.2, CARB has identified asbestos as a TAC. NOA is commonly associated with serpentine and ultramafic rock types.

The area located west of Anderson Lake is identified by the State of California as containing ultramafic rock (CDOC 2000) (refer to **Figure 3.10-2**). Ultramafic rock within this area mainly consists of serpentinite, as well as peridotite and gabbro within the Franciscan Complex. NOA is located within most of the Franciscan Formation rock types that underlay the majority of the dam footprint and associated spillway, portals, HLOWs, and tunnels, and the BHBA (URS 2021a). NOA is also located within some rock types associated with the Santa Clara Formation located at the dam and existing spillway, low-level outlet trench, and portal (URS 2021a 2021c). The serpentinite that underlays the dam and spillway foundations and portals, tunnels, and shafts associated with the LLOWs and HLOWs and was found to contain the highest concentration of NOA, ranging from 1 percent to 30 percent (URS 2021b). NOA detected in most of the other Franciscan Complex rock types, and the Santa Clara Formations had concentrations generally lower than 1 to 2 percent (URS 2021b).

Disturbance of soil with greater than 1 percent NOA is considered Class II asbestos work that requires specific training, monitoring, and respiratory protection. Soils with less than 1 percent NOA are not considered asbestos containing material, but protective measures would still be required for soil-disturbing activities (URS 2021b). As described above, serpentine and other ultramafic rock containing NOA at concentrations greater than 0.25 percent were determined to be present within Anderson Lake County Park, located west of the dam at 2187 Cochrane Road (Northgate 2020a). Geologic formations associated with NOA were also detected at the Giancola property located west of the dam, at 2290A Cochrane Road (Northgate 2020b).

In addition, serpentinite can contain chromium, cobalt, nickel, and other metals and elements may be present at elevated concentrations in the Franciscan Complex that may result in air quality concerns if they are disturbed during construction (URS 2021a). A discussion of these metals is included in Section 3.3, *Air Quality*.

3.10.1.6 Valley Fever

Valley Fever—sometimes called “San Joaquin Valley fever” or “desert rheumatism”—is an infection caused by a soil-dwelling fungus (Coccidioides) that, when inhaled, can affect the lungs, causing respiratory symptoms including cough, fever, chest pain, and tiredness. Valley Fever can be contracted as a result of ground disturbing activities and may be common in soil types throughout the Project study area. There are no commercially available tests to detect this fungus in soil. In 2021, Santa Clara County reported 65 cases indicating the fungus that causes Valley Fever was present in Santa Clara County (CDPH 2021).

3.10.2 Regulatory Setting

This section summarizes laws, regulations, and policies pertinent to the evaluation of the Project's impacts related to hazards and hazardous materials.

3.10.2.1 Federal Laws, Regulations, and Policies

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also called the Superfund Act (42 USC section 9601 et seq.), is intended to protect the public and the environment from the effects of prior hazardous waste disposal and new hazardous material spills. Under CERCLA, the USEPA has the authority to seek out the parties responsible for hazardous materials releases, and to assure their cooperation in site remediation (USEPA 2020a). CERCLA also provides federal funding (the "Superfund") for the remediation of hazardous materials contamination. The Superfund Amendments and Reauthorization Act (SARA) of 1986 (PL 99-499) amends some provisions of CERCLA and provides for a Community Right-to-Know program.

The USEPA has the authority to implement CERCLA in all 50 states and all U.S. territories, using a variety of enforcement tools. The identification, monitoring, and remediation of Superfund sites are usually coordinated by state environmental protection and/or waste management agencies.

When potentially responsible parties cannot be identified or located, or when responsible parties fail to act, the USEPA has the authority to remediate abandoned and/or historical sites where hazardous materials contamination is known to exist and to pose a human health hazard.

Pursuant to CERCLA, the USEPA maintains the National Priorities List of uncontrolled or abandoned hazardous waste sites identified for priority remediation under the Superfund program. Sites are identified for listing on the basis of the USEPA's hazard ranking system, or if they meet certain other requirements, such as a designation of one site by a state or territory or if the Agency for Toxic Substances and Disease Registry issues a public health advisory.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) (42 USC section 6901 et seq.) was enacted in 1976 as an amendment to the Solid Waste Disposal Act to address the nationwide generation of municipal and industrial solid waste. RCRA gives the USEPA authority to control the generation, transportation, treatment, storage, and disposal of hazardous waste, including underground storage tanks storing hazardous substances. RCRA also establishes a framework for the management of non-hazardous solid wastes (USEPA 2020b). RCRA addresses only active and future facilities; it does not address abandoned or historical sites, which are covered by CERCLA (see preceding section).

RCRA was updated in 1984 by the passage of the federal Hazardous and Solid Waste Amendments (HSWA), which require the gradual phasing out of land disposal of wastes. HSWA also increased the USEPA's enforcement authority, and established more stringent hazardous waste management standards, including a comprehensive underground storage tank program.

Occupational Safety and Health Administration

OSHA is responsible at the federal level for ensuring worker safety. OSHA sets federal standards for implementation of workplace training, exposure limits, and safety procedures for the handling of hazardous substances (as well as other hazards). These standards, codified in 29 CFR Part 1910, address issues that range in scope from walking and working surfaces, to exit routes and emergency planning, to hazardous materials and personal protective equipment (PPE). They include exposure limits for a wide range of specific hazardous materials, as well as requirements that employers provide PPE to their employees wherever it is necessary (29 CFR section 1910.132).

U.S. Department of Transportation Hazardous Materials Transportation Act

The USDOT Hazardous Materials Transportation Act (HMTA) (49 USC Chapter 51) was enacted in 1975 and regulates the interstate transport of hazardous materials and wastes. The HMTA specifies driver training requirements, load labeling procedures, and container design and safety requirements. Transporters of hazardous wastes must also meet the requirements of other statutes, such as the RCRA. The HMTA requires that carriers report accidental releases of hazardous materials to the USDOT as soon as is practicable. Incidents that must be reported include deaths, injuries requiring hospitalization, and property damage exceeding $50,000. The USDOT, the Federal Highway Administration, and the Federal Railroad Administration are the agencies responsible for administering the HMTA. This law may apply to the transportation of hazardous materials to or from the Project Area, if such materials are identified or required as part of Project construction or long-term operations and maintenance activities.

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 USC section 136 et seq.) was enacted in 1947. The purpose of FIFRA is to establish federal jurisdiction over the distribution, sale, and use of pesticides. Key provisions of FIFRA require pesticide applicators to pass a licensing examination for status as "qualified applicators," create a review and registration process for new pesticide products and provide for thorough and understandable labeling that includes instructions for safe use.

3.10.2.2 State Laws, Regulations, and Policies

California Emergency Services Act

Under the Emergency Services Act of 2015, the State of California developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services (Cal OES). This office coordinates the responses of other agencies, including the USEPA, the California Highway Patrol, the nine RWQCBs, the various air quality management districts, and county disaster response offices (Cal OES 2021 ~~2017~~).

Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

Proposition 65, officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986, protects the state's drinking water sources from being contaminated with chemicals known to cause cancer, birth defects or other reproductive harm, and requires businesses to inform Californians about exposures to such chemicals. Proposition 65 requires the State to maintain and update a list of chemicals known to the State to cause cancer or reproductive toxicity (OEHHA 2021).

California Occupational Safety and Health Administration Standards

Worker exposure to contaminated soils and vapors, or possibly to contaminated groundwater, is subject to monitoring and personal safety equipment requirements that are established in the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) regulations (CCR Title 8). Workers who are in direct contact with contaminated soil or groundwater are required to perform all activities in accordance with a site-specific health and safety plan, as outlined in Cal/OSHA standards (California Department of Industrial Relations 2021). CRC Title 8 regulations include requirements for Valley fever protection and exposure.

Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations

The CARB has established the Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations to minimize the generation of asbestos from earth disturbance or construction activities (17 California Code of Regulations [CCR] Section 93105). The Asbestos ATCM applies to any project that would include sites to be disturbed in a geographic ultramafic rock unit area, or an area where NOA, serpentine, or ultramafic rocks are determined to be present. Under the ATCM, prior to any grading activities at a development site, a geologic analysis is required to determine if serpentine rock is present. If NOA is found at a development site, preparation of an Asbestos Health and Safety Program and an Asbestos Dust Mitigation Plan (ADMP) are required. These plans require approval by the BAAQMD before construction begins.

California Government Code Section 65962.5

California Government Code section 65962.5 requires CalEPA to develop, at least annually, an updated Cortese List (CalEPA 2021). The DTSC is responsible for a portion of the information contained in the Cortese List. Other state and local government agencies, including the State Water Board and the California Integrated Waste Management Board, are required to provide additional hazardous material release information for the Cortese List.

Hazardous Waste Control Act

The Hazardous Waste Control Act of 1972 created the Hazardous Waste Management Program, which is similar to, but more stringent than, the federal program under RCRA. The Hazardous Waste Control Act is implemented by regulations contained in Title 26 of the CCR. These regulations list more than 800 materials that may be hazardous and establishes criteria for their identification, packaging, and disposal. Under the Hazardous Waste Control Act and 26 CCR, hazardous waste generators must complete a manifest that accompanies the waste from the generator to the transporter to the ultimate disposal location. Copies of the manifest must be filed with DTSC.

Motor Vehicle Code

In addition to the RCRA hazardous waste transportation standards, California regulates the transportation of hazardous waste originating or passing through the state. State regulations are contained in the CCR, Title 13, Vehicle Code. Hazardous waste must be regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests.

The California Highway Patrol (CHP) and Caltrans are responsible for enforcing federal and state regulations pertaining to the transport of hazardous materials through California. The CHP enforces materials and hazardous waste labeling and packaging regulations that prevent leakage and spills of material in transit and provides information to cleanup crews in the event of an incident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP. The CHP conducts regular inspections of licensed transporters to assure regulatory compliance. The CHP and Caltrans also respond to hazardous materials transportation emergencies. Caltrans has emergency chemical spill identification teams at locations throughout the state.

California Department of Pesticide Regulation, Pesticides and Pest Control Operations

The USEPA has delegated primary authority to the California Department of Pesticide Regulation (CDPR) to enforce federal and state laws pertaining to the proper and safe use of pesticides. County Agricultural Commissioners (CAC) and their staffs are largely responsible for the in-field enforcement of CDPR’s pesticide use regulations in California’s 58 counties. Personnel from CDPR’s headquarters and CDPR field staff provide training, coordination, technical, and legal support to the counties.

Title 3 CCR, Division 6, describes the role of CDPR and provides guidance related to pesticide regulatory programs; pesticides (including pesticide registration and the identification and use of restricted materials); licensing, work requirements, and pesticide-related worker safety during pest control operations; and environmental protection for groundwater, air quality, aquatic and marine environments, surface water, and compost. The CACs, on behalf of CDPR, are responsible for the enforcement of these human health and environmental protections in the field.

California Environmental Protection Agency Unified Program

CalEPA oversees California’s Unified Program which protects Californians from hazardous waste and hazardous materials by ensuring that local regulatory agencies apply statewide standards when permits are issued and conduct inspections and enforcement activities. Specifically, the Unified Program consolidates the administration, permit, inspection, and enforcement activities of the following environmental and emergency management programs: Aboveground Petroleum Storage Act Program, Area Plans for Hazardous Materials Emergencies, California Accidental Release Prevention Program, Hazardous Materials Business Plan Program, Hazardous Material Management Plan and Hazardous Material Inventory Statements (California Fire Code), Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs, and UST Program.

California Underground Storage Tank Law

The California Underground Storage Tank Law (Title 23 CCR section 2630 or California Health and Safety Code section 25280) establishes requirements for the underground storage of hazardous substances. Title 23 CCR sections 2631 and 2632 specify the design, construction, and monitoring requirements for all new underground storage tanks. Title 23 CCR sections 2633 and 2634 specify alternate design, construction, and monitoring requirements for underground storage tanks installed before January 1, 1997, which only store motor vehicle fuel. Title 23 sections 2635 and 2636 specify requirements for all new underground storage tanks, piping, and secondary containment systems.

California Valley Fever Regulations

Regulations covering Valley Fever are promulgated in CCR, Title 8, *Industrial Relations*, in the sections summarized below.

- Section 3203, Injury and Illness Prevention: This section requires employers to establish and implement a written Injury and Illness Prevention Program (IIPP) that shall identify the person or persons with authority and responsibility for implementing the IIPP, establish a system for ensuring that employees are trained to recognize and comply with safe and healthy work practices, and establish a system for communicating with employees in a form readily understandable by all affected employees on matters relating to occupational safety and health.
- Section 5141, Control of Harmful Exposures: This section requires that harmful exposures shall be prevented by engineering controls whenever feasible. Whenever engineering controls are not feasible or do not achieve full compliance, administrative controls shall be implemented if practicable. Control by respiratory protective equipment shall be used to prevent harmful exposures as follows: (1) during the time period necessary to install or implement feasible engineering controls; (2) where feasible engineering controls and administrative controls fail to achieve full compliance; and (3) in emergencies.
- Section 5144, Respiratory Protection: This section establishes the permissible practice for the use of respiratory protection: (1) In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures. When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this section. (2) Respirators shall be provided by the employer when such equipment is necessary to protect the health of the employee.

3.10.2.3 Regional and Local Laws, Regulations, and Policies

San Francisco Bay Regional Water Quality Control Board

In 2000, the San Francisco Bay RWQCB first published human health risk-based screening levels (RSL) for over 100 commonly detected contaminants at sites with impacted soil and groundwater. The RSLs were revised in 2003 to become environmental screening levels (ESL), and their scope broadened to include direct exposure screening levels for construction and trench workers, and ecological risks and nuisance/gross contamination concerns (SWRCB 2020). The ESLs are conservative risk-based screening levels initially informed by USEPA Region 9 Preliminary Remediation Goals and CalEPA California Human Health Screening Levels. Although initially developed to regulate water quality for the San Francisco Bay Basin Water Quality Control Plan, the conservative, risk-based ESLs have been adopted by many California regulatory agencies as default screening levels to evaluate risk to human health and the environment.

Bay Area Air Quality Management District

The BAAQMD plans for and regulates air quality in the SFBAAB, including the county, through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The BAAQMD responsibilities include the preparation of plans and programs for the attainment of the NAAQS and CAAQS, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. The BAAQMD also inspects stationary sources, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements other programs and regulations required by the Clean Air Act and California Clean Air Act.

Projects located within the SFBAAB are subject to BAAQMD's rules and regulations. Specific rules applicable to the Project and alternatives includes the BAAQMD administration of 17 CCR section 93105: *Asbestos ATCM for Construction, Grading, Quarrying and Surface Mining Operations*. According to the BAAQMD Asbestos ATCM Regulatory Advisory (BAAQMD 2002):

> The ATCM applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally-occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the Department of Conservation as ultramafic rock units or if the BAAQMD or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally-occurring asbestos on the site. The ATCM also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity.

If the ATCM is found to apply, then (BAAQMD 2002):

> Construction projects that will disturb more than one acre must prepare and obtain district approval for an asbestos dust mitigation plan. The plan must specify how the operation will minimize emissions and must address specific emission sources. Regardless of the size of the disturbance, activities must not result in emissions that are visible crossing the property line.

Exemptions may be granted (BAAQMD 2002):

1) if a geological evaluation demonstrates that ultramafic rock or serpentine is not likely to be found;
2) for road construction and maintenance activities in a remote location; or
3) for the processing of rock from an alluvial deposit.

3.10.3 Methodology and Approach to Impact Analysis

This impact analysis considers whether the construction and operation of the Project would result in significant adverse impacts to the environment as a result of hazards and hazardous materials. The analysis is based on a review of information and data that has been collected within the Project Area and discussed above in Section 3.10.1 *Environmental Setting*. The analysis considers temporary impacts, or short-term impacts that may occur during the 7-year construction period, and permanent impacts, or impacts considered to be long-term and/or those that would result from ongoing operations and maintenance activities.

The direct effects of the Project are described and evaluated according to significance criteria from Appendix G of the *CEQA Guidelines*, discussed below.

The assessment of impacts for the purposes of this section has been divided into construction related impacts and operation related impacts by Project ~~project~~ component, as identified in and described in **Table 2-1** of Chapter 2, *Project Description*. Each Project ~~project~~ component has been analyzed to determine if the construction or operation of that component would create a significant hazard to the public and environment through the routine transport, use of, disposal of, or the accidental release of hazardous materials; emit or handle hazardous materials within 0.25 miles of a school; be located on a hazardous materials site; ~~or~~ impair the implementation of an adopted emergency response plan or evacuation plan; or expose the public to Valley Fever.

The Project would be regulated by the various laws, regulations, and policies summarized above in Section 3.10.2, *Regulatory Setting*. Compliance by the Project with applicable federal, state, and local laws and regulations is assumed in this analysis and local and state agencies would be expected to continue to enforce applicable requirements to the extent that they do so now. Note that compliance with many of the regulations would be a condition of permit approval.

3.10.3.1 Seismic Retrofit Construction

The location and nature of Seismic Retrofit components construction activities are considered in the context of known existing hazardous materials sites, and the proximity of the proposed activities to local schools. The potential for Seismic Retrofit construction activities to result in a significant impact to the environment and public associated with hazards and hazardous materials is evaluated. As described in Section 3.0, *Introduction*, the baseline for evaluating Seismic Retrofit construction effects is the existing conditions following completion of the FOCP upgrades to the existing dam and reservoir facilities. The baseline for review of known locations that support, or have supported, land uses that resulted in hazardous materials being present onsite is based on 2021 data for the Cortese List.

3.10.3.2 Conservation Measures Construction

The potential for Conservation Measures-related construction activities to result in a significant impact to the environment and public associated with hazards and hazardous materials is evaluated. As described in Section 3.0, *Introduction*, the baseline for evaluating impacts related to the construction and operation of conservation measures is the existing conditions following completion of the FOCP upgrades to the existing dam and reservoir facilities. The baseline for the Cortese List is based on review of 2021 data of known locations that support, or have supported, land uses that resulted in hazardous materials being present onsite.

Conservation measures included in the Project and that require construction activities and long-term operation are:

- Ogier Ponds CM

- Maintenance of the North Channel Reach ~~Extension~~
- Maintenance Activities at the Live Oak Restoration Reach
- Sediment Augmentation Program
- Phase 2 Coyote Percolation Dam CM

3.10.3.3 Construction Monitoring

Construction monitoring activities are not considered in the impact analysis, as monitoring would involve data and information collection and assessment, using small numbers of vehicles and equipment These activities would be unlikely to result in significant adverse impacts related to hazards and hazardous materials. Therefore, impacts of construction monitoring are not evaluated further in this section.

3.10.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

The potential for operational changes proposed for nonemergency flow releases following the completion of construction of the Seismic Retrofit components to result in a significant impact to the environment and public associated with hazards and hazardous materials is evaluated. As described in Section 3.0, *Introduction*, the baseline for evaluating impacts is existing conditions at the time of EIR preparation modified by FOCP implementation. The newly retrofitted Anderson Dam and associated infrastructure would be maintained per the existing Valley Water DMP. Maintenance of the original Anderson Dam facilities, pre-FOCP improvements, were previously evaluated in the Final DMP Program EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). Impacts related to hazards and hazardous materials associated with the Seismic Retrofit post-construction maintenance activities would not differ substantially from those impacts identified in the DMP EIR and reduced through DMP BMPs. Therefore, no new impacts would occur as a result of post-construction dam maintenance activities, and these activities are not further in this section.

3.10.3.5 Post-Construction Conservation Measures Operations and Maintenance

The Conservation Measures components focus on improving fish habitat (e.g., gravel augmentation, separation of Coyote Creek from Ogier Ponds) and fish passage enhancement. The Conservation Measures components would operate passively, without mechanical or human intervention, and have been planned in accordance with Anderson Dam Reservoir flow releases. While data collection and assessment may indicate that individual Conservation Measures are not meeting success criteria specified for those measures, the modified Conservation Measure actions that would be undertaken to attain the prescribed success criteria would be similar to the original actions and would not result in additional impacts. In the event that modified Conservation Measures would result in additional environmental impacts that are outside of the scope of impacts analyzed in this EIR, additional CEQA review would be undertaken at that time.

Through the implementation of the operations and maintenance phase of the Conservation Measures components in accordance with existing Valley Water maintenance plans, including the SMP, no additional impacts are likely. Therefore, these topics are not discussed further in this section.

3.10.3.6 Post-Construction Project ~~ADSRP~~ and FAHCE Adaptive Management

The Project and FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCEAMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because they would not involve new ground disturbance or other psychically disruptive activities that would trigger a hazards or hazardous materials impact evaluated in this section. Therefore, monitoring impacts are not discussed further in this section.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts of these adaptive actions are not evaluated in the impact analysis because, as implied, the magnitude of the impacts of the Conservation Measures evaluated in this section would be greater than those of the adaptive actions. The BMPs, VHP Conditions, AMMs, and mitigation measures applied to the impacts of the Conservation Measures to achieve a less-than-significant level for hazards and hazardous materials would be at least as adequate, if not more, to achieve the same level of impact or less for the adaptive actions. Therefore, impacts of adaptive management are not discussed further in this section.

3.10.3.7 Applicable Best Management Practices and VHP Conditions

As noted in Chapter 2, *Project Description*, Valley Water would incorporate BMPs, VHP Conditions, and AMMs, to avoid and minimize adverse effects on the environment that may result from the Project. AMMs are project specific measures that have been identified to supplement the standard Valley Water BMPs to minimize impacts from Project construction and implementation. All relevant BMPs, VHP Conditions, and AMMs for the Project are included in Appendix A, *Best Management Practices and Santa Clara Valley Habitat Conservation Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures.* ~~*Incorporated in the Project.*~~ There are no relevant VHP conditions that would apply to hazards and hazardous materials. BMPs and AMMs that are relevant to hazards and hazardous materials impacts include the following measures:

AQ-1[1]**:** Use Dust Control Measures – would require dust and air quality management measures, including implementation of BAAQMD's BMPs for dust suppression – would reduce impacts on neighboring land uses (e.g., residences and commercial land uses), recreationists that may be in the vicinity of the Project, and workers throughout Project component construction and implementation.

~~**HM-7**: Restrict Vehicle and Equipment Cleaning to Appropriate Locations – would reduce potential hazardous impacts associated with cleaning construction vehicles and equipment by located these activities away from sensitive habitats.~~

HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance – would reduce the potential for spills or accidental releases of hazardous materials by locating these activities away from sensitive habitats.

HM-9: Ensure Proper Hazardous Materials Management – would reduce the potential for spills or accidental releases of hazardous materials by following applicable local, state, and federal laws regarding hazardous materials management.

HM-10: Utilize Spill Prevention Measures– would reduce the potential for spills of hazardous materials by requiring spill prevention plans to be developed and implemented during the construction and operation of all Project ~~project~~ components.

HM-13: Avoid Impact from NOA – would reduce potential impacts associated with NOA through the implementation of worker safety measures and dust control.

WQ-6: Limit Impact of Concrete Near Waterways – would reduce potential hazardous impacts related to concrete in waterways by limiting where concrete is mixed away from sensitive habitats.

WQ-17: Manage Sanitary and Septic Waste – would reduce the potential for hazardous waste spillage associated with temporary sanitary facilities through ongoing upkeep of these facilities and limiting the location of sanitary and septic facilities away from sensitive habitats.

TR-1: Incorporate Public Safety Measures – would require fences, barriers, lights, flagging, guards, and signs to ~~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.

[1] BMP AQ-1 includes a requirement that vehicles on unpaved roads observe a 15 mile per hour speed limit. To make this BMP feasible for the Project, this BMP would be modified to allow haul trucks to travel up to 25 miles per hour on unpaved roads, except in areas with naturally occurring asbestos where the 15 miles per hour limit would still apply.

3.10.3.8 Thresholds of Significance

For the purposes of this analysis, the Project would result in a significant effect related to hazards and hazardous materials if it would:

> **HAZ-1:** Create a significant hazard to the public or the environment from the routine transport, use, or disposal of hazardous materials;
>
> **HAZ-2:** Create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment;
>
> **HAZ-3**: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
>
> **HAZ-4**: 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 create a significant hazard to the public or the environment;
>
> **HAZ-5**: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

3.10.3.9 Issues Dismissed from Further Review

CEQA Guidelines Appendix G suggests that projects may have a significant effect on hazardous and hazardous materials if the Project is located within an airport land use plan or, where such a plan has not been adopted, the Project is located within two miles of a public airport or public use airport that would result in a safety hazard or cause excessive noise for people residing or working in the Project Area (criterion e). Because the Project Area is not located within an airport land use plan or within 2 miles of a public or private use airport, there would be no impact, and this threshold is dismissed from further environmental evaluation.

CEQA Guidelines Appendix G suggests that projects may have a significant effect on hazardous and hazardous materials if they would expose people or structures to a significant risk of loss, injury, or death involving wildland fires (criterion g). The Project's potential for exposing people or structures to wildland fires is analyzed in Section 3.22, *Wildfire,* under Impact WF-4 (criterion g).

3.10.4 Impact Analysis

***Impact HAZ-1: Create a significant hazard to the public or the environment from the routine transport, use, or disposal of hazardous materials* (Less than Significant)**

Seismic Retrofit Construction

During the construction of the Seismic Retrofit Project components, hazardous materials commonly associated with construction activities (e.g., gasoline, diesel fuel, paints, solvents, hydraulic fluid) would be present and handled onsite, as well as transported to and from the Project Area. These materials would be primarily found within construction equipment but may also be stored onsite at the staging areas, and transported, as necessary, to work areas. The handling of hazardous materials during Seismic Retrofit construction may expose the public to hazardous materials and wastes if adequate precautions are not taken to prevent spills and/or the release of these materials. Adverse human health effects related to hazardous materials exposure may include illness from exposure to toxic substances. Adverse effects to the environment may include the degradation of natural resources.

The Project would comply with all relevant federal, State, and local laws, regulations, and policies designed to minimize hazardous materials impacts to the public and environment. In accordance with OSHA and Cal/OSHA requirements, presented in Section 3.10.2, safety procedures for the handling of hazardous substances would be followed. These include workplace training and safety procedures, emergency planning and evacuation, and the preparation of a site-specific health and safety plan for workers who are in direct contact with contaminated soil or groundwater.

In addition, implementation of the following Valley Water BMPs will further reduce hazardous materials impacts:

- H-7 Restrict Vehicle and Equipment Cleaning to Appropriate Locations - would reduce the potential for exposing the public and the environment to hazardous materials by restricting the washing of vehicles and equipment to occur in approved areas
- HM-8 Ensure Proper Vehicle and Equipment Fueling and Maintenance - ensuring proper vehicle and equipment fueling and maintenance methods are followed
- HM-9 Ensure Proper Hazardous Materials Management - implementing proper handling and storage of hazardous materials measures
- WQ-6 Limit Impact of Concrete Near Waterways - implementing proper concrete curing techniques; and
- WQ-17 Manage Sanitary and Septic Waste - requiring all temporary sanitary facilities provided during construction to be located where overflow spillage would not enter a watercourse directly

When implemented, BMPs HM-8, ~~HM-7 through~~ HM-9, ~~and BMPs~~ WQ-6, and WQ-17 would minimize the Project's generation of hazardous materials and wastes associated with the routing transport, use, and disposal of hazardous materials, and would not create a significant hazard to the public or the environment. This impact would be less than significant.

Conservation Measure Construction

Similar to construction activities associated with the dam seismic retrofit, construction of the conservation measures would involve the routine use, transport, and disposal of hazardous materials and waste such as fuel, paint, or solvents. Such handling and disposal of hazardous materials and waste may create a hazard to the public or the environment if adequate precautions are not taken and a spill were to occur. Through the implementation of Valley Water BMPs HM-8, ~~HM-7 through~~ HM-9, ~~and BMPs~~ WQ-6, and WQ-17, as defined above, the potential for exposing the public and the environment to hazardous materials and wastes would be minimized. Through the implementation of BMPs HM-8, ~~HM-7 through~~ HM-9, ~~and BMPs~~ WQ-6, and WQ-17, conservation measure construction impacts associated with the routine transport, use, and disposal of hazardous materials would not create a significant hazard to the public or the environment. This impact would be less than significant.

Post-construction Anderson Dam Facilities Operations

Through the implementation of the Project, flows would be modified in Coyote Creek as releases from Anderson Dam operations are made consistent with the FACHE operational rule curves. The changes in releases from the dam would not result in changes to the transport, use, or disposal of hazardous materials; fuel use for the generator and periodic painting of structures would resume at pre-Project levels. In addition, with the removal of the Hydroelectric Facility (see Section 2.5.4.13), the net use of fuel and paint would decrease, resulting in a beneficial impact to the public or the environment.

Significance Conclusion Summary

During the construction of the Project's seismic retrofit components, implementation of BMPs HM-8, ~~HM-7 through~~ HM-9, HM-13, WQ-6, and WQ-17 would reduce the potential for the Project to create a hazard to the public and environment through the routine use, transport, and/or disposal of hazardous materials or wastes during construction activities. The Project would also be required to comply with applicable federal, State, and local laws and regulations related to hazardous materials management that would minimize impacts to both the public, including recreators, and construction workers. During operations, the changes in releases from the dam would not result in the transport, use, or disposal of hazardous materials, Therefore, the Project would not create a significant hazard to the public or environment through the routing transport, use, and disposal of hazardous materials and wastes. This impact would be **less than significant.**

Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials (Less than Significant with Mitigation)

Seismic Retrofit Construction

Hazardous materials used during construction of the Seismic Retrofit construction (e.g., gasoline, diesel fuel, paints, solvents, hydraulic fluid) may be released to the environment through the upset or through accidental conditions if adequate precautions are not taken or could release hazardous materials into the environment, such as soil or groundwater contamination from accidental spills or inappropriate disposal practices. Such a release could harm aquatic or terrestrial organisms and pose a hazard to construction workers and/or the public, which would be considered a significant impact.

In order to minimize these potential impacts, the Project would comply with all relevant federal, state, and local laws, regulations, and policies related to hazardous materials, including CERCLA, RCRA, and CCR, designed to minimize impacts of upset or accident conditions. Furthermore, implementation of Valley Water BMPs ~~HM-7~~ HM-8, HM-9, WQ-6 and WQ-17, as discussed above, would minimize the accidental release of hazardous materials. While compliance with existing regulations and implementation of BMPs would reduce impacts, additional measures would be required to reduce impacts to less than significant, as discussed below.

Within the Seismic Retrofit components area, NOA is known to be present within the Franciscan Formation and Santa Clara Formation rock types that underlay the majority of the dam and spillway area ~~(see **Figure 3.10-2**)~~. Although there is no health threat if asbestos fibers in soil and rocks remain undisturbed and do not become airborne, Seismic Retrofit components construction activities would involve excavating serpentinite and other materials containing NOA from the dam and spillway foundations, portals, tunnels, and shafts associated with the outlet works (URS 2021a). These activities could release NOA into the air and may expose the public, including recreators and construction workers to airborne asbestos. Activities that may generate dust emissions that contain NOA include clearing and grading, tunneling, and hauling materials within and offsite (URS 2021d). These activities may expose and create a hazard to the public, including recreators, and construction workers to NOA. In addition, ground disturbing activities could release other hazardous materials into the air (e.g., fungus that causes Valley Fever, as analyzed in Impact HAZ-6). This would be a significant impact.

Compliance with BAAQMD's ATCM for Construction, which requires preparation of an ADMP ~~asbestos dust mitigation plan~~ that specifies how emissions will be minimized and implementation of Valley Water BMP-AQ-1 (Use Dust Control Measures), described in Section 3.3, *Air Quality,* and BMP HM-13 (Avoid Impacts from NOA) would minimize potential impacts from NOA. These requirements would include implementing fugitive dust control measures (e.g., watering disturbed surfaces, covering materials in haul trucks) and worker safety measures when working in areas that support serpentine soils. However, a significant impact may still occur to the public, including recreators and construction workers, when ground-disturbing activities occur in areas that support NOA. An overview of mitigation measures is included below, with a full description provided below under *Mitigation Measures*.

Implementation of **Mitigation Measure HAZ-1** (Construction and Grading Operations Dust Control Measures) requires implementation of dust control measures in all areas potentially containing NOA or other respiratory hazards during construction to reduce the potential for such hazards to become airborne. To minimize potential impacts that may occur through the track-out of materials from work areas to public roadways, **Mitigation Measure HAZ-2** (Track-out Control Measures for Roads from NOA-Containing Areas) and **Mitigation Measure HAZ-3** (Traffic Control Measures within Construction Areas) will be implemented. Additional dust control measures will be implemented for earthmoving and tunneling activities as required by **Mitigation Measure HAZ-4** (Dust Control Measures During Earthmoving Activities) and **Mitigation Measure HAZ-5** (Dust Control Measures During Tunneling Activities). Although excavated materials containing NOA from the portals, tunnels, and structures would be disposed of onsite, disposal of these materials may present a significant impact if they are not appropriately managed and disposed of properly. Implementation of **Mitigation Measure HAZ-6** (Separation of Rock Containing NOA) will require the separation of rock containing NOA from other rock types during construction. This measure will also require the preparation of an excavated materials management plan specifying how excavated rock will be properly classified managed and disposed during construction to minimize adverse impacts. Furthermore, the ADMP would include an air monitoring program for fugitive dust levels and NOA that would verify that mitigation measures and BMPs are effective in areas containing NOA.

Through the implementation of **Mitigation Measures HAZ-1** through **HAZ-6**, impacts related to hazards to the public or the environment through the reasonably foreseeable upset or accident conditions involving the release of hazardous materials would be less than significant with mitigation.

Conservation Measure Construction

Similar to construction activities associated with Seismic Retrofit components, hazardous materials used during construction (e.g., gasoline, diesel fuel, paints, solvents, hydraulic fluid) may be released to the environment through the upset or through accidental conditions if adequate precautions are not taken. Construction activities could also release hazardous materials into the environment, such as soil or groundwater contamination from accidental spills or inappropriate disposal practices. Such a release could harm aquatic or terrestrial organisms and pose a hazard to construction workers and/or the public, which would be considered a significant impact.

In order to minimize these potential impacts, the Project would comply with all relevant federal, State, and local laws, regulations, and policies related to hazardous materials, including CERCLA, RCRA, and CCR, designed to minimize impacts of upset or accident conditions. Furthermore, implementation of Valley Water BMPs ~~HM-7~~ HM-8, HM-9, WQ-6 and WQ-17, as discussed above, would minimize the accidental release of hazardous materials.

Construction of the Conservation Measures would not occur in areas that support Franciscan Formation and Santa Clara Formation rock types that support NOA; ~~(see Figure 3.10 2);~~ therefore, the potential for upset or accident conditions involving exposure to NOA is not likely during construction. Therefore, this impact would be less than significant. Furthermore, the implementation of **Mitigation Measure HAZ-1** (Construction and Grading Operations Dust Control Measures) and **Mitigation Measure HAZ-4** (Dust Control Measures During Earthmoving Activities) would further minimize potential impacts that may occur through earth moving activities. ~~Post-Construction Anderson Dam Facilities Operations~~

Post-Construction Anderson Dam Facilities Operations

Through the implementation of the Project, flows would be modified in Coyote Creek as releases from Anderson Dam operations are made consistent with the FAHCE ~~FHACE~~ operational rule curve. The changes in releases from the dam would not result in reasonably foreseeable upset or accident conditions involving the release of hazardous materials. Therefore, there would be **no impact** to the public or the environment from Anderson Dam operations.

Significance Conclusion Summary

Construction of the Project would comply with all relevant federal, state, and local laws, regulations, and policies designed to minimize hazardous materials impacts, including CERCLA, RCRA, and CCR. Implementation of BMPs HM-8~~7~~ through HM-10, WQ-6, and WQ-17, as discussed above, would further minimize potential impacts to the public or the environment from reasonably foreseeable upset or accident conditions involving the release of hazardous materials. For Seismic Retrofit construction, compliance with BAAQMD's ATCM for Construction, and BMP-AQ-1 and BMP HM-13, would minimize potential impacts from NOA and other respiratory hazards, but they would still be significant. **Mitigation Measures HAZ-1** through **HAZ-6**, as discussed below would further reduce NOA and other respiratory hazards impact such that there would be no significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions. The ADMP would include an air monitoring program for fugitive dust levels and NOA that would verify that mitigation measures and BMPs are effective in areas containing NOA. This impact would therefore be **less than significant with mitigation**.

Mitigation Measures

HAZ-1 Construction and Grading Operations Dust Control Measures.

The Construction Contractor for Seismic Retrofit and Conservation Measure construction will ~~shall~~ be responsible for implementing the following construction and grading operations dust control measures, including in areas containing NOA (as identified in ~~Figure 3.10 2 and~~ the NOA and Metals Evaluation Report [URS 2021c)], consistent with the BAAQMD NOA Technical Advisory Requirements:

- Prior to any ground disturbance, areas to be graded or excavated will ~~shall~~ be kept adequately wet with water to prevent visible emissions from the release of particulate matter into the air.
- Adequately wetted areas will ~~shall~~ produce no visible dust emissions as determined by the Construction Engineer.
- Storage piles will ~~shall~~ be kept adequately wetted, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile. Covers, when used, will ~~shall~~ be physically secured and maintained throughout their use.
- Equipment will ~~shall~~ be washed down after use and prior to the equipment moving from the work area onto a paved public road. Wheels will ~~shall~~ be washed prior to moving equipment from construction areas containing NOA to areas that do not contain NOA.
- Haul roads will ~~shall~~ be kept wet while in use on days that trucks drive on the roads. If haul roads are on a disturbed surface, they will ~~shall~~ be kept wet at all times, including days when they are not in use.
- Construction vehicles will ~~shall~~ be limited to 15 miles per hour (mph) or less. Vehicles hauling NOA-containing materials outside NOA-containing areas will ~~shall~~ have loads wetted and/or covered such that no visible emissions are generated and will ~~shall~~ also not exceed 15 mph. Under no circumstances will ~~shall~~ haul trucks be allowed to transport NOA-containing materials in a manner that allows visible particle emissions from either the wheels while traveling over NOA-containing materials or from the load of the truck.
- Suspension of all excavation, grading, and demolition activities will ~~shall~~ be required when wind speeds exceed 20 mph for a minimum of 30 minutes. Wind speeds will ~~shall~~ be monitored using a weather station located onsite with alarms set for this condition, and an automated data recording system. An automated text message will be sent to the Engineer when wind speeds exceed the specified limits. The Engineer will ~~shall~~ enforce suspension of activities, as feasible. The construction manager will ~~shall~~ keep records of time periods where excavation, grading, and demolition activities are suspended due to high wind conditions.
- Work boot wash stations will ~~shall~~ be provided at various locations throughout the site, including at site offices, staging areas, and other locations, as appropriate.

HAZ-2 Track Out Control Measures for Roads from NOA-Containing Areas.

The Construction Contractor for Seismic Retrofit Construction will ~~shall~~ be responsible for implementing the track out prevention and control measures listed below. These measures will ~~shall~~ be implemented to prevent track out from construction areas to public roads.

- Removal of any visible track-out from a paved public road at any location where vehicles exit the work site; this will ~~shall~~ be accomplished using a wet sweeping or a high efficiency particle air (HEPA) filter equipped vacuum device at the end of 10-hour shift or at least one time per day
- Installation will ~~shall~~ require one or more of the following track-out prevention measures:
  - A gravel pad to clean the tires of exiting vehicles
  - A tire shaker
  - A wheel wash system
  - Pavement extending for not less than 50 consecutive feet from the intersection with the paved public road. Any excess water from the wheel wash system will be collected as necessary or used for dust control in NOA-containing areas. Wash water will ~~shall~~ be treated with an oil/water separator prior to use for dust control.

Vehicles that exit the site to a public paved road from unpaved construction areas will ~~shall~~ utilize track-out prevention and control measures will ~~shall~~ include the following:

- Utilization of at least one of the track-out prevention and control measures described above
- Removal of any visible track-out from a paved public road at any location where vehicles exit the work site; this will ~~shall~~ be accomplished using wet sweeping or a HEPA filter or vacuum device equipped with an equivalent particulate filter at the end of each day.

HAZ-3 Traffic Control Measures within NOA-Containing Construction Areas.

The Construction Contractor for Seismic Retrofit Construction will ~~shall~~ be responsible for implementing these traffic control measures. These measures will ~~shall~~ apply to traffic within construction areas containing NOA.

- A maximum vehicle speed limit of 15 mph or less
- One of the following:
  - Paving or maintaining a minimum 3-inch depth gravel cover with a silt content of less than 5 percent and asbestos content of less than 0.25 percent (as determined using an approved bulk test method by the Construction Engineer)
  - Watering road surfaces every 2 hours of active operations or sufficiently often to keep the area adequately wetted
  - Applying chemical dust suppressants consistent with manufacturer's directions and any other permit requirements; or
  - Any other measure deemed as effective as those above and approved by the BAAQMD as part of the ADMP
- Sweeping daily (with water sweepers) all paved access roads, parking areas, and staging areas

HAZ-4 Dust Control Measures During Earthmoving Activities.

The Construction Contractor for Seismic Retrofit and Conservation Measure construction will ~~shall~~ be responsible for implementing one or more of the following dust control measures during earthmoving activities (e.g., pushing of soils, using bulldozers, breaking rock, hauling materials to disposal sites) in areas containing NOA:

- Pre-wetting the ground to the depth of the anticipated cuts, as feasible, and wetting the ground concurrent with excavation;
- Suspending grading operations when winds exceeding 20 miles per hour for more than 30 minutes generate visible dust emissions crossing the limits of work. Limits of work are shown on Project ~~project~~ Plans;~~.~~
- Application of water prior to any land clearing; or
- Any other measure deemed as effective as those above and approved by the BAAQMD as part of the ADMP.

HAZ-5 Dust Control Measures During Tunneling Activities.

The Construction Contractor for Seismic Retrofit construction will ~~shall~~ be responsible for implementing dust control measures during tunneling work. Tunneling work will ~~shall~~ be conducted in a manner that minimizes the potential for the generation of dust, especially if it has the potential to contain asbestos and will ~~shall~~ include the following measures:

- Spraying water on the tunnel and shaft work surfaces, and the materials derived from them, prior to excavation/disturbance and whenever these materials are being excavated or disturbed. Water will ~~shall~~ be applied as frequently as needed in order to avoid the generation of visible dust.
- The use of compressed air for drilling, jack hammering or for any other activity with the potential to disturb NOA will ~~shall~~ be prohibited unless means (e.g., wet suppression, HEPA vacuum dust collection system) are implemented to capture and control all the airborne dust generated by the process, as feasible.
- Whenever rock or soil are being removed using mechanical processes, such as shovels, excavator buckets, hydraulic breakers, water will ~~shall~~ be applied as frequently as needed to avoid the generation of visible dust.

HAZ-6 Separation of Rock Containing NOA.

The Construction Contractor for Seismic Retrofit construction will ~~shall~~ prepare and implement an Excavated Materials Management Plan for Valley Water review and approval prior to construction that specifies how excavated rock will ~~shall~~ be properly classified and managed during construction activities. During construction activities, rock containing NOA will ~~shall~~ be separated from other rock types by following the procedures included in the Excavated Materials Management Plan. The Excavated Materials Management Plan will ~~shall~~ detail the documentation and procedural requirements for tracking soil quality, managing stockpiles, and disposal of soil and debris from excavation including soils containing NOA. Implementation of this plan will ~~shall~~ require the proper disposal of NOA containing material, which would include the covering of trucks transporting soil and rock that contains NOA~~, and the disposal of NOA-containing materials at a licensed disposal facility permitted to accept the waste~~.

***Impact HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school* (Less than Significant with Mitigation)**

Seismic Retrofit Construction

As described in Section 3.10.1.2, no existing or proposed schools are located within 0.25 mile of the Project Area; however, a juvenile detention facility, William F. James Boys Ranch (Boys Ranch), is located within 0.11 miles of Anderson Dam. Although this facility is not a typical public school, this facility is considered a sensitive receptor for analyzing hazardous impacts that may result from the Project. Based on the location of the facility on private property outside of the Project work area, the handling of hazardous materials would not impact the Boys Ranch. However, the emission of hazardous emissions may result in impacts to the William F. James Boys Ranch during construction related activities associated with Seismic Retrofit elements that would be implemented at the Seismic Retrofit component work area if BMPs and AMMs are not implemented. As discussed under Impact HAZ-1, the Project would comply with all relevant federal, State, and local laws, regulations, and policies designed to minimize hazardous materials, substances, and waste impacts. The Project would also implement the Valley Water BMPs HM-8~~7~~ through HM-10, as discussed above, that would minimize the accidental release of hazardous materials. However, through any ground disturbance there is the potential to discover previously unknown hazardous materials. The Seismic Retrofit component work area is also located in a known area for NOA, as discussed under Impact HAZ-2, and Valley Fever, as discussed in Impact HAZ-6. Project construction activities have the potential to impact the Boys Ranch through the emission of unknown hazardous materials, NOA, or Valley Fever.

Project excavation and grading may encounter soil contamination from past land uses, including agricultural production and boat maintenance. This could expose adjacent land uses, including the Boys Ranch, to the release of hazardous emissions. Although implementation of BMP HM-9 (Ensure Proper Hazardous Materials Management) would include measures for proper handling, storage, and disposal of hazardous materials, if contaminated soil is unexpectedly encountered and appropriate testing is not conducted, a significant impact could result. Implementation of **Mitigation Measure HAZ-7** (Soil Testing and Proper Disposal of Potentially Contaminated Soils) would reduce this impact by requiring soil testing if known or suspected contaminated soil is encountered during construction activities before work activities can continue in the area of discovery. With adherence to **Mitigation Measure HAZ-7**, Project construction activities would not create a significant hazard to the Boys Ranch associated with the emission of hazardous materials. This impact would be less than significant with mitigation.

The release of NOA or the fungus that causes Valley Fever into the air from clearing, earthmoving activities, hauling, and tunneling activities could expose occupants at the Boys Ranch to airborne hazards, such as asbestos or Valley Fever. The exposure of children to asbestos is of particular concern because their longer life expectancy (from the date of exposure) exceeds the latency period for asbestos-related disease. Thus, impacts related to exposure of sensitive receptors to NOA during seismic retrofit construction affecting William F. James Boys Ranch would be significant. For the reasons explained under Impact HAZ-2, implementation of **Mitigation Measures HAZ-1** through **HAZ-6** would reduce construction impacts associated with NOA and other airborne hazards on the William F. James Boys Ranch to less than significant with mitigation. The potential impacts from Valley Fever are discussed below in Impact HAZ-6.

Conservation Measures Construction

None of the Conservation Measures components would be located within 0.25 mile of an existing or proposed school. Therefore, construction of the Conservation Measures components would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of a school. Therefore, no impact would occur.

Post-Construction Anderson Dam Facilities Operations

Post-construction dam operations pursuant to the FAHCE operational rule curves would not emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste. Therefore, no impact would occur.

Significance Conclusion Summary

The Project would comply with all relevant federal, State, and local laws and regulations designed to minimize impacts from hazardous materials management. Implementation of BMPs ~~HM-7~~ HM-8 through HM-10, HM-13, AQ-1 would reduce these impacts, but impacts associated with disturbance of contaminated soils and NOA would still be significant. **Mitigation Measures HAZ-1** through **HAZ-7** would reduce construction impacts on the William F. James Boys Ranch to **less than significant with mitigation.**

Mitigation Measures

HAZ-1 Construction and Grading Operations Dust Control Measures

HAZ-2 Track Out Control Measures for Roads from NOA-Containing Areas

HAZ-3 Traffic Control Measures within NOA-Containing Construction Areas

HAZ-4 Dust Control Measures During Earthmoving Activities

HAZ-5 Dust Control Measures During Tunneling Activities

HAZ-6 *Separation of Rock Containing NOA*

HAZ-7 Soil Testing and Proper Disposal of Potentially Contaminated Soils

In the event that soils suspected of being contaminated (on the basis of visual, olfactory, or other evidence) are exposed during site grading or excavation activities, Valley Water or its Contractor will ~~shall~~ test the excavated soil prior to removal to determine whether hazardous levels of contaminants are present and work will ~~shall~~ stop. The test results will ~~shall~~ be compared against state environmental screening levels (ESLs) from the San Francisco RWQCB for the protection of human health, groundwater quality, and terrestrial receptors. If hazardous levels of contaminants (as defined by federal and State regulations) are present, the materials will ~~shall~~ be taken to a permitted hazardous waste facility. The required handling, storage, and disposal methods will depend on the types and concentrations of chemicals identified in the soil. Any site investigations or remedial actions will ~~shall~~ comply with applicable federal, State, and local hazardous materials and waste laws. The presence of known or suspected contaminated soil will ~~shall~~ require testing and investigation procedures to be supervised by a hazardous materials specialist who meets State and federal regulatory requirements related to handling and disposal of hazardous materials.

Impact HAZ-4: 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 create a significant hazard to the public or the environment (Less than Significant with Mitigation)

Seismic Retrofit Construction

As described in Section 3.10.1.3, the Project Area does not include listed hazardous materials sites (SWRCB 2021a, DTSC 2021). Based on a review of readily available public information for the Project Area, no listed hazardous materials sites or existing hazardous material contamination are present within the Project Area. Although contaminated properties are known to exist within 0.75 miles of the Seismic Retrofit Project Area, cleanup actions for these sites are in progress or have been completed. Furthermore, Seismic Retrofit construction activities would not take place on any of the contaminated properties located within 0.75 miles of the Project.

Nevertheless, there is potential to discover unknown hazardous materials sites within the Seismic Retrofit Project Area involving construction activities. Construction would involve soil excavation and grading, and thus, could encounter soil contamination from past chemical uses, including agricultural and boat maintenance. This would expose construction workers, the public, and the environment to hazards. Although implementation of BMP HM-9 (Ensure Proper Hazardous Materials Management) would include measures for proper handling, storage, and disposal of hazardous materials, if contaminated soil is unexpectedly encountered and appropriate testing is not conducted, a significant impact could result. Implementation of **Mitigation Measure HAZ-7** (Soil Testing and Proper Disposal of Potentially Contaminated Soils) would reduce this impact by requiring soil testing if known or suspected contaminated soil is encountered during construction activities and implementing appropriate disposal actions. With adherence to **Mitigation Measure HAZ-7**, Seismic Retrofit construction would not create a significant hazard to the public or the environment associated with known hazardous materials sites. Impacts would be less than significant with mitigation.

Conservation Measure Construction

As described in Section 3.10.1.3, there are no sites included on the Cortese List located within any of the Conservation Measure Project components areas. However, several closed hazardous material sites are located immediately adjacent to or within 0.75 mile of the Ogier Ponds Conservation Measure and the Phase 2 Coyote Percolation Dam Conservation Measure construction areas. Although the cleanup actions for these sites have been completed, Conservation Measure components construction activities may encounter soil contaminants from the LUST sites or contaminated soils from past agricultural chemical uses. This could expose the public or the environment to significant hazards, resulting in a significant impact. Implementation of BMP HM-9 (Ensure Proper Hazardous Materials Management) would include measures for proper handling, storage, and disposal of hazardous materials, but impacts would be significant. **Mitigation Measure HAZ-7** would reduce this impact by requiring soil testing if known or suspected contaminated soil is encountered during construction activities, and disposal of any contaminated soils consistent with regulatory requirements. Thus, with adherence to **Mitigation Measure HAZ-7**, the Project would not create a significant hazard to the public or the environment associated with known hazardous materials sites. Impacts would be less than significant with mitigation.

Post-Construction Anderson Dam Facilities Operations

Operation activities at the retrofitted dam facilities would not be located on a hazardous materials site. In addition, reservoir level fluctuations associated with post-construction operations would not have the potential to disturb previously unknown contaminated soils as all soils in the reservoir have been previously disturbed. Also, reservoir flow releases do not involve ground disturbing activities. Because operation of the Anderson Dam facilities would not be located on a hazardous site or disturb previously unknown contaminated soils that may expose the public or the environment to significant hazards, no impact would occur.

Significance Conclusion Summary

While no Cortese List sites are located within the Project Area, there are a total of three sites located within 0.75 mile of the Seismic Retrofit construction area and 17 sites located within 0.75 mile of the construction areas for Conservation Measures. Implementation of BMP HM-9 would include measures for proper handling, storage, and disposal of hazardous materials, but impacts would be significant and **Mitigation Measure HAZ-7**, described below would minimize impacts to the public or environment should unknown contaminants or contaminated soil be encountered during construction activities, reducing the impact to less-than-significant levels. As described above, operation of the Project would not result in any effects related to known or unknown hazardous materials sites as operations related activities would not involve ground-disturbing activities. Thus, with implementation of **Mitigation Measure HAZ-7**, the Project would not create a significant hazard to the public or the environment associated with known hazardous materials sites. Therefore, impacts would be **less than significant with mitigation**.

Mitigation Measures

HAZ-7 Soil Testing and Proper Disposal of Potentially Contaminated Soils.

Impact HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (Less than Significant with Mitigation)

Seismic Retrofit Construction

Construction of Seismic Retrofit components would involve operation and temporary storage of large construction equipment, transport and storage of construction materials and supplies, and construction worker commute trips to and from the area. Furthermore, the 0.8-mile (4,200-linear-foot) section of Cochrane Road extending between Coyote Road and Malaguerra Avenue (or portions of this segment) would be closed to through traffic for varying durations throughout the construction period. **Figure 3.19-7** ~~**14**~~ (see Section 3.19, *Transportation*) identifies the current traffic routes and Cochrane Road detours and closures during construction. All these activities could disrupt traffic flow and require use of adjacent roads, which could interfere with emergency response or evacuation procedures/plans, which would be a significant impact.

Although the Santa Clara County Emergency Operations Plan (EOP) and City of San José EOP are applicable to the Project, they do not identify any ~~no~~ evacuation routes ~~are identified that are~~ specific to the study area. However, ~~primary~~ emergency evacuation routes ~~are~~ identified along the east side of the reservoir in the Holiday Lake Estates and Jackson Oaks communities~~. in the Holiday Lake Estates and Jackson Oaks Emergency Travel Routes and Temporary Refuge Areas~~

~~(Community Emergency Response Team n.d.) and~~ include East Dunne Avenue, Holiday Drive, and Monterey Road. Local roadways within Holiday Lake Estates and Jackson Oaks that connect to East Dunne Avenue, and therefore ~~which~~ would provide emergency evacuation access as well, are Quail Lane/Copper Hill Drive, Jackson Oaks Drive, ~~and~~ Oak Leaf Drive, and~~.~~ Thomas Grade ~~is identified as a secondary emergency travel route~~ (see **Figure 3.17-1** in Section 3.17, *Public Services*). All evacuation routes are directed west of US 101 (Community Emergency Response Team n.d.). Cochrane Road is the main thoroughfare for the area west of Anderson Dam and provides access to US 101. Additionally, the Project includes construction of temporary access/haul roads that would not serve as evacuation routes to the public, but would allow emergency access to the Project site. Specifically, Las Animas Road and Shingle Valley Road would provide emergency access to the Project site via the constructed Shingle Valley Haul Road. As such, under existing conditions it could be used by emergency vehicles and may be used as an evacuation route by residents in the event of an emergency.

Although most construction vehicles and equipment would be traveling on temporary access roads/haul routes within Anderson Reservoir area and on the dam, construction traffic entering and exiting the construction area could cause short-duration traffic delays or stoppages on surrounding roadways. In addition, Cochrane Road may also be closed or partially closed from Coyote Road to Malaguerra Avenue to through traffic for varying durations during construction. A significant impact would occur if local roadways were to be substantially impacted from construction activities such that they interfered with emergency response and community evacuation routes.

Implementation of BMP TR-1 (Incorporate Public Safety Measures), which requires construction warning signs, safety fencing, and detours would minimize the potential impact, impacts on emergency response and evacuation plans could still be significant.

Implementation of **Mitigation Measure PS-1** (Prepare and Implement Traffic Management Plan) would reduce impacts on emergency response and emergency evacuation plans by requiring the preparation and implementation of a Transportation Management Plan (TMP) and coordination with local and state agencies. The notification and communication requirements of the TMP would require that local emergency managers, such as California Department of Forestry and Fire Protection (CAL FIRE), the Morgan Hill Fire Department, the San José Fire Department, and South Santa Clara Fire Protection District, would be made aware of any traffic management issues and would share that information with first responders. Coordination with these agencies would minimize the impact on evacuation and emergency response access in the event of a wildfire.

Implementation of **Mitigation Measure WF-1** (Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy [RES] ~~Coordinate with Emergency Response Agencies~~) would further reduce the impact of construction traffic and closure of public roads by requiring coordination with local and State emergency response and fire agencies and require preparation of a RES, which will maintain adequate emergency response and evacuation routes throughout construction of the Project in locations where Project construction substantially interferes with emergency access and evacuation. ~~to identify an alternative temporary refuge area or provide emergency access to the Woodchopper's Flat Picnic Area during Seismic Retrofit construction in the event of an emergency.~~

Therefore, construction for Seismic Retrofit components would not physically interfere with an emergency response plan or emergency evacuation plan with the implementation of BMP-1 and **Mitigation Measures PS-1** and **WF-1**. Impacts would therefore be less than significant with mitigation.

Conservation Measures Construction

Construction of the Conservation Measure components would be similar to those described above for the Seismic Retrofit of the Anderson Dam. Construction of the Conservation Measures components would involve operation and temporary storage of large construction equipment, construction worker trips, and transportation of construction materials that have the potential to disrupt traffic flow along roads adjacent to staging and construction areas required for the Conservation Measures components. The presence of large construction equipment and haul trucks and increased vehicles on the roadways due to construction workers trips could impede movement and access of emergency response vehicles or cause localized congestion, thereby interfering with emergency response and evacuation procedures.

However, as described above, implementation of BMP TR-1 (Incorporate Public Safety Measures), **Mitigation Measure PS-1**, and **Mitigation Measure WF-1** would reduce impacts less than significant with mitigation.

Post-Construction Anderson Dam Facilities Operations

Post-construction releases from Anderson Reservoir into Coyote Creek would conform to FAHCE operating rule curves, as described in Chapter 2, *Project Description*. Operations changes to the reservoir flow releases would not require additional staff at the Anderson Dam facility and would only require minimal employee vehicle trips for routine inspection and maintenance compared to the existing conditions baseline (i.e., existing conditions at the time of EIR preparation modified by FOCP implementation). Furthermore, operations changes would not require the use of equipment that could impede traffic flow or require temporary lane closures. Thus, no operational changes would occur that could result in delays interfering with emergency response and evacuation routes/plans. Therefore, post-construction operations would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No impact would occur.

Significance Conclusion Summary

During construction of Seismic Retrofit and Conservation Measure components, the presence of large construction equipment and haul trucks and increased vehicles on the roadways due to construction worker trips could impede movement and access of emergency response vehicles or cause localized congestion, thereby interfering with emergency response and evacuation procedures. Implementation of BMP TR-1 ~~and PS-AMM-2~~ will reduce impacts on emergency response and evacuation plans, but they will still be significant. Implementation of **Mitigation Measure PS-1** (Prepare and Implement Traffic Management Plan) would require the preparation and implementation of a TMP and coordination with State and local agencies and, for Seismic Retrofit Construction, **Mitigation Measure WF-1** (Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy ~~an Emergency Action Plan~~) would require that all emergency response agencies are notified in advance of all lane and road closures and would require that evacuation routes are passable or alternate routes are available to allow residents to evacuate an affected area. These mitigation measures would reduce Seismic Retrofit and Conservation Measure construction impacts on emergency response and evacuation plans to less-than-significant levels. Post-construction operations and FAHCE adaptive management actions would not interfere with traffic flow including emergency response. Thus, impacts related to impairing implementation of or interfering with an adopted emergency response plan or emergency evacuation routes/plans would be **less than significant with mitigation.**

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and develop a Response and Evacuation Strategy (RES) a~~n Emergency Action Plan~~

Impact HAZ-6: Create a significant hazard to construction workers or the public through exposure to Valley Fever during Construction Activities **(Less than Significant with Mitigation)**

All Project Components during Construction

As discussed in Section 3.10.1.6, *Valley Fever*, construction activities have the potential to release the soil-dwelling fungus (Coccidioides) that can cause Valley Fever. Such a release could pose a hazard to construction workers and/or the public, which would be a significant impact.

In order to minimize these potential impacts, the Project would comply with all relevant federal, state, and local laws, regulations, and policies related to hazardous materials, including the regulations in CCR Title 8, *Industrial Relations*, ~~d~~ which minimize exposure to California Valley Fever.

As discussed above in Impact HAZ-2, BAAQMD's ATCM for Construction and Valley Water BMP-AQ-1 (Use Dust Control Measures) would be implemented; they would minimize potential impacts from Valley Fever. These requirements would include implementing fugitive dust control measures (e.g., watering disturbed surfaces, covering materials in haul trucks) and worker safety measures when working in areas that may have the fungus that causes Valley Fever. However, a significant impact may still occur to construction workers and the public when ground-disturbing activities occur in areas that have the fungus that causes Valley Fever. As discussed in Impact HAZ-2, the following mitigation measures established to mitigate NOA would also further minimize risks from soil that may contain the fungus that causes Valley Fever:

- **Mitigation Measure HAZ-1** (Construction and Grading Operations Dust Control Measures)
- **Mitigation Measure HAZ-2** (Track-out Control Measures for Roads from NOA-Containing Areas)
- **Mitigation Measure HAZ-3** (Traffic Control Measures within NOA-Containing Construction Areas)
- **Mitigation Measure HAZ-4** (Dust Control Measures During Earthmoving Activities)
- **Mitigation Measure HAZ-5** (Dust Control Measures During Tunneling Activities)

Through the implementation of **Mitigation Measures HAZ-1** through **HAZ-5**, impacts related to hazards to the public or the environment through exposure to Valley Fever will be less than significant with mitigation.

All Project Components During Operations

Once constructed, there would be no further ground disturbing activities from construction equipment and workers, and no potential to disturb soil that may contain the fungus that causes Valley Fever. The recreational activities that occurred before the implementation of the Project would resume at the pre-Project levels and would therefore not constitute a changed condition. Therefore, during operations, there would be **no impact**.

Significance Conclusion Summary

No Valley Fever exposure impacts would occur during Project operations. For Project construction activities, BAAQMD's ATCM for Construction and Valley Water BMP-AQ-1 (Use Dust Control Measures) would minimize potential impacts from Valley Fever exposure. However, a significant impact may still occur to construction workers and the public when ground-disturbing activities occur in areas that have the fungus that causes Valley Fever. **Mitigation Measures HAZ-1** through **HAZ-5** that were established to mitigate NOA would also further minimize risks from soil that may contain the fungus that causes Valley Fever. Through the implementation of **Mitigation Measures HAZ-1** through **HAZ-5**, impacts related to hazards to the public or the environment through exposure to Valley Fever will be **less than significant with mitigation**.

Mitigation Measures

HAZ-1 Construction and Grading Operations Dust Control Measures

HAZ-2 Track Out Control Measures for Roads from NOA-Containing Areas

HAZ-3 Traffic Control Measures within NOA-Containing Construction Areas

HAZ-4 Dust Control Measures During Earthmoving Activities

HAZ-5 Dust Control Measures During Tunneling Activities

3.10.5 Cumulative Impacts

The geographic study area for the cumulative impact analysis for hazards and hazardous materials encompasses the future Project areas where hazards may occur.

This section describes the Project's contribution to cumulative impacts to hazards and hazardous materials, as summarized in **Table 3.10-2**.

Table 3.10-2. Summary of Project Impact Contribution to Cumulative Hazards and Hazardous Materials Impacts

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact HAZ-1: Create a significant hazard to the public or the environment from the routine transport, use, or disposal of hazardous materials	No	No	NCC	None	No
Cumulative Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment	Yes	Yes	CC	MM HAZ-1 MM HAZ-2 MM HAZ-3 MM HAZ-4 MM HAZ-5 MM HAZ-6	No
Cumulative Impact HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school	Yes	Yes	CC	MM HAZ-1 MM HAZ-2 MM HAZ-3 MM HAZ-4 MM HAZ-5 MM HAZ-6 MM HAZ-7	No
Cumulative Impact HAZ-4: 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 create a significant hazard to the public or the environment	Yes	Yes	CC	MM HAZ-7	No
Cumulative Impact HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	No	No	NCC	MM PS-1 MM WF-1	No

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact HAZ-6: Create a significant hazard to construction workers or the public through exposure to Valley Fever during Construction Activities	Yes	Yes	CC	MM HAZ-1 MM HAZ-2 MM HAZ-3 MM HAZ-4 MM HAZ-5	No

Key: CC = cumulatively considerable; MM = Mitigation Measure; N/A = not applicable; NCC = not cumulatively considerable; S = significant

***Cumulative Impact HAZ-1: Create a significant hazard to the public or the environment from the routine transport, use, or disposal of hazardous materials* (Not Cumulatively Considerable)**

During the construction of the Seismic Retrofit and Conservation Measures, hazardous materials commonly associated with construction activities (e.g., gasoline, diesel fuel, paints, solvents, hydraulic fluid) would be present and handled onsite, as well as transported to and from the Project Area. These materials would be primarily found within construction equipment but may also be stored onsite at the staging areas, and transported, as necessary, to work areas.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they occur at or near the Project sites including Anderson Reservoir and Coyote Creek and involve the handling or transport of hazardous material.

Cumulative Effects of Project with the FOCP

FOCP construction activities would involve the use and transport of similar materials as the Project, although not at the same time. Both projects create a potential hazard to the public and environment. Both projects are required to comply with all relevant federal, state, and local laws, regulations, and policies designed to minimize hazardous materials impacts to the public and environment. In accordance with OSHA and Cal/OSHA requirements, presented in Section 3.10.1 safety procedures for the handling of hazardous substances would be followed. The Project would implement Valley Water BMPs (~~HM-7,~~ HM-8, WQ-6, WQ-17) to minimize the chance of release of hazardous materials. With adherence to requirements of federal, state, and local regulations, and BMPs, cumulative impacts would not be significant, and the Project's contribution to hazards from the use and transport of hazardous materials would not be cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Projects in the same area as the reservoir, Conservation Measure sites, and Coyote Creek include the SMP, Coyote Creek Flood Protection Project, Santa Clara County Parks Planning Projects and Natural Resource Management, as well as development projects in the County where the use of large equipment would involve the use and transport of similar materials as the Project. All projects are required to comply with all relevant federal, state, and local laws, regulations, and policies designed to minimize hazardous materials impacts to the public and environment. As discussed above, the Project would also implement BMPs to minimize the chance of release of hazardous materials. With adherence to requirements of federal, state, and local regulations, and BMPs, cumulative impacts would not be significant, and the Project's contribution to hazards from the use and transport of hazardous materials would not be cumulatively considerable.

Significance Conclusion Summary

All Project construction activities would be performed in accordance with applicable state and federal regulations regarding the use, transport, and disposal of hazardous materials. In addition, the Project would implement BMPs to further reduce the potential for release of hazardous materials. With adherence to requirements of federal, state, and local regulations, and BMPs, cumulative impacts would not be significant and the Project's contribution to cumulative hazards to the public and the environment from the routine transport, use, or disposal of hazardous materials is **not cumulatively considerable**.

Mitigation Measure

No mitigation is required.

Cumulative Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials **(Not Cumulatively Considerable)**

Hazardous materials used during construction of the Seismic Retrofit construction (e.g., gasoline, diesel fuel, paints, solvents, hydraulic fluid) may be released to the environment through the upset or through accidental conditions if adequate precautions are not taken. NOA is known to be present within the Franciscan Formation and Santa Clara Formation rock types that underlay much of the dam and spillway area. Construction activities would involve excavating serpentinite and other materials containing NOA from the dam and spillway foundations, portals, tunnels, and shafts associated with the outlet works (URS 2021a) and expose the public, including recreators, and construction workers to airborne asbestos. Activities that may generate dust emissions that contain NOA include clearing and grading, tunneling, and hauling materials within and offsite (URS 2021d).

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they occur at or near the Project sites and involve the potential for the release of hazardous materials.

Cumulative Effects of Project with the FOCP

FOCP construction activities would involve the use of similar materials as the Project, although not at the same time. Both projects create a potential hazard of accidental spill to the environment. Both projects are required to comply with all relevant federal, state, and local laws, regulations, and policies designed to minimize hazardous materials impacts to the public and environment. The Project would implement Valley Water BMPs (~~HM-7,~~ HM-8, WQ-6, WQ-17) to minimize the chance of release of hazardous materials. With adherence to requirements of federal, state, and local regulations, and BMPs, cumulative impacts other than NOA impacts would not be significant, and the Project's contribution to hazards from the use and transport of hazardous materials would not be cumulatively considerable.

FOCP construction activities also occurred in serpentinite materials with the potential to release NOA. The Project would extend the period that public in the area is subject to dust containing NOA, therefore the cumulative NOA impact is significant pre-mitigation and the Project's contribution to airborne NOA is cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Projects in the same area as the reservoir, Conservation Measure sites, and Coyote Creek include the SMP, Coyote Creek Flood Protection Project, Santa Clara County Parks Planning Projects and Natural Resource Management, as well as development projects in the County where the use of large equipment would involve the use of similar materials as the Project. All projects are required to comply with all relevant federal, state, and local laws, regulations, and policies designed to minimize hazardous materials impacts to the public and environment. As discussed above, the Project would also implement BMPs to minimize the chance of release of hazardous materials. With adherence to requirements of federal, state, and local regulations, and BMPs, cumulative impacts other than NOA impacts would not be significant, and the Project's contribution to the risk of accidental release of hazards materials would not be cumulatively considerable.

Other projects and activities in the Franciscan Formation and Santa Clara Formation rock types such as Santa Clara County Parks Planning Projects and Natural Resource Management and other Valley Water dam improvement projects could also release dust containing NOA. The impact is significant, and the Project's contribution to this hazard is cumulatively considerable.

Significance Conclusion Summary

All Project construction activities would be performed in accordance with applicable state and federal regulations regarding the use hazardous materials. In addition, the Project would implement BMPs to further reduce the potential for spill of hazardous materials. The Project's contribution to cumulative hazards to the environment from hazardous material releases other than NOA is not Cumulatively Considerable.

For Seismic Retrofit construction, compliance with BAAQMD's ATCM for Construction, and BMP-AQ-1 and BMP HM-13, would minimize potential impacts from NOA. The implementation of **Mitigation Measure HAZ-1** (Construction and Grading Operations Dust Control Measures), **Mitigation Measure HAZ-2** (Track Out Control Measures for Roads from NOA-Containing Areas), **Mitigation Measure HAZ-3** (Traffic Control Measures within NOA-Containing Construction Areas), **Mitigation Measure HAZ-4** (Dust Control Measures During Earthmoving Activities), **Mitigation Measure HAZ-5** (Dust Control Measures During Tunneling Activities), and **Mitigation Measure HAZ-6** (Separation of Rock Containing NOA) would reduce the Project's seismic retrofit construction contribution to significant cumulative NOA impacts to **not cumulatively considerable**

Mitigation Measures

HAZ-1 Construction and Grading Operations Dust Control Measures

HAZ-2 Track Out Control Measures for Roads from NOA-Containing Areas

HAZ-3 Traffic Control Measures within NOA-Containing Construction Areas

HAZ-4 Dust Control Measures During Earthmoving Activities

HAZ-5 Dust Control Measures During Tunneling Activities

HAZ-6 *Separation of Rock Containing NOA*

Cumulative Impact HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school (Not Cumulatively Considerable)

No existing or proposed schools are located within 0.25 mile of the Project Area; however, a juvenile detention facility, William F. James Boys Ranch (Boys Ranch), is located within 0.11 mile of Anderson Dam. Although this facility is not a typical public school, this facility is considered a sensitive receptor for analyzing hazardous impacts that may result from the Project.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they occur at or near the Boys Ranch Project and involve the potential for the release of hazardous materials.

Cumulative Effects of Project with the FOCP

FOCP construction activities would involve the use of similar materials as the Project, although not at the same time. Both projects create a potential hazard to the Boys Ranch. Both projects are required to comply with all relevant federal, state, and local laws, regulations, and policies designed to minimize hazardous materials impacts to the public and environment. The Project would implement Valley Water BMP HM-9 to minimize the chance of release of hazardous materials. With adherence to requirements of federal, state, and local regulations, and BMPs, cumulative impacts related to hazards from the use and transport of hazardous materials would not be significant, and the Project's contribution would not be cumulatively considerable**.**

FOCP construction activities also occurred in serpentinite materials with the potential to release NOA. However, the projects occur at different times. The Project would extend the time that the Boys Ranch would be subjected to NOA, therefore hazards from airborne NOA are cumulatively significant and the Project’s seismic retrofit construction is cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Projects near the Boys Ranch include the SMP and Santa Clara County Parks Planning Projects and Natural Resource Management, where the use of large equipment would involve the use of similar materials as the Project. All projects are required to comply with all relevant federal, state, and local laws, regulations, and policies designed to minimize hazardous materials impacts to the public and environment. As discussed above, the Project would also implement BMPs to minimize the chance of release of hazardous materials. With adherence to requirements of federal, state, and local regulations, and BMPs, cumulative impacts would not be significant, and the Project’s contribution to the risk to the Boys Ranch would not be cumulatively considerable**.**

The SMP and Santa Clara County Parks Planning Projects and Natural Resource Management projects have the potential to generate dust from Franciscan Formation and Santa Clara Formation rock types that may contain NOA. The release of NOA near the Boys Ranch is cumulatively significant and the Project’s contribution is cumulatively considerable.

Significance Conclusion Summary

All Project construction activities would be performed in accordance with applicable state and federal regulations regarding the use hazardous materials. In addition, the Project would implement BMPs to further reduce the potential for spill of hazardous materials that could impact the Boys Ranch. The Project’s contribution to less-than-significant cumulative hazards to the Boys Ranch from emissions or hazardous materials is Not Cumulatively Considerable.

For Seismic Retrofit construction, compliance with BAAQMD’s ATCM for Construction, and BMP-AQ-1 and BMP HM-13, would minimize potential impacts from NOA. The implementation of **Mitigation Measure HAZ-1** (Construction and Grading Operations Dust Control Measures), **Mitigation Measure HAZ-2** (Track Out Control Measures for Roads from NOA-Containing Areas),

Mitigation Measure HAZ-3 (Traffic Control Measures within NOA-Containing Construction Areas), **Mitigation Measure HAZ-4** (Dust Control Measures During Earthmoving Activities), **Mitigation Measure HAZ-5** (Dust Control Measures During Tunneling Activities), **Mitigation Measure HAZ-6** (Separation of Rock Containing NOA), and **Mitigation Measure HAZ-7** (Soil Testing and Proper Disposal of Potentially Contaminated Soils) would reduce the Project's contribution to significant cumulative NOA exposure cumulative impacts to **not cumulatively considerable**.

Mitigation Measures

HAZ-1 Construction and Grading Operations Dust Control Measures

HAZ-2 Track Out Control Measures for Roads from NOA-Containing Areas

HAZ-3 Traffic Control Measures within NOA-Containing Construction Areas

HAZ-4 Dust Control Measures During Earthmoving Activities

HAZ-5 Dust Control Measures During Tunneling Activities

HAZ-6 Separation of Rock Containing NOA

HAZ-7 Soil Testing and Proper Disposal of Potentially Contaminated Soils

Cumulative Impact HAZ-4: 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 create a significant hazard to the public or the environment **(Not Cumulatively Considerable)**

The Project Area does not include listed hazardous materials sites (SWRCB 2021a, DTSC 2021). Based on a review of readily available public information for the Project Area, no listed hazardous materials sites or existing hazardous material contamination are present within the Project Area. Although contaminated properties are known to exist within 0.75 mile of the Seismic Retrofit Project Area, cleanup actions for these sites are in progress or have been completed. Further, Seismic Retrofit and Conservation Measure construction activities would not take place on any of the contaminated properties located within 0.75 mile of the Project. Nevertheless, there is potential to discover unknown hazardous materials sites within the Project Area involving construction activities. Construction would involve soil excavation and grading, and thus, could encounter soil contamination from past chemical uses, including agricultural and boat maintenance. This would expose construction workers, the public, and the environment to hazards.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they occur at or near the Project area or Coyote Creek where hazardous materials could be released to the environment.

Cumulative Effects of Project with the FOCP

FOCP construction activities would involve are similar to Project construction activities and both could encounter soil contamination from past chemical uses, including agricultural and boat maintenance. The cumulative impact is significant and the Project's contribution to this risk is cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Projects in the same area include the SMP, Coyote Creek Flood Protection Project, Santa Clara County Parks Planning Projects and Natural Resource Management, as well as development projects in the County. Any of these projects could encounter soil contamination from past chemical uses from historic manufacturing or agriculture. The cumulative impact is significant and the Project's contribution to this risk is cumulatively considerable.

Significance Conclusion Summary

Implementation of BMP HM-9 would include measures for proper handling, storage, and disposal of hazardous materials, but impacts would nevertheless be significant. Implementation of **Mitigation Measure HAZ-7** would minimize impacts to the public or environment should unknown contaminants or contaminated soil be encountered during construction activities. With **Mitigation Measure HAZ-7**, the Project's ~~s~~ contribution to significant cumulative impacts related to hazardous materials sites would be **not cumulatively considerable**

Mitigation Measures

HAZ-7 Soil Testing and Proper Disposal of Potentially Contaminated Soils

Cumulative Impact HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (Not Cumulatively Considerable)

Construction of Seismic Retrofit and Conservation Measure components would involve operation and temporary storage of large construction equipment, transport and storage of construction materials and supplies, and construction worker commute trips to and from the area, which could impede movement and access of emergency response vehicles or cause localized congestion, thereby interfering with evacuation procedures. Cochrane Road between Coyote Road and Malaguerra Avenue (or portions of this segment) would be closed to through traffic for varying durations throughout the construction period. The Project's impacts on emergency response or evacuation plans would be significant.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they occur at or near the Project sites and create traffic or congestion on local roadways.

Cumulative Effects of Project with the FOCP

FOCP construction activities also involved large construction equipment, but activities take place at an earlier time. As there is no overlap in construction periods between the projects, there is no possibility for cumulative effects between the projects. The cumulative impact is less than significant.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Projects in the vicinity include the SMP, Santa Clara County Parks Planning Projects and Natural Resource Management activities, as well as development projects in the County could interfere~~nce~~ with emergency response or evacuation plans for various emergencies from additional vehicle trips on local roadways and localized congestion (impacts to emergency evacuation specific to wildland fires is addressed Section 3.22, *Wildfire*). However, these projects would not generate substantial traffic in the same area as the Project. The cumulative impact to adopted emergency response or evacuation plans is less than significant.

Significance Conclusion Summary

The Project would generate traffic and have significant impacts on emergency response or evacuation plans that would be reduced to less than significant levels through implementation of **Mitigation Measures PS-1 and WF-1**. However, there are no other projects that would create a simultaneous significant cumulative impact. The FOCP will be complete by the start of Project construction activities and other projects that may occur at the same time would not be expected to general significant traffic in the Project area that could create greater congestion. The Project's impacts on interference with adopted emergency response plans or emergency evacuation plans is **not cumulatively considerable.**

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan.

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) ~~Emergency Action Plan~~

Cumulative Impact HAZ-6: Create a significant hazard to construction workers or the public through exposure to Valley Fever during Construction Activities (Not Cumulatively Considerable)

No Valley Fever exposure impacts would occur during Project operations, However, construction of Seismic Retrofit and Conservation Measure components would involve soil disturbance that has the potential to release the soil-dwelling fungus (Coccidioides) that can cause Valley Fever that could pose a hazard to construction workers and/or the public. The Project's impacts relative to Valley Fever exposure would be significant.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they occur at or near the Project sites and soil-disturbing activities and create fugitive dust.

Cumulative Effects of Project with the FOCP

FOCP construction activities also occur in areas with the potential for Valley Fever exposure. The Project would extend the period that public in the area is subject to Valley Fever. BAAQMD's ATCM for Construction and Valley Water BMP-AQ-1 (Use Dust Control Measures) reduce potential impacts from Valley Fever for both FOCP and the Project Therefore, the cumulative Valley Fever impact is significant pre-mitigation and the Project's contribution to Valley Fever is cumulatively considerable. The Project-specific analysis of Valley Fever relies on **Mitigation Measures HAZ-1 through HAZ-5** to mitigate Valley Fever impacts to less-than-significant levels. With these mitigation measures, the Project's contribution to cumulative impacts would be not cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Construction or operation of future projects, programs, and plans could overlap with the 15-year construction schedule that Seismic Retrofit components and Conservation Measures construction would occur. The construction of other probable future projects could generate fugitive dust in addition to that from the Project, potentially exposing workers and the public to Vally Fever.

As discussed above in Impacts HAZ-2 and HAZ-6, BAAQMD's ATCM for Construction and Valley Water BMP-AQ-1 (Use Dust Control Measures) would minimize potential impacts from Valley Fever for the Project, though exposure impacts may still be significant. These requirements include implementing fugitive dust control measures (e.g., watering disturbed surfaces, covering materials in haul trucks) and worker safety measures when working in areas that may have the fungus that causes Valley Fever. The Project-specific analysis of Valley Fever also relies on **Mitigation Measures HAZ-1 through HAZ-5** to mitigate Valley Fever impacts to less-than-significant levels.

Like the Project, it is assumed that probable future projects would comply with regulations in CCR Title 8, *Industrial Relations,* that provide protections from Valley Fever exposure., and with BAAQMD's ATCM for construction. Nevertheless, pre-mitigation, cumulative impacts of the Project and probable future projects combined could be significant, and the Project's contribution would be cumulatively considerable. With implementation of s, **Mitigation Measures HAZ-1 through HAZ-5** the Project's contribution to significant cumulative Valley Fever impacts would be not cumulatively considerable.

Significance Conclusion Summary

The Project would generate fugitive dust through soil disturbing construction activities, which have the potential to release Coccidioides that can cause Valley Fever. The Project's impact would be reduced ~~t~~ through compliance with applicable laws, regulations, and policies, including CCR Title 8; and implementation BAAQMD's ATCM for Construction and Valley Water BMP-AQ-1. The Project's impacts could nevertheless be significant, but reduced to less-than-significant levels by **Mitigation Measures HAZ-1 through HAZ-5**. Pre-mitigation, cumulative impacts of the Project, the FOCP, and probable future projects combined could be significant, and the Project's contribution would be cumulatively considerable. With implementation of **Mitigation Measures HAZ-1 through HAZ-5**, the Project's contribution to Valley Fever exposure impacts is **not cumulatively considerable.**

Mitigation Measures

HAZ-1	*Construction and Grading Operations Dust Control Measures*
HAZ-2	*Track-out Control Measures for Roads from NOA-Containing Areas*
HAZ-3	*Traffic Control Measures within NOA-Containing Construction Areas*
HAZ-4	*Dust Control Measures During Earthmoving Activities*
HAZ-5	*Dust Control Measures During Tunneling Activities*

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3.11 Hydrology

This section evaluates Project impacts on hydrological resources within the study area, as defined below. The *CEQA Guidelines* significance criteria for hydrology addresses impacts related to the alteration of drainage patterns in a manner which would result in substantial erosion or siltation, flooding, exceed the capacity of stormwater drainage systems, provide substantial additional sources of polluted runoff, expose people or structures to a significant risk involving flooding, including flooding as a result of dam failure, or risk release of pollutants due to inundation from flood, tsunami, or seiche. *Groundwater Resources* is discussed separately in Section 3.12 and *Water Quality* is discussed in Section 3.14.

The study area used to assess impacts to hydrological resources is Anderson Reservoir, Anderson Dam, Coyote Creek below Anderson Dam, including the tidally inundated portion of lower Coyote Creek and the waters of San Francisco Bay to the confluence with Alviso Slough, the CWMZ, and lands in the immediate vicinity of Anderson Reservoir and Coyote Creek. Upper Penitencia Creek is in the study area; however, the Project would not result in changes to the hydrology of Upper Penitencia Creek, therefore it is not discussed in this section. See **Figure 2-2**.

The analysis of this section is based on key technical memos that are included in Appendix J, K, and L including:

- *Project Construction Operations Technical Memorandum* that defines the FOCP and Project facilities and construction schedule and reservoir operations with the Stage 1 Diversion System and the Stage 2 Diversion System
- *Potential Flood Impacts for Project* that analyzes the frequency and extent of anticipated high flow events during 1) 2017 conditions with ~~seismic~~ restriction, 2) 2023 conditions with the Stage 1 Diversion System, 3) 2028 conditions during construction of the Seismic Retrofit components, and 4) post-Seismic Retrofit with FAHCE+ rule curves
- *Reservoir Drawdown and Operations Plan* that was submitted to FERC establishing how Valley Water would drain the reservoir to deadpool and construct FOCP components
- *Post Project Operations Memo* that defines post Project operation to be implemented upon completion of the Seismic Retrofit components
- *Sediment Deposition in Coyote Creek above Ogier Ponds and Discharge to Estuary that* analyzes the volume and concentration of suspended sediment mobilized from Anderson Reservoir to Coyote Creek during each phase of construction and the locations of sediment deposition in the CWMZ
- *Tidal Floodplain Impacts for Project* that considers flow impacts to the tidal floodplain of Coyote Creek due to Project construction and operation

3.11.1 Environmental Setting

The Project is in the Coyote Creek Watershed, which is the largest watershed in the Santa Clara Basin, encompassing an area of over 320 square miles. Anderson Dam impounds surface runoff from 195 square miles of the Coyote Creek Watershed, which includes inflow from several tributaries and releases from Coyote Reservoir, which is approximately 1.5 miles upstream of Anderson Reservoir. Downstream of Anderson Dam, Coyote Creek flows approximately 37.5

miles north-northwest through many densely urbanized areas in the county, including portions of Morgan Hill, San José, and Milpitas, before ultimately reaching San Francisco Bay. The upstream reaches of Coyote Creek and the watershed that feeds Anderson Dam are largely undeveloped. Surface waters in the Project vicinity are shown in **Figure 3.11-3**.

Please also refer to Section 2.2.2 ~~2.2.1~~, *Regional Area – Coyote Creek Watershed*, within Chapter 2, *Project Description,* for discussion of the regional watershed setting and the primary surface water features in the Project vicinity.

3.11.1.1 Anderson Reservoir

Storage, Releases, and Inflow

Anderson Reservoir is Valley Water's largest reservoir, with a storage capacity of over 89,000 AF. Operations typically involve reservoir water releases for multiple purposes, including water supply, groundwater recharge, flood risk reduction, power generation, downstream aquatic habitat, maintenance, and emergency purposes. While Anderson Reservoir historically operated up to its full capacity, a storage restriction of about 45 feet below the crest of the dam (reducing the storage volume to about 61,000 AF) was voluntarily put into place by Valley Water in 2009 due to the potential seismic deficiencies. Subsequently, Valley Water increased the storage restriction to 55 feet below the dam crest (reducing the allowed storage capacity to 52,553 AF) in response to additional findings during the design phase of the Project (Valley Water 2020a). Currently, water levels are being maintained at dead pool as a result of implementation of the FOCP.

Water stored in Anderson Reservoir comes from within the watershed and from USBR's San Felipe Division of the federal Central Valley Project – specifically, San Luis Reservoir. Imported Central Valley Project and State Water Project water stored in San Luis Reservoir can be transferred and stored in Anderson Reservoir via the SCC and the Anderson Force Main. Water from San Luis Reservoir may also be discharged directly to Coyote Creek via the Coyote Discharge Line near the Anderson Hydroelectric Facility, about 1,300 feet downstream of the toe of the dam. The Anderson Force Main may be used to deliver water from the reservoir to either the Anderson Hydroelectric Facility (which then discharges to Coyote Creek) or to Valley Water raw water distribution system (via the Cross Valley Pipeline). Water released into Coyote Creek recharges the Santa Clara Subbasin (Basin No. 2-9.02) by in-stream percolation in Coyote Creek and at the Coyote Percolation Pond just north of Metcalf Road.

The contributing watersheds to Anderson Reservoir include Coyote Creek above Coyote Dam (i.e., releases from Coyote Reservoir), Las Animas Creek, and other small streams, such as Packwood Creek, that drain directly into Anderson Reservoir (see **Figure 3.11-3**). The watershed's steep slopes descend from a maximum of approximately elev. 3,600 feet above sea level to the Anderson Dam elev. 647 feet at the dam crest. Inflow into the reservoir varies based on the time of year and water year type, as shown in **Table 3.11-1**. Combined inflows from the northern tributaries and from Coyote Reservoir to the south range from 14 AF in a month during a dry year to 37,141 AF in a month during a wet year (Valley Water 2020b).

Table 3.11-1. Estimated Inflow into Anderson Reservoir by Water Year Type

	Reservoir Inflow (AF)		
	Dry Year	**Average Year**	**Wet Year**
Tributary Inflow into Anderson Reservoir (excluding Coyote Reservoir outflows)			
Maximum Monthly Volume	215	2,489	11,070
Minimum Monthly Volume	0	8	129
Inflow into Anderson Reservoir from Coyote Reservoir			
Maximum Monthly Volume	109	3,721	26,071
Minimum Monthly Volume	14	116	472

Source: Valley Water 2020b

Key: AF = acre-feet

Since the dam was constructed in 1950, Anderson Reservoir was dewatered completely in 1961 and 1987 for maintenance and upgrades to the dam. In the past, it has taken about 8 to 10 months to fully dewater the reservoir and a few years for the reservoir to refill.

Sediment

Anderson Reservoir retains all coarse sediment that enters the reservoir. Although some fine sediment is passed through the reservoir, the reservoir is assumed, due to its large size, to have a buffering effect on runoff-induced increases in suspended sediment that would otherwise be translated directly to downstream reaches of Coyote Creek (Valley Water 2020b). During storm-related runoff events, highly turbid water entering Anderson Reservoir mixes with a large volume of stored water, and the suspended sediment concentrations can be diluted before flow is passed downstream of Anderson Dam (Valley Water 2020b). The amount of fine sediment reaching the reservoir's outlet varies depending on particle size, density of sediment in the inflow, amount and rate of inflow, distance traveled through the reservoir, reservoir release operations, and suspended sediment transported during large storms that may reach the outlet at a higher concentration than during smaller storms (Valley Water 2020b). Although some of the suspended sediment settles from the water column in Anderson Reservoir, like other San Francisco Bay Area reservoirs (Kittleson et al. 1996, as cited in Valley Water 2020b), Anderson Reservoir can prevent some of the turbid water from moving quickly through the system and may prolong the release of mildly turbid water to Coyote Creek downstream of Anderson Dam for weeks following a storm (Valley Water 2020b).

Sediment mapping and characterization completed for Anderson Reservoir has indicated that there is an average of about 8 to 20 feet of accumulated fine sediment in the former stream channels in Anderson Reservoir, and 1 to 6 feet on the former terraces adjacent to those historical channels (Valley Water 2020b). This accumulation reflects decades of sediment trapping in the reservoir. The majority of the accumulated sediments consist of cohesive fines described as medium to highly plastic clays. Preliminary estimates indicate that the volume of accumulated sediment in Anderson Reservoir is 2.9 million cy. The volume of sediment above deadpool in the north and south arms of Anderson Reservoir is approximately 1,007,000 and 529,000 cy, respectively (Valley Water 2020c). The volume of sediment below the invert (elev. 450 feet) of the Stage 1 Diversion System is approximately 276,000 cy (Valley Water 2020c).

3.11.1.2 Coyote Reservoir

As described in Chapter 2, *Project Description,* Coyote Reservoir is a smaller reservoir located approximately 1.5 miles upstream from Anderson Reservoir. Coyote Reservoir holds 22,541 AF of water when full and is the second largest reservoir (behind Anderson Reservoir) owned by Valley Water with a surface area of 633 acres. However, a ~~permanent seismic~~ restriction was imposed on Coyote Reservoir by the DSOD in 1992, reducing the storage capacity to 11,843 AF, or 52.5 percent of total capacity (Valley Water 2023a ~~2022a~~). Winter runoff is stored in Coyote Reservoir and released during the dry season. Releases from Coyote Reservoir ultimately flow into Anderson Reservoir.

3.11.1.3 Lower Coyote Creek

Flows

Prior to the drawdown to deadpool as part of the FOCP, flows in Coyote Creek below Anderson Dam are controlled by releases from Anderson Reservoir (including discharges via the hydroelectric facility), and discharge of imported water via the CDL~~, and the hydroelectric facility downstream from the dam~~. USGS streamflow station 11170000 (previously, Valley Water SF82), Coyote Creek near Madrone, California, is the nearest location that measures these releases. The median of daily flows by month, for the water years 2000 through 2019, shows a range of 40-50 cfs in the summer (June to September) and 20-25 cfs in the winter (January to March). Greater summer releases are expected as Valley Water operates to replenish the groundwater subbasin. Large storm events have resulted in creek flows as high as 850 cfs (April 2006), 600 cfs (March 2011), and 7,400 cfs (February 2017) at the Madrone gage with high flows persisting in the channel for as long as 2 weeks (Valley Water 2017).

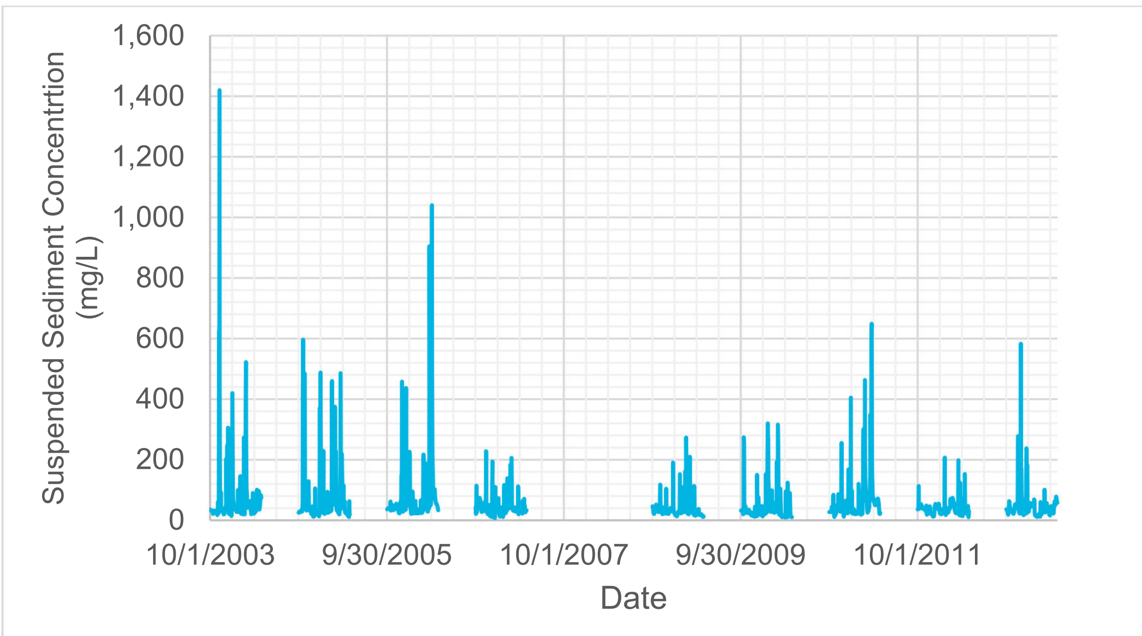
Prior to construction of Anderson Dam, in the early 1900s, Coyote Creek was intermittent in much of the reach below what is now the location of Anderson Dam (FAHCE 2000, SFEI 2006, NMFS 2016a, as cited in Valley Water 2020b). Coyote Creek was likely intermittent from about the location of Ogier Ponds downstream to between Montague Expressway and Berryessa Road, a reach that could be 20 or more miles long, depending on the year (SFEI 2006, as cited in Valley Water 2020b). The intermittent period likely lasted from late spring through early fall (FAHCE 2000, as cited in Valley Water 2020b). Since the construction of Anderson Dam, in 1950, winter flows in Coyote Creek have been attenuated and uncontrolled release events associated with reservoir spilling occur only every 9 years (on average). Due to regulated flows, Coyote Creek is perennial in most years, generally with higher summer flows and lower winter flows than would occur naturally (Valley Water 2020b).

Figure 3.11-4 presents the median of daily flows by month for five Valley Water and USGS stream gages from the reach between Coyote Dam and Anderson Reservoir to Coyote Creek at Highway 237 from Water Years 2000 to 2019. As shown in **Figure 3.11-4**, the median flow stays below 50 cfs for all months of the year at each of the five gage locations. At USGS Station 11170000/Valley Water SF82 (between Anderson Dam and Ogier Ponds, downstream of all outlets), flows are elevated from April to November, which is opposite of the typical or natural hydrograph, owing to releases from storage at Anderson Reservoir and/or imported supplies via the CDL for groundwater recharge. Flows at this location are highest in July (roughly 47 cfs) and August (roughly 48 cfs), which is the peak of summer. Substantial stream loss, due to percolation beneath the stream bed, is evident from **Figure 3.11-4**, as flows downstream (e.g., at SF07 [just upstream of Metcalf Ponds]) are substantially reduced, but follow a similar pattern. The monthly median flow at SF07 peaks in August at roughly 15 cfs. Along Coyote Creek from Anderson Reservoir to San Francisco Bay, water is lost to evapotranspiration and percolation to groundwater, while inflow to Coyote Creek is received from Upper Penitencia Creek, Lower Silver Creek, and other tributaries (refer to **Figure 3.11-3**). Of the 40 to 50 cfs released downstream of Anderson Dam, approximately 8 to 9 cfs is typically recharged to groundwater in the FCWMZ during the summer months (Valley Water 2020b). Additional water in Coyote Creek is lost downstream of Ogier Ponds and in the Coyote Percolation Pond, where substantial infiltration is known to occur.

Suspended Sediment

The USGS collected 10 years of suspended sediment and flow data in Coyote Creek near Milpitas (USGS Gage 11172175), where the gage is located above the tidal zone at the Highway 237 crossing.

Figure 3.11-1. Suspended Sediment Data Collected at Highway 237 at Coyote Creek



Source: AECOM 2021

As shown in **Figure 3.11-1**, peak winter suspended sediment concentrations are generally between 400 and 600 mg/L with some peaks over 1,000 mg/L. Maximum daily loads are generally less than 1,000 tons per day, but there were three events in the record that were greater than 2,000 tons per day (AECOM 2021). The largest storm in the record of USGS data collection at this site occurred in April 2006, in which the storm discharged about 9,000 tons over a period of 2 weeks with a peak daily load of 4,370 tons (AECOM 2021).

More recently, water quality monitoring at five locations along Coyote Creek downstream of Anderson Dam conducted from December 2019 to April 2020 showed total suspended solids (TSS) concentrations from 2.0 mg/L to a maximum of 37.20 mg/L (Valley Water 2021). **Table 3.11-2** shows the TSS measurements at the 5 locations during the study period. The monitoring locations are shown in **Figure 3.11-2**.

Water stored in Anderson Reservoir prevents the turbid inflow from moving quickly through the system. Much of sediment entering the reservoir settles to the bottom; however, the reservoir can also prolong the release of mildly turbid water to Coyote Creek downstream for weeks following a storm. Sediment movement associated with the FOCP is primarily a function of erosion of exposed sediment by inflows to the reservoir as the reservoir is lowered, or during high flow events while the reservoir is lowered.

Table 3.11-2. Total Suspended Solids Monitoring Data, Coyote Creek below Anderson Dam – December 2019 to April 2020

Date	Total Suspended Solids Concentration, mg/L				
	LCC-1	**LCC-2**	**LCC-3**	**LCC-4**	**LCC-5**
12/16/19	2.00	2.60	2.00	1.90	2.20
12/23/19	8.30	7.30	4.20	3.60	3.60
12/30/19	16.00	16.00	12.10	12.20	13.00
1/6/20	14.00	13.00	11.00	9.90	9.70
1/13/20	16.00	16.00	9.50	9.40	9.40
1/20/20	16.00	16.10	12.20	11.30	11.00
1/27/20	20.10	19.20	12.10	11.00	11.10
2/3/20	20.10	21.00	26.20	25.10	23.00
2/10/20	20.00	20.10	21.10	21.00	18.20
2/17/20	20.10	19.20	15.10	14.30	13.20
2/24/20	26.10	24.20	14.00	14.10	17.20
3/2/20	37.20	37.20	24.10	24.20	23.50
3/9/20	13.6	13.2	12.8	12.7	13.5
3/16/20	11.10	6.90	4.60	4.60	4.60
3/23/20	23.2	15.1	9.3	13.4	9.5
3/30/20	26.3	15.4	13.9	14.1	14.1
4/6/20	19.2	16.4	13.2	12.7	21.1

Source: Valley Water 2021

Key: mg/L = milligrams per liter

Figure 3.11-2. Coyote Creek Total Suspended Solids Monitoring Locations

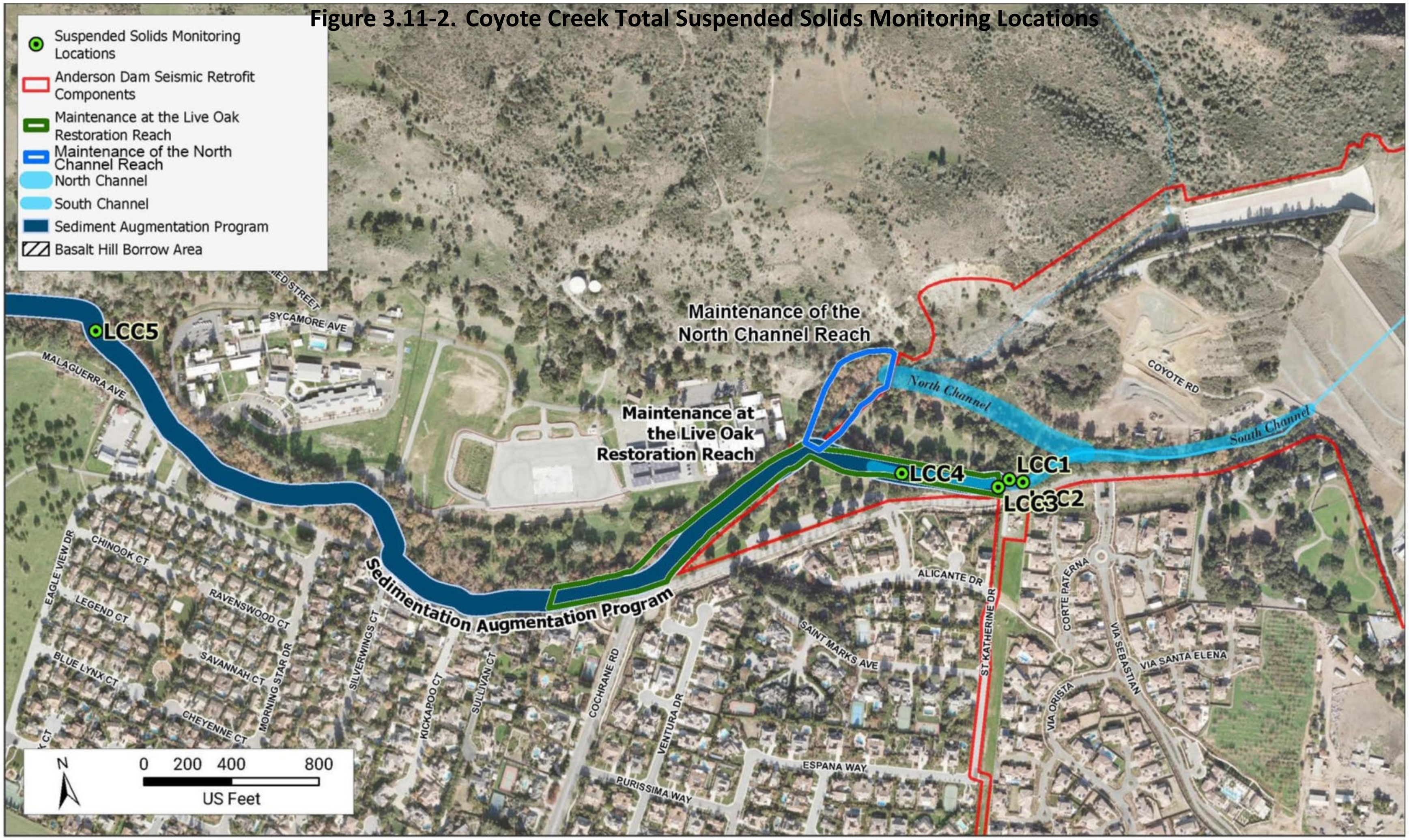


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Figure 3.11-2 Coyote Creek Total Suspended Solids Monitoring Locations - Anderson Dam Area
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

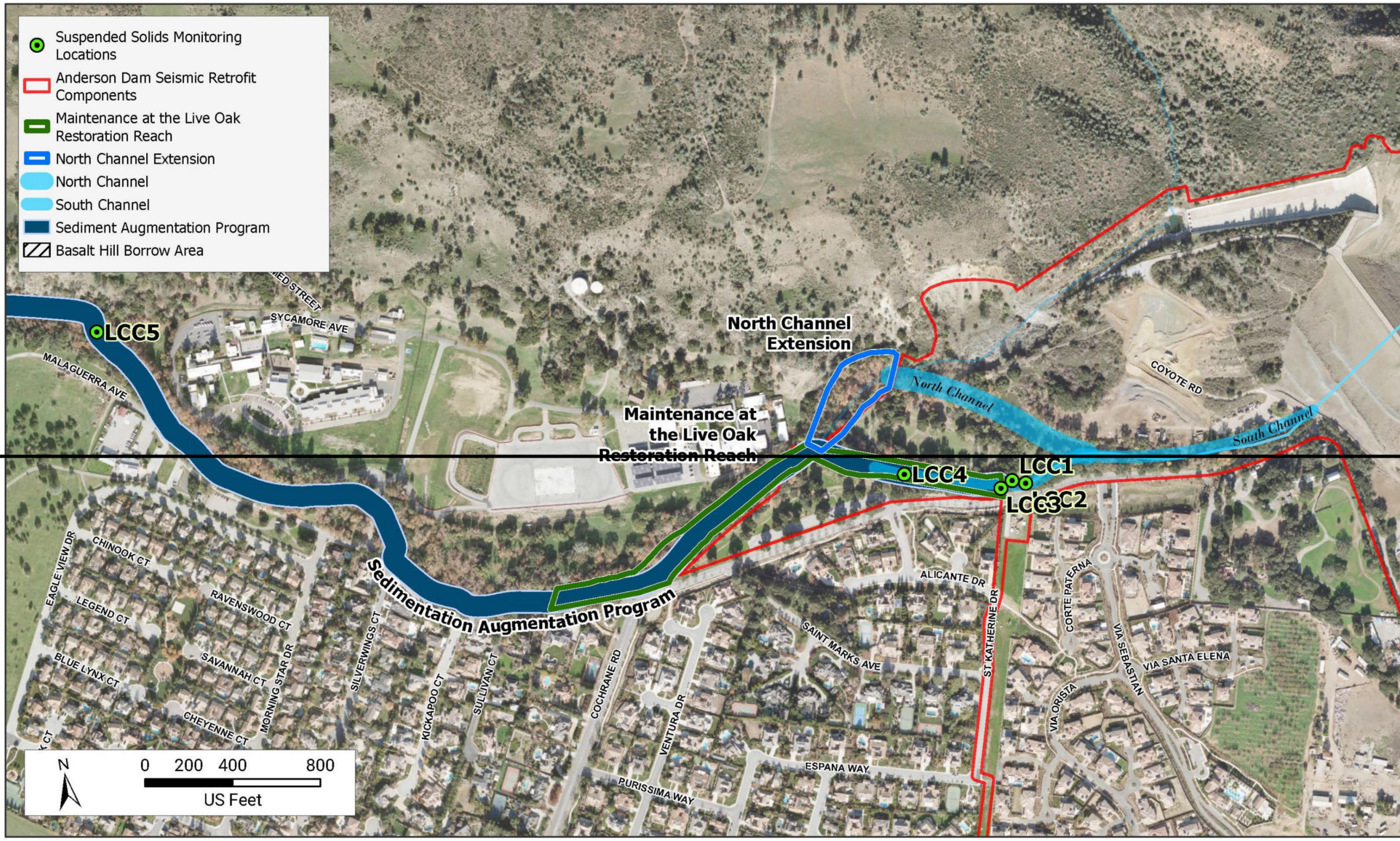

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Figure 3.11-2 Coyote Creek Total Suspended Solids Monitoring Locations - Anderson Dam Area
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

3.11.1.4 Tsunamis, Seiches, and Flooding

Anderson Dam and Reservoir are located approximately 20 miles inland from the coast at roughly elev. 500 feet above sea level. As such, these facilities are outside of any mapped tsunami hazard zones. The furthest downstream elements of the Project involving construction (Phase 2 Coyote Percolation Dam CM) would be located approximately 20 miles inland from the coast and approximately 21 miles from the San Francisco Bay shoreline. As such, these facilities would also be outside of tsunami hazard zones.

A seiche is a standing wave oscillating in a body of water (NOAA 2021). Seiches are usually limited to partially or fully enclosed basins and are typically caused when strong winds and rapid changes in atmospheric pressure push water from one end of a body of water to the other (NOAA 2021). When the wind stops, the water rebounds to the other side of the enclosed area. The water then continues to oscillate back and forth for hours or even days (NOAA 2021). Seiches can be deadly—for example, in 1844, a 22-foot seiche in Lake Erie breached a 14-foot-high sea wall killing 78 people and damming the ice to the extent that Niagara Falls temporarily stopped flowing (NOAA 2021). To date, no seiches are known to have occurred in Anderson Reservoir.

Flooding has occurred along Coyote Creek in the past, most recently in February 2017 (Valley Water 2017). Other floods events on Coyote Creek occurred in 1911, 1917, 1931, 1958, 1969, 1982, 1983, 1997, and 1998. Valley Water is undertaking two projects to reduce the flood risk along Coyote Creek. The first project, the Coyote Creek Flood Management Measures Project, (CCFMMP) part of the FOCP, which includes floodwalls, a levee, and elevating low-lying residences in reaches that are subject to flood flows, including those that will results from ADTP releases. It was under construction at the time of Draft EIR preparation and is scheduled for completion in 2024. The second project is the Coyote Creek Flood Protection Project (CCFPP), which will further the protection along nine miles of Coyote Creek, between Montague Expressway and Tully Road in San José with the goal of reducing the risk of a flooding during events equivalent to the one experienced in February of 2017. The CCFPP is currently in the design phase and is scheduled for completion by the end of 2027 (Valley Water 2023c).

1
2

Figure 3.11-3. Surface Waters

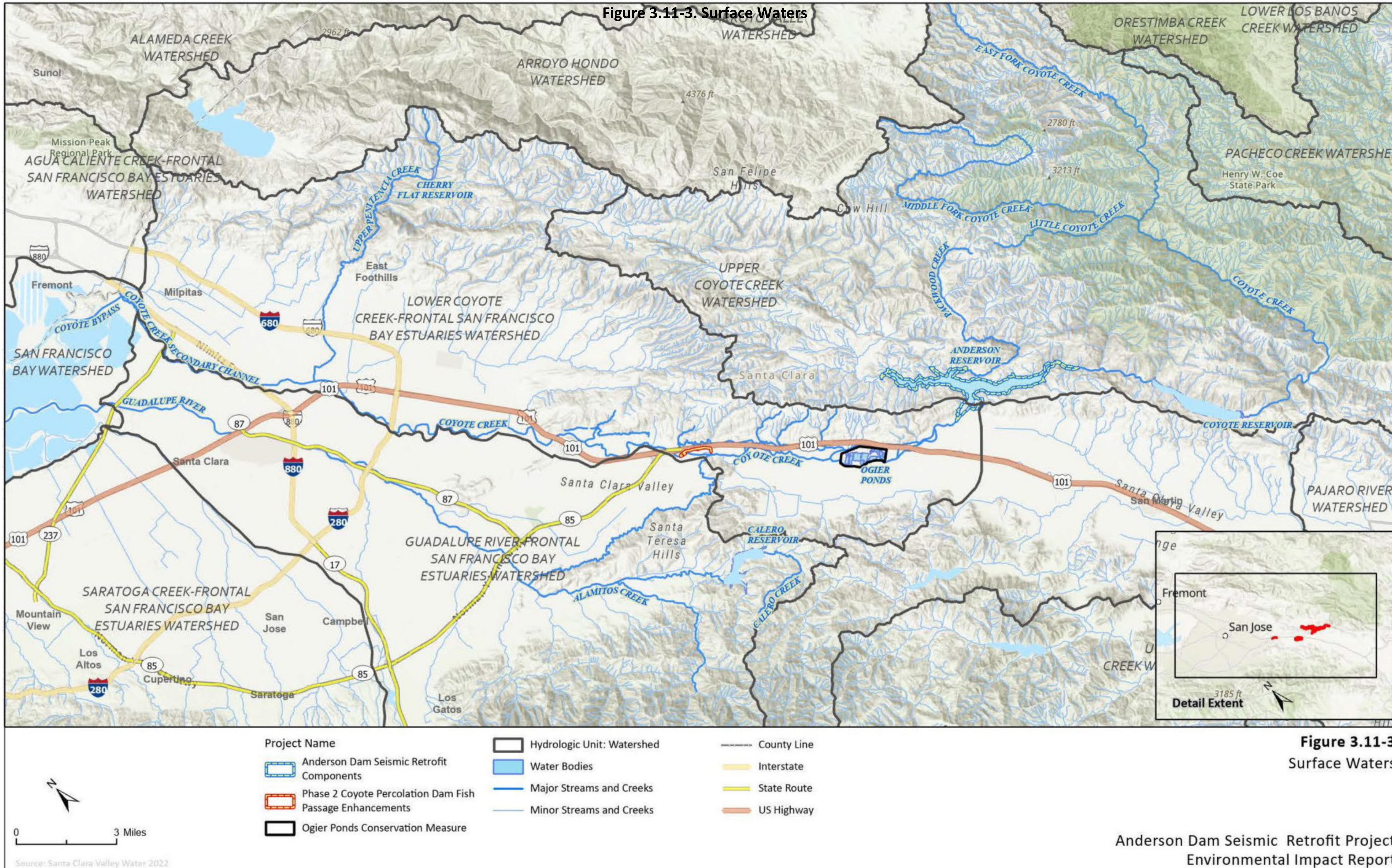

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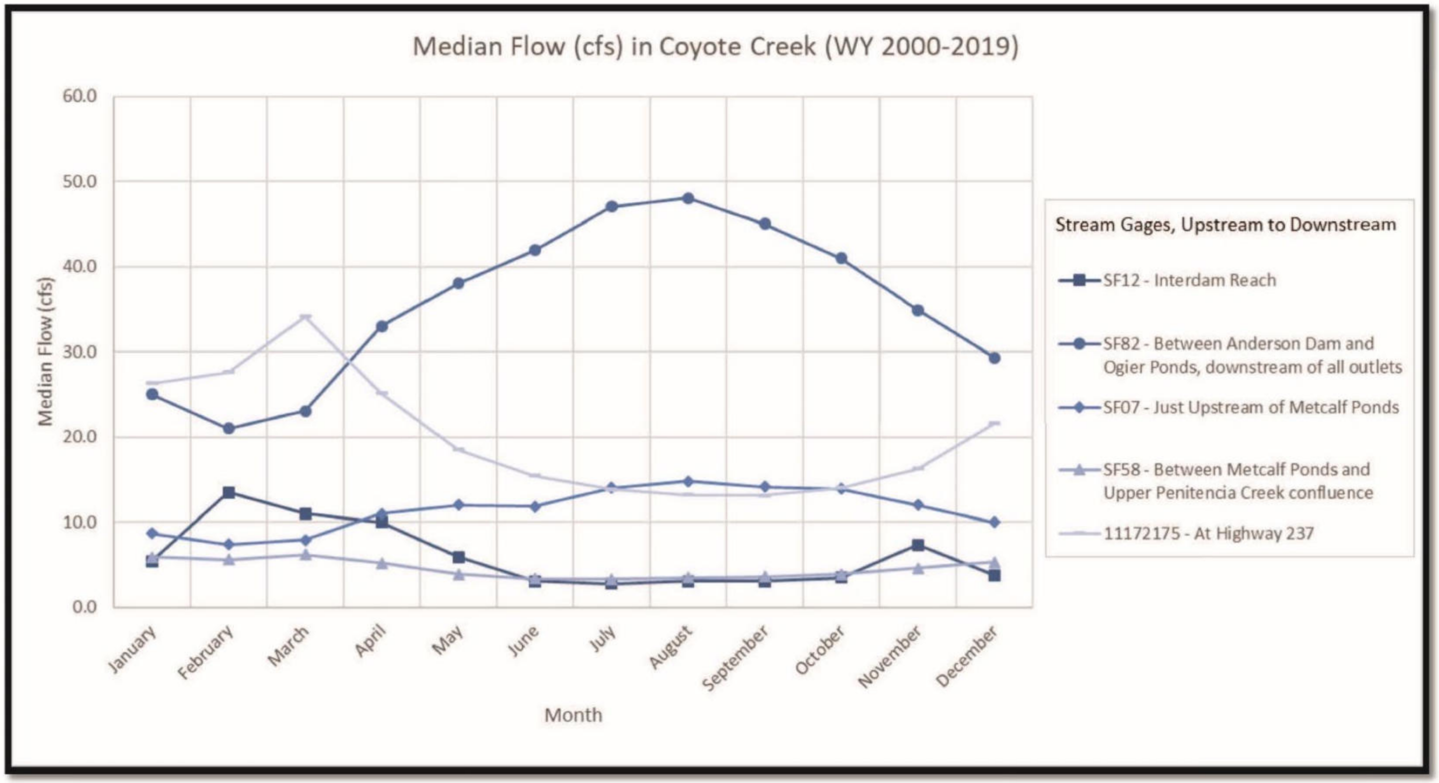
Figure 3.11-4. Monthly Median of Daily Flows (cfs) Recorded in Coyote Creek at Five Stream Gages, Water Year 2000 through 2019



Source: P-5737-007 Reservoir Drawdown and Operations Plan, 7/24/2020, Horizon, 3/21/2023

Horizon WATER and ENVIRONMENT

Figure 3.11-4
Monthly Median of Daily Flows (cfs) Recorded in Coyote Creek at Five Stream Gages, Water Year 2000 through 2019

3.11.2 Regulatory Setting

3.11.2.1 Federal Regulations

Clean Water Act

The CWA is the primary federal law that protects the quality of the nation’s surface waters, including lakes, rivers, and coastal wetlands. CWA section 402 is discussed in this section, as it pertains to stormwater management and hydrology. CWA section 404, which regulates the discharge of dredged and fill materials into waters of the U.S., is also discussed briefly below.” Refer to Section 3.14, *Water Quality*, for discussion of CWA sections 404, 303 and 401.

Section 402, Permits for Stormwater Discharge

CWA section 402 regulates construction related stormwater discharges to surface waters through the NPDES program. The NPDES program is administered by the USEPA. However, in California, the USEPA has delegated authority to the SWRCB; the SWRCB in turn delegates implementation responsibility to the nine RWQCBs (see discussion of the Porter-Cologne Water Quality Control Act in Section 3.14, *Water Quality*).

The NPDES program provides for both general permits (those that cover several similar or related activities) and individual (activity- or project-specific) permits. The General Permit for Construction Activities and Municipal Regional Stormwater Permit are discussed below under State Water Control Board and San Francisco Regional Water Quality Control Board respectively.

Municipal Regional Stormwater NPDES Permit.

Section 404, Permits for Fill Placement in Waters and Wetlands

CWA section 404 regulates the discharge of dredged and fill materials into waters of the U.S., or jurisdictional waters, which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Before any actions that may discharge dredged or fill material into surface waters or wetlands are carried out, a delineation of jurisdictional waters of the U.S. must be completed, following USACE protocols (USACE 1987), in order to determine whether the project area encompasses wetlands or other waters of the U.S. that qualify for CWA protection. Section 404 permits are discussed in detail in Section 3.14, *Water Quality*.

Federal Energy Regulatory Commission Regulations and Guidelines

Part 12 – Safety of Water Power Projects and Project Works

FERC has regulatory authority over dams which include hydroelectric power generation, such as Anderson Dam. Part 12 of FERC’s regulations (18 CFR Chapter I) includes requirements for reporting of safety-related incidents and maintenance of records, preparation and implementation of emergency action plans, inspection by an independent consultant, development and implementation of quality control programs, installation of warning and safety devices, and testing of spillway gates.

As described in Subpart C, the regulations require preparation of Emergency Action Plans (EAP). Every applicant or licensee must develop an EAP in consultation with appropriate federal, State, and local agencies responsible for public health and safety (18 CFR section 12.20). The EAP must conform to the Guidelines for Preparation of Emergency Action Plans, issued by FERC. In general, EAPs must include: (i) instructions to project operators and attendants and other responsible personnel about the actions they are to take during a project emergency; (ii) detailed plans for notifying potentially affected persons and parties in the event of an emergency; and (iii) procedures for controlling the flow of water, including actions to reduce inflows to reservoirs and outflows from upstream and downstream dams or control structures (18 CFR section 12.22).

The FERC regulations also require regular inspection of hydropower facilities. As stipulated in section 12.32 (Subpart D), the project works of each FERC-licensed dam or facility must be periodically inspected and evaluated by or under the responsibility and direction of at least one independent consultant to identify any actual or potential deficiencies. The inspection must consider specific data and factors related to safety, such as settlement, seepage, seismicity, stability of critical slopes adjacent to reservoir projects works, adequacy of spillways, hydrology, and the quality and adequacy of maintenance, surveillance, and methods of project operations for the protection of public safety (see 18 CFR section 12.35 for full list). Inspections must be conducted every 5 years.

In addition, Part 12 of the FERC regulations contains requirements for quality control, monitoring instrumentation, and warning systems. Under section 12.40, implementation of quality control programs may be required for any construction, repair, or modification work. Section 12.41 requires that in designing a project, a licensee must make adequate provision for installing and maintaining appropriate monitoring instrumentation (e.g., to measure seismic effects or hydrostatic pore pressures) whenever any physical condition that might affect the stability of a project structure has been discovered or is anticipated. Section 12.42 requires that an applicant or licensee install, operate, and maintain any signs, lights, sirens, barriers, or other safety devices that may be necessary to warn the public or fluctuations in flow from the project or otherwise protect the public in the use of project lands and waters. Section 12.44 contains requirements for testing of spillway gates, including that each spillway gate must be tested at least once a year.

Engineering Guidelines for the Evaluation of Hydropower Projects

The *Engineering Guidelines for the Evaluation of Hydropower Projects*, produced by FERC, contain guidelines on dam safety and performance. Chapters 1 and 2 of the *Engineering Guidelines* describe the hazard potential of dams and contain guidelines for evaluating the consequences of dam failure and determining the PMF (FERC 2016 ~~2020~~). Chapter 4 contains information and guidelines on embankment dams, including information for evaluating the potential for liquefaction and overtopping, and guidelines for conducting a seismic stability evaluation. Chapter 6 contains guidelines for developing and implementing EAPs, as required by the regulations described above. Chapter 13 contains more detailed guidelines for evaluating seismic stability and the potential for dam failure from an earthquake. Finally, Chapter 14 contains recommended procedures and criteria for development of a Dam Safety Performance Monitoring Program, which would include a Potential Failure Mode Analysis and a Surveillance and Monitoring Plan (FERC 2016 ~~2020~~).

National Flood Insurance Act of 1968 and Flood Disaster Protection Act of 1973

The National Flood Insurance Act of 1968 (42 USC 4001 et seq.) provides federally backed flood insurance to communities that enact and enforce floodplain regulations. As part of its flood insurance program, the FEMA has developed a Community Rating System, which rewards communities that practice proactive flood management and educational activities above and beyond the minimum requirements of the National Flood Insurance Program (NFIP). The reward is an across-the-board reduction in insurance premiums for residents and businesses in a participating community. The Flood Disaster Protection Act of 1973 (42 USC 4001 et seq.) expanded the NFIP by increasing limits of coverage and by requiring known flood-prone communities to participate in the NFIP.

FEMA Levee Design and Maintenance Regulations

Guidance and criteria for levees included in the NFIP are provided in the FEMA Levee Design and Maintenance Regulations (44 CFR 65.10). Major criteria include freeboard, closure structures, embankment protection, embankment and foundation stability, settlement, interior drainage, and other design criteria. Operation and maintenance requirements are also discussed. Each of these criteria includes specific design guidelines that must be met for the levee to remain in the NFIP.

3.11.2.2 State Regulations

California Department of Water Resources – Division of Safety of Dams

California Water Code

The California Water Code contains statutes related to the supervision of dams, which describe the authority and activity of the DSOD. DSOD is a division of the DWR, which was created following the catastrophic failure of the St. Francis Dam in Southern California in 1928. The DSOD engineers and engineering geologists review and approve plans and specifications for the design of dams and oversee their construction to ensure compliance with the approved plans and specifications. DSOD engineers also inspect dams to ensure adequate performance and maintenance. Since the Oroville Dam spillway failure event in 2017, DSOD has increased its focus on rectifying dam stability issues as quickly as possible, such as those found at Anderson Dam.

Statutes in the Water Code (Division 3. Dams and Reservoirs) of relevance to the Project include:

6101. The department may require owners to keep records of, and to report on, maintenance, operation, staffing, and engineering and geologic investigations and shall issue such rules and regulations and orders as necessary to secure maintenance and operation and to require staffing and engineering and geologic investigations which will safeguard life and property. In addition, the owner of a dam or reservoir or his agent shall fully and promptly advise the department of any sudden or unprecedented flood or unusual or alarming circumstance or occurrence affecting the dam or reservoir.

6102.5.

a) The department shall inspect dams, reservoirs, and appurtenant structures to verify their safety in accordance with the following schedule:

1. A facility that has been determined by the department, pursuant to section 6160, to have a hazard classification of significant, high, or extremely high, shall be inspected at least once per fiscal year.
2. A facility that has been determined by the department, pursuant to section 6160, have a hazard classification of low shall be inspected at least once every two fiscal years.

b) The department shall require owners to perform, at the owner's expense, such work as necessary to disclose information sufficient to enable the department to determine conditions of dams, reservoirs, and critical appurtenant structures regarding their safety and to perform, at the owner's expense, other work necessary to secure maintenance and operation that will safeguard life and property. An inspection pursuant to subdivision (a) shall include, but is not limited to, visual inspection of major features of the dam, including its groins, abutments, and toe areas, the dam's spillway, and the dam's outlet works. The inspection shall also evaluate seepage and instrumentation, and include a review of available geological data and existing geological conditions.

c) An owner of a dam shall operate critical outlet and spillway control features on an annual basis and shall demonstrate their full operability in the presence of the department every three years or as directed by the department.

6110. The department shall immediately employ any remedial means necessary to protect life and property if either: (a) the condition of any dam or reservoir is so dangerous to the safety of life or property as not to permit time for the issuance and enforcement of an order relative to maintenance or operation; or (b) passing or imminent floods threaten the safety of any dam or reservoir.

6111. In applying the remedial means provided for in this article, the department may in emergency do any of the following: (a) lower the water level by releasing water from the reservoir; (b) completely empty the reservoir; or (c) take such other steps as may be essential to safeguard life and property.

6225. Before commencing the repair, alteration, or removal of a dam or reservoir, including the alteration or removal of a dam or reservoir so that it no longer constitutes a dam or reservoir as defined in this part, the owner shall secure the written approval of the department, except as provided in this article.

6226. The application shall give such pertinent information or data concerning the dam or reservoir, or both, as may be required by the department and such information as to other matters appropriate to a thorough consideration of the safety of such a change as may be required by the department.

Outlet Dewatering Requirements

DSOD requires that outlets at major dams have the capacity to draw down the reservoir during an emergency. For reservoirs that impound over 5,000 AF of water, the outlet system should be capable of lowering the maximum storage depth by 10 percent within 7 days and draining its full contents within 90 days (DSOD 2021).

California Department of Fish and Wildlife

Section 1602 – Lake and Streambed Alteration Agreement Program

Under section 1602 of the California Fish and Game Code, CDFW regulates projects that affect the flow, channel, or banks of rivers, streams, and lakes. Section 1602 requires public agencies and private individuals to notify and enter into a streambed or lakebed alteration agreement with CDFW before beginning construction of a project that will substantially divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake, or use materials from a streambed.

Section 1602 contains additional prohibitions against the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. Section 1602 may apply to any work undertaken within the 100-year floodplain of any body of water or its tributaries, including intermittent stream channels. In general, however, it is construed as applying to work within the active floodplain and/or associated riparian habitat of a wash, stream, or lake that provides benefit to fish and wildlife. It typically does not apply to drainages that lack a defined bed and banks, such as swales, or to very small bodies of water and wetlands such as vernal pools.

State Water Quality Control Board

See Section 3.14.2.2 for a discussion of SWRCB authority under the Porter-Cologne Water Quality Control Act.

NPDES General Permit for Construction Activities~~.~~

Most typical construction projects that disturb 1 acre of land or more are required to obtain coverage under the SWRCB's General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2022-0057-DWQ; "Construction General Permit"; adopted on September 8, 2022, and effective September 1, 2023), which requires the applicant to file a public notice of intent to discharge stormwater and to prepare and implement a SWPPP. The SWPPP must include a site map and a description of the proposed construction activities; demonstrate compliance with relevant local ordinances and regulations; present the BMPs that will be implemented to prevent soil erosion and discharge of sediment and other construction-related pollutants to surface waters; and discuss monitoring that will be conducted to assure ongoing compliance of storm water discharges from the construction site with the Construction General Permit.

The SWPPP must include BMPs to control erosion at the source, such as through minimizing soil disturbance, preserving existing vegetation where feasible, and stabilizing and revegetating disturbed areas as soon as possible after grading or construction activities. Temporary soil stabilization measures/practices that could be utilized include covering disturbed areas with mulch, temporary seeding, soil stabilizers, binders, fiber rolls or blankets, temporary vegetation, and permanent seeding (SWRCB 2022). Additionally, the SWPPP may include sediment control measures, which would be used to capture any soil that becomes eroded. This may include perimeter control measures, such as installing silt fences or placing straw waddles below slopes, sediment basins and active treatment systems to remove sediment prior to storm water releases (SWRCB 2022). Wastewater washout and cleanout areas or structure, secondary containment facilities, hazardous materials spill plans and other hazardous materials control measures to preclude discharge of toxic construction related pollutants in storm water runoff are also typically included in the SWPPP (SWRCB 2022). Permittees are further required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and that they are effective in controlling the discharge of construction-related pollutants.

San Francisco Regional Water Quality Control Board

Municipal Regional Stormwater NPDES Permit

The Municipal Regional Stormwater NPDES permit (Order R2-2022-0018) (San Francisco Bay RWQCB 2022) covers municipal stormwater discharges from storm drain systems operated by most Bay Area counties and cities. The permit is applicable to Valley Water, the County, the City of San José, and other cities and storm water management agencies within the county, which have joined together to form the Santa Clara Valley Urban Runoff Pollution Prevention Program. The Municipal Regional Stormwater NPDES permit establishes discharge prohibitions, annual reporting requirements, construction site controls, water quality monitoring, pesticides toxicity control, trash load reductions, and provisions to address existing total maximum daily loads established for the Bay. The continuous monitoring requirements include triggers that indicate the need for further study. The temperature trigger is defined as any of the following:

- MWAT
- 20 percent of instantaneous pH results are < 6.5 or > 8.5
- 20 percent of instantaneous specific conductance results are > 2000 microSiemens, or there is a spike in readings with no obvious natural explanation
- 20 percent of instantaneous dissolved oxygen results are < 7 mg/L in a cold-water fishery stream

When results at one sampling station (e.g., along Coyote Creek) exceed the applicable temperature or dissolved oxygen trigger or demonstrate a spike in temperature or drop in dissolved oxygen with no obvious natural explanation, the Permittees shall identify the sample site as a candidate Stressor/Source Identification (SSID) project. SSID projects are intended to be oriented toward taking action(s) to alleviate stressors and reduce sources of pollutants.

The purposes of the measures included in the Municipal Regional Stormwater NPDES Permit are to control and reduce the levels of pollution in both stormwater and nonstormwater runoff discharges from storm drains into watercourses or features that are waters of the State or waters of the U.S.; gather concentration and loading information for a number of pollutants of concern; and ensure the implementation of appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects discharge runoff into storm water management systems that concentrate and discharge runoff to jurisdictional waters . The permit was recently amended to refine development categories and low-impact development specifications.

Stormwater runoff that is concentrated within and enters Anderson Reservoir and Coyote Creek through storm water management system outfall pipes and similar facilities is covered under the provisions of the NPDES permit, which include prohibiting certain discharges, such as solid wastes, and discharges that cause or contribute to a violation of any receiving water limitation or applicable water quality standard (San Francisco Bay RWQCB 2022).

3.11.2.3 Local Regulations

Santa Clara Valley Habitat Plan

The VHP (~~County et al.~~ SCVHA 2012) provides coverage for dewatering associated with project construction. The time between the beginning of reservoir dewatering and the time when the reservoir is re-operated according to applicable rule curves is called a dewatering event. The VHP covers dewatering events by Valley Water of up to 2.5 years for implementing a Seismic Retrofit, although it provides an exception for Anderson Reservoir, which the VHP expected would require up to 3.5 years of dewatering. Per the VHP, if the Project were to require a dewatering event of more than 3.5 years, Valley Water would be required to engage in a separate consultation process with the USFWS and CDFW and may be required to provide additional mitigation beyond that required by the VHP.

Valley Water Stream Maintenance Program

Valley Water's SMP (Valley Water 2014) was established to provide an overarching program to remove sediment, invasive vegetation, and trash and debris in the county's waterways to maintain flow capacity. Routine stream maintenance includes activities such as:

- levee safety
- sediment removal
- bank protection
- trash removal
- fence and access repair
- site revegetation maintenance
- tree preservation
- watershed vegetation management

Some of the BMPs created for the SMP are applicable to the Project where activities are similar (for example, sediment removal).

County of Santa Clara General Plan

The County of Santa Clara General Plan (1994) includes the following policies related to hydrology and the Project:

Book A – Resource Conservation

Policy C-RC 16. Seismic safety considerations for new and existing reservoirs should be addressed in order to ensure water supply and public safety in the event of earthquake.

Policy C-RC 19: The strategies for maintaining and improving water quality on a countywide basis, in addition to ongoing point source regulation, should include:

a. effective non-point source pollution control;
b. restoration of wetlands, riparian areas, and other habitats which serve to improve Bay water quality; and
c. comprehensive Watershed Management Plans and "best management practices" (BMPs).

Policy C-RC 20: Adequate safeguards for water resources and habitats should be developed and enforced to avoid or minimize water pollution of various kinds, including:

a. erosion and sedimentation;
b. organic matter and wastes;
c. pesticides and herbicides;
d. effluent from inadequately functioning septic systems;
e. effluent from municipal wastewater treatment plants;
f. chemicals used in industrial and commercial activities and processes;
g. industrial wastewater discharges;
h. hazardous wastes; and
i. non-point source pollution.

Policy C-RC 22: Countywide, compliance should be achieved with the requirements of the [NPDES] permit for discharges into S.F. Bay, and to that end, the Countywide Nonpoint Source Pollution Control Program should receive the full support and participation of each member jurisdiction.

Policy C-RC 23: The countywide Stormwater Management Plan should be routinely reviewed and updated as additional information is collected on the effectiveness of prescribed control measures.

Book B – Resource Conservation

Policy R-RC-13: Sedimentation and erosion shall be minimized through controls over development, including grading, quarrying, vegetation removal, road and bridge construction, and other uses which pose such a threat to water quality.

Policy R-RC 35: Flood control modifications to be made in streams that have substantial existing natural areas should employ flood control designs which enhance riparian resources and avoid to the maximum extent possible significant alteration of the stream, its hydrology, and its environs.

Book B – Safety and Noise

Policy R-HS 19: In areas of high potential for activation of landslides, there shall be no avoidable alteration of the land or hydrology which is likely to increase the hazard potential, including:

a. saturation due to drainage or septic systems;
b. removal of vegetative cover; and
c. steepening of slopes or undercutting the base of a slope.

Coyote Creek Parkway Integrated Resource Management Plan and Master Plan

The Coyote Creek Parkway Integrated Resource Management Plan and Master Plan is designed to balance the long-term resource management of the Coyote Creek Parkway (Parkway) corridor with recreational uses that directly reflect the mission and vision of the SCCPRD. This plan depicts, over a 20-year period, how the Parkway can be managed to provide a quality outdoor recreation experience while also enhancing the habitat for special status species, providing and improving ecological functions of Coyote Creek, including flood protection, and maintaining a riparian forest along Coyote Creek (SCCPRD 2007). Key goals related to this section are listed below.

Goal NRM-1 Restore a functional floodplain along Coyote Creek, to the greatest extent practical, to allow for stable hydro-geomorphic processes beneficial to the preservation of a sustainable riparian habitat corridor

Goal NRM-2 Preserve, and where appropriate, enhance hydrologic connectivity through the creek channel, riparian habitat corridor, and adjacent natural areas

Goal NRM-3 Encourage the Santa Clara Valley Water District's management of the Parkway's creek and ground water resources to maintain and enhance native biodiversity.

Goal NRM-4 Preserve, and where appropriate, enhance a continuous, multi-tiered riparian habitat corridor with dynamic physical processes that promotes native biodiversity and supports threatened and endangered species.

City of Morgan Hill 2023 General Plan

The City of Morgan Hill 2035 General Plan (City of Morgan Hill 2017 ~~2016~~) contains the following goals and policies relevant to hydrology and the Project:

Natural Resources and Environment

Goal NRE-5: Preservation and reclamation of streams and riparian areas as open space.

Policy NRE-5.2: Other Agencies and Environmental Review. Coordinate with jurisdictional agencies, as required, as part of the environmental review process for development projects.

Policy NRE-5.3: Natural State of Streamside and Riparian Areas. Retain natural streamside and riparian areas in their natural state in order to preserve their value as percolation and recharge areas, natural habitat, scenic resources, and recreation corridors, and to stabilize banks. (South County Joint Area Plan 15.08).

Policy NRE-5.5: Flood Control Projects. Where flood control projects are needed to protect existing development, minimize disruption of streams and riparian systems, maintaining slow flow and stable banks through design and other appropriate mitigation measures. (South County Joint Area Plan 15.08)

Policy NRE-5.6: Stream Channel Protection. Protect existing stream channels and riparian vegetation by requiring buffering or landscaped setbacks and storm runoff interception as specified in **Table NRE 1** and consistent with the Santa Clara Valley Habitat Plan.

Table NRE 1 Required Stream Setback Distances

Slope	Category 1 Streams (Water Present Year-Round During Normal Rain Years)		Category 2 Streams (Water Present During the Wet Season Only During Normal Rain Years)
	Inside Urban Service Area	Outside Urban Service Area	Inside/Outside Urban Service Area
0-30%	100 feet	150 feet	35 feet
>30%	150 feet	200 feet	

Safety, Services, and Infrastructure

Goal SSI-5: The least possible damage to persons and property from flooding.

Policy SSI-5.2: Private Development in Flood-Prone Areas. If development is allowed in flood-prone areas, provide flood control facilities or appropriate flood-proofing prior to or in conjunction with development at developers' expense. (South County Joint Area Plan 12.05)

Policy SSI-5.9: Riparian Natural Functions. Restore and maintain the natural functions of riparian corridors, creeks, and channels to reduce flooding, convey stormwater flows, and improve water quality.

Policy SSI-5.10: Development along Reservoirs. Limit development along the shores of reservoirs which can be expected to sustain damage from seismically-induced seiche waves. (South County Joint Area Plan 15.6)

Policy SSI-5.11: New Development in Dam Inundation Areas. Consider risk of dam inundation in new development proposals within the Anderson, Chesbro, and Coyote dam inundation areas.

Goal SSI-6: Adequate, safe, and environmentally responsible drainage and flood control.

Policy SSI-6.1: Flood Control Projects. Minimize disruption of natural riparian areas by flood control projects needed to protect presently existing development by maintaining slow flow and stable banks through design and other appropriate mitigation measures. (South County Joint Area Plan 15.08)

Policy SSI-6.3: Existing and Planned Development. Areas which are developed or planned for development should be protected by the construction of flood control facilities. (South County Joint Area Plan 12.00)

Policy SSI-6.5: Flood Risks. Work with the Santa Clara Valley Water District and other agencies with the responsibility for flood protection to reduce flooding risks in Morgan Hill.

Policy SSI-6.6: Flood Management Design. Encourage flood management designs that respect the natural topography and vegetation of waterways while retaining dynamic flow and functional integrity.

Policy SSI-6.8: Increased Capacity. Encourage increased stormwater and flood management infrastructure capacity in order to accommodate changes in climate, precipitation, and extreme weather events.

Goal SSI-16: Minimized adverse effects on property, natural resources, and ground and surface water quality from stormwater runoff.

Policy SSI-16.2: Drainage System Capacity. Ensure that the level of detention or retention provided on the site of any new development is compatible with the capacity of the regional storm drainage system.

Policy SSI-16.3: Stormwater Management Plans. Require a storm water management plan for each proposed development, to be presented early in the development process and describe the design, implementation, and maintenance of the local drainage facilities. (South County Joint Area Plan 13.03)

Envision San José 2040 General Plan

The Envision San José 2040 General Plan (City of San José <u>2023</u> ~~2011~~) contains the following goals and policies related to hydrology and the Project:

Goal ER-8: Minimize the adverse effects on ground and surface water quality and protect property and natural resources from stormwater runoff generated in the City of San José.

Policy ER-8.1: Manage stormwater runoff in compliance with the City's Post-Construction Urban Runoff (6-29) and Hydromodification Management (8-14) Policies.

Policy ER-8.4: Assess the potential for surface water and groundwater contamination and require appropriate preventative measures when new development is proposed in areas where storm runoff will be directed into creeks upstream from groundwater recharge facilities.

Goal ER-9: Protect water resources because they are vital to the ecological and economic health of the region and its residents.

Policy ER-9.1: In consultation with [SCVWD], other public agencies and the SCVWD's Water Resources Protection Guidelines and Standards (2006 or as amended), restrict or carefully regulate public and private development in streamside areas so as to protect and preserve the health, function and stability of streams and stream corridors.

Goal EC-5: Protect the community from flooding and inundation and preserve the natural attributes of local floodplains and floodways.

Policy EC-5.2: Allow development only when adequate mitigation measures are incorporated into the project design to prevent or minimize siltation of streams, flood protection ponds, and reservoirs.

Policy EC-5.3: Preserve designated floodway areas for non-urban uses.

Policy EC-5.8: Cooperate with the Santa Clara Valley Water District to develop and maintain additional flood protection retention facilities in areas where they are needed or where the design capacity of existing retention facilities cannot be restored.

Policy EC-5.10: Encourage the preservation and restoration of urban creeks and rivers to maintain existing floodplain storage. When in-channel work is proposed, engineering techniques which include the use of plant materials (bio-engineering) are encouraged.

Policy EC-5.11: Where possible, reduce the amount of impervious surfaces as a part of redevelopment and roadway improvements through the selection of materials, site planning, and street design.

Policy IN-3.8: In designing improvements to creeks and rivers, protect adjacent properties from flooding consistent with the best available information and standards from [FEMA] and [DWR]. Incorporate restoration of natural habitat into improvements where feasible.

Santa Clara Valley Water District Water Resources Protection Ordinance

The Water Resources Protection Ordinance was adopted by a Water Resources Protection Collaborative made up of representatives from Valley Water, cities and towns within the county, the Guadalupe-Coyote Resource Conservation District, the San Francisco Bay RWQCB, and various community stakeholder interests. Its purpose is to protect the water resources managed by Valley Water by providing a set of model guidelines and standards for land use along stream corridors and regulating access to and use of Valley Water's facilities and easements (Valley Water 2010). Valley Water uses its *Water Resources Protection Manual* (Valley Water 2006) to administer the Water Resources Protection Ordinance.

Santa Clara Valley Water District Freeboard Standards

Freeboard is a safety factor expressed in feet above a known flood elevation intended to take unknown factors that could contribute to flood heights that are greater than the height calculated for a given size flood. Valley Water's freeboard requirements for flood protection projects and bridge crossings are contained in its *Water Resources Protection Manual* (Valley Water 2006). Valley Water's freeboard requirements are based on a combination of FEMA guidelines, NRCS guidelines, and USACE guidelines. Valley Water's minimum freeboard requirements are shown below in **Table 3.11-3**.

Table 3.11-3. Minimum Freeboard Requirements

Design Water Surface Elevation/Other Considerations	Freeboard Requirements
A. Project design water surface elevation is *above* the natural ground surface. (*including* where levees/floodwalls raise the predicted water surface elevation to above that of the surrounding floodplain)	1. Levees shall have a minimum of 3 feet of freeboard with an additional foot of freeboard required 100 feet of either side of the structures that are within the leveed section of creek or where the flow is constricted such as at bridges. An additional half-foot above the minimum at the upstream end of the levees is also required. To comply, a minimum of 3.5 feet of freeboard should be used within leveed sections and 4 feet within 100 feet of bridges or other constrictions (based on FEMA guidelines).
	2. Floodwalls should use the same freeboard criteria as for levees (Valley Water guideline).
	3. If two-tenths of the specific energy (depth of flow + [$v^2/2g$]) is greater than the freeboard requirement of (1) or (2) above, then the computed value shall be used for freeboard (based on NRCS guidelines).
B. Project design water surface is *below* the natural ground surface. (*excluding* where levees/floodwalls raise the predicted water surface elevation to above that of the surrounding floodplain)	1. One foot of freeboard shall be used for constructed, non-natural channels where large amounts of vegetation are not anticipated in the channel (USACE guideline).
	2. For all channels, if two-tenths of the specific energy is greater than the freeboard requirement of (1) above then the computed values shall be used for freeboard (NRCS guideline).
C. At bridges	1. At new bridges, freeboard shall be the same as in the existing or proposed channel either upstream or downstream whichever is greater. When the bridge structure encroaches into the freeboard area, there shall not be an increase in water surface for bank full flow. The intent is to define a system (bridge and channel) with a uniform level of protection (Valley Water guideline).
	2. Where an existing bridge or culvert can convey the design flow under pressure, it must be structurally sound and must be able to resist the resultant lateral and uplift forces (Valley Water guideline).
D. Other freeboard considerations	1. Evaluate all bridges with debris loads on the piers. Suggest USACE practice of three times pier diameter as blockage.
	2. Freeboard should also contain the flow defined by the 80 percent confidence limit statistical parameter where practical to do so.
	3. All channels with super-critical flow will use sequent (subsequent) depth plus freeboard.
	4. All channels will include freeboard for super-elevation of water surface at curves in addition to requirements specified above.
	5. In areas of the County where there is the possibility of continued land surface subsidence, additional freeboard allowances should be considered.

Source: Valley Water 2006

3.11.3 Methodology and Approach to Impact Analysis

The impact analysis considers the potential impacts on hydrology from the Project pursuant to the applicable significance criteria in Appendix G of the *CEQA Guidelines* (see Section 3.11.3.8). Specifically, the impact analysis considers the effects of Seismic Retrofit ~~construction,~~ and Conservation Measure construction~~,~~ and construction monitoring, and Seismic Retrofit and Conservation Measures post-construction operations, maintenance, ~~and~~ monitoring, and post-construction Project and FAHCE Adaptive Management. With respect to Conservation Measures, the analysis considers the effects of these measures both in terms of reducing the potential adverse effects of the Seismic Retrofit components of the Project on hydrology, as well as in potentially creating any adverse effects of their own.

To the extent possible, quantitative methods are used and effects are discussed quantitatively. However, in many cases, the potential effects cannot be quantified and are discussed in a qualitative manner. The analysis of erosion and sediment transport, in particular, relies on quantitative modeling, as documented in two memorandums *Sediment Transport Modeling Memorandum,* Valley Water 2020c; *Update to April 30, 2021 Memo on Sediment Deposition in Coyote Creek above Ogier Ponds and Discharge to Estuary,* URS 2023), which are included in Appendix K to this EIR. Additionally, the analysis utilizes a technical study of potential flooding impacts (*Potential Flood Impacts for ADSRP Memorandum*, Valley Water 2023b ~~2022b~~), which is also included in Appendix K. Generally, the potential effects of the Project are first discussed without implementation of applicable Valley Water BMPs and compliance with VHP conditions and AMMs (see Section 3.11.3.7) and applicable regulations; then, the analysis considers how implementation of BMPs and compliance with VHP conditions and AMMs and other regulations would reduce those potential adverse effects. If effects remain significant after implementation of BMPs and compliance with VHP conditions and AMMs and other regulations, then mitigation measures are prescribed, if feasible, to reduce those effects to a level that is less than significant.

As discussed further below, separate baselines are used due to the nature of the Project and the different types of effects. Generally, for analyzing construction-related effects, the existing conditions baseline is used, which represents the environmental conditions that exist at the time of EIR preparation modified by the FOCP. Construction effects may also be compared to historical (e.g., prior to 2020 Pre-FERC Order) conditions. For analyzing flow-related operation effects, the Pre-FERC Order baseline is used.

3.11.3.1 Seismic Retrofit Construction

The analysis considers all potential effects of the Seismic Retrofit construction on hydrology. Construction of the Seismic Retrofit components of the Project is planned to occur over a 7-year duration, as described in Chapter 2, and the timing of specific activities with respect to the overall construction schedule is considered in the impact analysis. Of most relevance for the hydrology analysis, Seismic Retrofit construction would include dewatering of the reservoir and the downstream effects of exposing the formerly inundated lake bottom to potential erosion. Seismic Retrofit construction would also include ground disturbance associated with access roads construction, staging areas, borrow areas, stockpile areas, and dam construction work areas. As noted above, the analysis of erosion and sediment transport during Seismic Retrofit construction relied on quantitative studies for the Project, as documented in memorandums

(Valley Water 2020c, URS 2023) included in Appendix K to this EIR. Potential flooding impacts associated with reservoir releases during Seismic Retrofit construction are analyzed utilizing a technical study, as documented in a memorandum (Valley Water 2023b ~~2022b~~), also included in Appendix K. As noted above, the baseline for analysis of impacts from Seismic Retrofit construction is the existing conditions after FOCP baseline.

3.11.3.2 Conservation Measures Construction

The analysis considered the construction of Conservation Measures component is separate from the Seismic Retrofit components of the Project. The Conservation Measures that would be included as part of the Project are described in Chapter 2, *Project Description*, and those involving construction activities are analyzed in this section. These include the following:

- Ogier Ponds CM
- Maintenance of the North Channel Reach ~~Extension~~
- Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach
- Sediment Augmentation Program
- Phase 2 Coyote Percolation Dam CM

While these Conservation Measures would generally serve to minimize the potential effects of the Project (e.g., on biological resources and groundwater), construction of some of the Conservation Measures could result in impacts as well. The baseline for analysis of impacts from construction of the Conservation Measures is the existing conditions (after FOCP) baseline.

3.11.3.3 Construction Monitoring

The impact analysis also considered the effects of construction monitoring activities with respect to hydrology. The construction monitoring efforts that would be employed during Project construction are listed and described in **Table 2-1** in Chapter 2, *Project Description,* and include a variety of water quality and biological resources monitoring activities. Similar to the Conservation Measure components, construction monitoring activities would generally serve to avoid or reduce potential impacts of the Project on environmental resources. Nevertheless, some monitoring activities themselves could potentially result in impacts of their own and this was analyzed in the section.

3.11.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

The analysis considers the potential effects of activities during the post-construction phase of the Project for Anderson Dam facilities. This includes implementation of the updated FAHCE rule curves for operation of Anderson Reservoir, in accordance with the Coyote Creek FHRP pursuant to the FAHCE *Settlement Agreement*, as well as maintenance of Anderson Dam facilities (e.g., outlet works) Maintenance of Anderson Dam facilities would be conducted under the DMP. As part of the evaluation, the analysis considers the potential effects due to the net increase of approximately 2.14 acres of impervious surface as a result of the Project. The analysis of potential flooding impacts uses two technical studies (Valley Water 2023b, 2023c), which are included in Appendix K of this EIR. The baseline for the post-construction effects analysis is the Pre-FERC Order Conditions Baseline.

3.11.3.5 Post-Construction Conservation Measures Operations and Maintenance

The analysis considers the potential effects of activities during the post-construction phase of the Project for the Conservation Measures. This includes operation and maintenance of the Conservation Measures. The baseline for the post-construction effects analysis is the Pre-FERC Order Conditions Baseline.

The Ogier Ponds CM would widen and separate Coyote Creek from the Ogier Ponds by a weir and berms. Eliminating creek flow through the ponds under general conditions via the creek pond separation project is a key element of benefiting steelhead. The spillway structure would be designed to divert flows from the restored channel to the ponds to protect the integrity of the channel when flows exceed 2,000 cfs. Water in the ponds would be generally maintained by groundwater seepage. Creek flows through the ponds would only occur via operation of spillway. High flows would flow into Pond 2 through spillway, then travel through Ponds 3 and 4, until flows exit Pond 4 and flow back into the creek via a culvert that will have fish screens to prevent predation. Monthly inspections would be conducted to monitor water quality in the ponds. Maintenance of Ogier Ponds would include vegetation management, vegetation restoration, and inspection and repair of the berms, weirs, vegetation and habitat enhancement, and erosion protection.

The North Channel Extension, constructed as part of FOCP, would accept most flows discharged from Anderson Reservoir. Maintenance of the North Channel Reach ~~Extension component~~ would include maintenance of the wetland bench, maintenance of the design flow capacity, and replacing restoration plantings. ~~removal of debris or vegetation from the channel, and possibly dewatering and grading the channel, if necessary, so that the channel maintains positive drainage.~~

The sediment augmentation program would include initial placement of 500 cy of sediment at the Live Oak Restoration Reach following Project construction, and continued inspection and placement of additional gravel/sediment, ~~ranging from 5~~ in an amount up to 500 CY every 5 years during adaptive management, as needed to support and maintain steelhead habitat throughout Coyote Creek.

The Phase 2 Coyote Percolation Dam CM would provide improved fish passage over the Coyote Percolation Dam. Within 13 months of completion of the Phase 2 Coyote Percolation Dam design (completion of design anticipated ~~in~~ prior to Year 1 ~~4~~), Valley Water will prepare a Phase 2 Coyote Percolation Dam Operations Plan in coordination with the regulatory agencies. The objectives of the Operations Plan will be to continue to provide sufficient groundwater recharge, while improving conditions for smolt migration. Maintenance would include periodic removal of sediment, vegetation management, repair of rock slope protection, and replacement of any in-channel bio-engineered habitat enhancements, as needed.

Within the Live Oak Reach, maintenance would include vegetation management and replacement of any in-channel bio-engineered habitat enhancements, as needed.

In-stream maintenance activities for the Conservation Measures would be conducted consistent with Valley Water's existing SMP, which includes BMPs and avoidance and minimization measures to minimize potential impacts to water quality.

3.11.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of project flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys).

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those of the original Conservation Measure construction.

Impacts of AMP monitoring and adaptive actions are considered here at a programmatic level, because the detailed characteristics, timing, and/or locations of the proposed adaptive measures are not known at the time of EIR preparation. Project-specific CEQA review would be undertaken in the future as necessary when specific projects are proposed and project-specific details are available.

3.11.3.7 Applicable Best Management Practices and VHP Conditions

Valley Water BMPs and VHP conditions and AMMs incorporated into the Project are described in Appendix A. Measures applicable to hydrology are listed below and described in the impact discussions as applicable.

- **AQ-1:** Use Dust Control Measures
- ~~**HM-7:** Restrict Vehicle and Equipment Cleaning to Appropriate Locations~~
- **HM-8**: Ensure Proper Vehicle and Equipment Fueling and Maintenance
- **HM-9**: Ensure Proper Hazardous Materials Management
- **HM-10**: Utilize Spill Prevention Measures
- **WQ-1:** Conduct Work from Top of Bank
- **WQ-2:** Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
- **WQ-4:** Limit Impacts from Staging and Stockpiling Materials

- **WQ-5:** Stabilize Construction Entrances and Exits
- **WQ-8:** Minimize Hardscape in Bank Protection Design
- **WQ-9:** Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
- **WQ-10:** Prevent Scour Downstream of Sediment Removal
- **WQ-11:** Maintain Clean Conditions at Work Sites
- **WQ-16:** Prevent Stormwater Pollution
- **VEG-1**: Minimize Local Erosion Increase from In-channel Vegetation Removal
- **BANK-1**: Bank Stabilization Design to Prevent Erosion Downstream
- **BANK-3:** Bank Stabilization Post-Construction Maintenance
- **REVEG-1**: Seeding

Additionally, the following VHP conditions would serve to minimize impacts on hydrology from the Project ~~(refer to Appendix A for the full text of VHP conditions)~~:

- <u>Condition 3: Maintain Hydrologic Conditions and Protect Water Quality</u>
- <u>Condition 4: Avoidance and Minimization for In-Stream Projects</u>
- <u>Condition 5: Avoidance and Minimization Measures for In-Stream Operations and Maintenance</u>
- <u>Condition 7: Rural Development Design and Construction Requirements</u>
- <u>Condition 11: Stream and Riparian Setbacks</u>
- <u>Condition 12: Wetland and Pond Avoidance and Minimization</u>

<u>Additionally, the following VHP AMMs related to conditions 3, 4, and 5 would serve to minimize impacts on hydrology from the Project:</u>

2: Remove pollutants from surface runoff

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

7: 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

9: Personnel shall implement measures to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means when removing sediments from streams

11: Vehicles shall be washed at approved areas

12: No equipment servicing shall be done in the stream channel or immediate floodplain

13: Personnel shall use the appropriate equipment for the job that minimizes disturbance to the stream bottom

16: When work in a flowing stream is unavoidable, the entire streamflow shall be diverted around the work area by a barrier, except where it has been determined by a qualified biologist that the least environmentally disruptive approach is to work in a flowing stream

17: Install cofferdams both upstream and downstream not more than 100 feet from the extent of the work areas

20: Diversions shall maintain ambient stream flows below the diversion, with no reduction or degradation

21: If stream bed design changes are not part of the project, the stream bed will be returned to as close to pre-project condition as appropriate

22: Remove all temporary diversion structures and the supportive material no more than 48 hours after work is completed

23: Temporary fills, such as for access ramps, diversion structures, or cofferdams, shall be completely removed upon finishing the work

24: To prevent increases in temperature and decreases in dissolved oxygen (DO), properly size bypass pipes or use a low-flow channel.

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

30: Vegetation control and removal in channels, on stream banks, and along levees and maintenance roads shall be limited

31: When conducting vegetation management, retain as much understory brush and as many trees as feasible

32: The top of the bank shall be protected by leaving vegetation in place to the maximum extent possible

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

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

44: Maintain natural stream characteristics, such as riffle-pool sequences, riparian canopy, sinuosity, floodplain, and a natural channel bed

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

51: All projects will be conducted in conformance with applicable County and/or city drainage policies

52: Adhere to the siting criteria described for the borrow site covered activity

53: When possible, maintain a vegetated buffer strip between staging or excavation areas and receiving waters

55: For stream maintenance projects that result in alteration of the stream bed during project implementation, its low-flow channel shall be returned to its approximate prior location with appropriate depth for fish passage without creating a potential future bank erosion problem

56: Bank stabilization site design shall consider hydraulic effects immediately upstream and downstream of the work area

61: Minimize ground disturbance to the smallest area feasible

62: Use existing roads for access and disturbed area for staging as site constraints allow

63: Prepare and implement sediment erosion control plans

64: No winter grading shall occur 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

66: Control sediment runoff using sandbag barriers or straw wattles

67: No stockpiling or placement of erodible materials shall occur in waterways or along areas of natural stormwater flow

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: 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

73: Avoid wet season construction

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

82: Channel bed temporarily disturbed during construction activities will be returned to pre-project or ecologically improved conditions at the end of construction

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 onsite

87: Vehicles operated within and adjacent to streams will be checked and maintained daily to prevent leaks

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

93: When accessing upland areas adjacent to riparian areas or streams, access routes on slopes > 20 percent should generally be avoided

94: Personnel shall use existing access ramps and roads if available

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

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

102: Immediately after project completion and before close of seasonal work window, stabilize all exposed soil

103: All disturbed soils will be revegetated with native plants and/or grasses or sterile nonnative species

104: Measures will be utilized on site to prevent erosion along streams

108: When reaches require sediment removal, approaches will be considered that may reduce the impacts of the activity. Examples of potential approaches include phasing of removal activities or only removing sediment along one half of the channel bed, allowing the other half to remain relatively undisturbed.

111: If bank failure occurs due to debris blockages, bank repairs will use compacted soil and reseeding with native/sterile nonnative plants

113: The channel bottom shall be re-graded at the end of the work project to as close to original conditions as possible

114: Erosion control methods shall be used as appropriate during all phases of routine maintenance projects to control sediment and minimize water quality impacts.

3.11.3.8 Thresholds of Significance

For the purposes of this EIR, the Project is considered to have a significant impact on hydrology[1] if it would:

- **HYD-1:** 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:
    1. Result in substantial erosion or siltation on- or off-site.
    2. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.
    3. 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.
    4. Impede or redirect flood flows.
- **HYD 2:** Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of dam failure.
- **HYD 3:** In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

[1] Note that thresholds from CEQA Guidelines Appendix G related specifically to water quality are addressed in this DEIR in Section 3.14, Water Quality, while thresholds related to groundwater are addressed in Section 3.12, Groundwater.

3.11.4 Impact Analysis

Impact HYD-1: 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 ~~matter~~ which would:

i. ***Result in substantial erosion or siltation on- or off-site*** **(Significant and Unavoidable)**

Seismic Retrofit Construction

Construction of the Seismic Retrofit components of the Project could potentially cause substantial erosion or siltation on- or offsite. The different mechanisms, or processes, by which these effects could occur are discussed below.

Reservoir Dewatering and Runoff Through In-Reservoir Areas Not Disturbed During Construction

With Anderson Reservoir at deadpool at the end of the FOCP, it would then be lowered at the start of the Project, flows into the reservoir would be directly passed through downstream to Coyote Creek, capped at the capacity Stage 1 Diversion System (2,500 cfs) for Years 1 and 2 and the Stage 2 Diversion System (6,000 cfs) for Years 3 through 7. During the summer releases of ~~0 to 17~~ 1 to 65 cfs would be made from Coyote Reservoir depending on available storage, which would pass through Anderson Reservoir. Flow through Anderson Reservoir would be supported by imported water discharges to Coyote Creek with the goal of keep the channel wetted through the FCWMZ, which requires releases of approximately ~~8~~ 5 to 10 cfs. In addition, releases would be made from the Cross Valley Pipeline Extension downstream of Ogier Ponds to support in-stream recharge and recharge in Coyote Percolation Pond, and to meet the flow requirement through the Coyote Percolation Pond fish ladder (~~7.5~~ between 2.5 and 25 cfs) and at Edenvale gage (2.5 cfs mean daily flow and 1 cfs minimum flow).

The reservoir dewatering activities during Seismic Retrofit construction would change the drainage patterns by exposing new areas on the bed of the reservoir that had been previously inundated. Following implementation of the FOCP, the reservoir water level would remain at deadpool. During Seismic Retrofit construction, the reservoir water level will be further lowered ~~another 21 feet~~ to elev. 450 ~~467~~ feet during Year 1~~, and then lowered another 17 feet to elev. 450 feet during Year 2~~. Following cofferdam and reservoir bypass pipe construction (occurring in Year 2), the reservoir would be maintained at elev. 450 feet during Years 2 and 3. The reservoir would be filled to elev. 556 feet in Year 4, elev. 556 feet in Year 5, and elev. 657 feet in Year 6. 453 feet during Years 3, 4, 5, and 6. All flows into the reservoir would be discharged through the Stage 2 Diversion System. A pool of water would be held behind the cofferdam (which would have a capacity of 500 AF), but the water level would fluctuate based on inflow and time of year. During the wintertime, or once flows are too high to be accommodated by the bypass pipe, the bypass pipe would be closed and water would flow over the top of the cofferdam and discharge directly to the Stage 2 Diversion System intake structure.

The dewatering of the reservoir will allow runoff water (e.g., generated by precipitation in the watershed upstream of the reservoir during the wet season) to flow over and through deposited sediment in previously inundated areas along the reservoir bed. Though there is some degree of compaction and cohesion in the reservoir sediment beds, once exposed to direct runoff sediment would be susceptible to erosion (displacement and removal) and then transport (conveyance downstream) to Coyote Creek. The ability for runoff to erode and transport the reservoir bed sediments reflects a balance of driving forces, including the force, magnitude, and duration of the runoff, with the resistant forces of the sediment including its mass, texture, and cohesion. Flows that can erode and entrain sediment in the water column will carry the sediment downstream. This will generally apply to finer sediments that are carried in suspension versus larger and coarser grained sediment which would be transported along the bed of the lake as bedload. Most of the sediment deposited in the deadpool storage of the reservoir is considered fine textured and more available to be transported as suspended sediment (Valley Water 2020c).

In addition to making more sediment available to be transported, with the reservoir at deadpool at the end of the FOCP and storage level lowered during the Project, the reservoir would have less buffer to capture sediment. Although coarse sediment would settle in the deadpool, not all fine sediment would have time to settle in the limited storage before passing downstream of the dam. During the Project, when storage is lowered further, the reservoir would have even less ability to capture sediment, and there would be greater possibility of erosion of the exposed reservoir bed, with the likely result of a greater volume of sediment being discharged downstream.

Modeling of reservoir hydrological conditions during Seismic Retrofit construction showed that substantial volumes of sediment could be mobilized and transported downstream during storms that occur while the reservoir is in a dewatered state (Valley Water 2020c). Preliminary FOCP monitoring of suspended sediment concentrations suggests that the modeling slightly overestimated suspended sediment concentrations and therefore adverse suspended sediment impacts described below may be overestimated (Stillwater Sciences 2024). Somewhat counter-intuitively, very large storms may be less problematic with respect to sediment mobilization/transport since a very large runoff event (e.g., greater than 2- or 5-year events) will fill the reservoir, thereby reducing the amount of erosion that occurs from water passing directly over and through exposed sediments in the lakebed. Additionally, while larger, less frequent storms may generate larger amounts of erosion from the upstream watershed and sediment loads into the reservoir, this sediment would likely be deposited in the reservoir pool, which reduces sediment loads and TSS concentrations downstream (Valley Water 2020c). By contrast, smaller storm events may allow runoff flows to pass through the reservoir without filling it, and thereby carry sediment already suspended in the water column from upstream flows or potentially entrain and carry additional fine sediment from the reservoir bed.

Two sediment transport scenarios (numbered Scenarios 3 and 4) were modeled to better understand these processes potentially occurring under the seismic retrofit construction, as documented in the *Sediment Transport Modeling Memorandum* (Valley Water 2020c) (see Appendix K), and summarized in **Table 3.11-4** below:

Table 3.11-4. Reservoir Conditions Considered in Sediment Transport Model

Scenario[1, 2]	Elevation in Reservoir	Outlet	No. of Years
3	450	Existing with ADTP low level restricted to 2,000 cfs	0.25
4	467	Project Diversion	4

Source: Valley Water 2020c

Notes:

[1] Scenarios 1 and 2 pertain specifically to the ADTP (not Project), and thus are not presented here.

[2] Scenario 3 is also used as a proxy for the shoulder seasons during Project when flows up to 1,000 cfs could pass directly into the diversion system at elev. 450 through a diversion extension pipe from upstream of the cofferdam. The diversion extension pipe would be closed in late fall ahead of significant storms and reopened in the spring when the potential for significant storms is past.

Scenario 3 represents the conditions that would exist following complete dewatering (to elev. 450 feet) but before the cofferdam has been constructed. Under this condition, which would only last for approximately 3 months, the reservoir will be drained and there will be no pool of water for suspended sediment to settle in (Valley Water 2020c). The analysis simulated a constant inflow rate plus two storm events (a 2-year event and one-half of the 2-year event) for this scenario. Scenario 4 is expected to last 4 years while the dam excavation and reconstruction is occurring, following cofferdam construction. Under the cofferdam scenario, a small pool will be maintained through each of the four precipitation seasons. Constant inflow and two storm events (2- and 5-year events) were simulated for the cofferdam scenario in Years 3 through 6.

The results of the sediment transport modeling with respect to TSS concentrations released from the reservoir and observed downstream in Coyote Creek are shown in **Table 3.11-5.** With respect to sediment erosion/mobilization within the reservoir, several trends were observed in all the runs (Valley Water 2020c). Most erosion occurred at the beginning of the storm events when the flows were high but before the reservoir level rose to a point high enough to flood the north and south reservoir arms. After the flooding of these areas, there was little erosion because the erodible sediments were inundated by the rising reservoir water level. The TSS concentration in the reservoir then decreased as the sediment settled in the reservoir (Valley Water 2020c).

Table 3.11-5. Peak Total Suspended Solids Results Summary

		Peak Total Suspended Solids Concentrations at Locations Along Coyote Creek (mg/L)				
Scenario	Flow Event	Released from Reservoir	Upstream of Ogier Ponds	Downstream of Metcalf Ponds	Near Upper Penitencia Creek Confluence	At Milpitas
3	Constant Inflow	5,200	4,854	2,383	3,060	2,503
	2-year Inflow	39,140	32,492	18,117	16,055	30,617
	½ of 2-year Inflow	8,308	7,457	4,038	4,060	4,079

Scenario	Flow Event	Peak Total Suspended Solids Concentrations at Locations Along Coyote Creek (mg/L)				
		Released from Reservoir	Upstream of Ogier Ponds	Downstream of Metcalf Ponds	Near Upper Penitencia Creek Confluence	At Milpitas
4	Constant Inflow	290	290	290	87	130
	2-Year Inflow	30,470	26,437	18,145	16,521	16,547
	5-Year Inflow	25,030	13,711	13,711	13,159	13,177

Source: Valley Water 2020c

Key: mg/L = milligrams per liter

As shown in **Table 3.11-5**, the highest TSS levels released from the reservoir (39,140 mg/L) were observed under Scenario 3 during the 2-year storm event inflow. The TSS levels associated with this simulation generally attenuated as one moves downstream as some of the suspended sediment is expected to settle out and deposit into the streambed or in ponds along the flow path, with the exception that TSS concentrations increased back to 30,617 mg/L at Milpitas for Scenario 3, however the reservoir contributions for that peak were estimated to be approximately 18,000 mg/L. TSS levels released from the reservoir were reduced for Scenario 3 under both the constant inflow (5,200 mg/L) and one-half of the 2-year storm event inflow (8,308 mg/L) model runs. The 2-year event inflow simulation also produced the highest TSS levels under Scenario 4. As can be seen in **Table 3.11-5**, during the 2-year event, the peak TSS concentrations were 30,470 mg/L in water released from the reservoir, while the concentrations generally decreased further downstream to 16,521 mg/L near the Upper Penitencia Creek confluence, before increasing slightly to 16,547 mg/L at Milpitas. The TSS concentrations were much lower during the constant inflow model run under Scenario 4 (290 to 87 mg/L), but still quite elevated during the 5-year storm event (25,030 to 13,159 mg/L).

As part of sediment transport modeling, the mass of sediment deposition occurring throughout Coyote Creek was estimated under the different scenarios and storm events/inflow parameters. Most of the sediment would be expected to deposit in the Ogier Ponds (a historical gravel mine) and the Metcalf Ponds (which includes a Valley Water groundwater recharge facility), since the water flow slows down substantially at these locations due to both a reduction in slope and an increase in the channel/pond cross-sectional area. The ability for water to entrain sediment decreases directly with a reduction in velocity. As flow velocity decreases the TSS in the water column would have a chance to settle out and deposit on the pond bottom, very much like the sediments had deposited along the reservoir previously. The results of the sediment deposition modeling for Ogier and Metcalf ponds are shown in **Table 3.11-6**.

Table 3.11-6. Sediment Deposition in Ogier and Metcalf Ponds

Scenario	Flow Conditions	Mass of Deposition (Tons)		Depth of Deposition (Inches)	
		Ogier Ponds	Metcalf Ponds	Ogier Ponds	Metcalf Ponds
3	Constant – 180 cfs	1,164[1]	146[1]	0.1[1]	0.0[1]
	2-year event	27,941	1,160	3.4	0.2
	½ of 2-year event	7,996	1,551	1.0	0.3
4	Constant – 180 cfs	170[1]	1[1]	0.02[1]	<0.01[1]
	2-year event	21,811	1,413	2.6	0.3
	5-year event	27,656	2,450	3.3	0.5

Source: Valley Water 2020c

Notes:

[1] For the constant release scenarios, deposition was calculated as a rate per day.

Key: cfs = cubic feet per second

The greatest amount of sediment deposition is estimated to occur under Scenario 3 during the 2-year storm event at Ogier Ponds (27,941 tons or 3.4 inches). However, this is only slightly greater than what is expected to occur at Ogier Ponds under Scenario 4, the 5-year event (27,656 tons or 3.3 inches). In general, much more sediment would deposit in Ogier Ponds compared to Metcalf Ponds under all scenarios and flow conditions, which makes sense given that the Metcalf Ponds are further downstream from Anderson Dam (10 miles) compared to Ogier Ponds (4 miles).

With respect to the potential for sediment deposition in the reaches of Coyote Creek between the reservoir and Ogier Ponds/Metcalf Ponds, modeling found that there would generally be a net loss in sediment within Coyote Creek below Anderson Dam. These results suggest that the reaches of Coyote Creek downstream of the dam but upstream of Ogier Ponds and Metcalf Ponds do not favor deposition but maintain transport conditions. **Table 3.11-7** shows the results of this analysis.

Table 3.11-7. Erosion and Deposition in Coyote Creek

Scenario	Flow Conditions	Between Anderson Dam and Ogier Ponds			Between Ogier and Metcalf	Between Metcalf and Estuary
		Erosion (tons)	Dep. (tons)	Net Dep. (tons)	Net Dep. (tons)	Net Dep. (tons)
3	Constant – 180 cfs	-183	136	-47	-95	-40
	2-year event	-6,816	4,931	-1,885	-2,768	14,123
	½ of 2-year event	-4,121	3,031	-1,090	-1,992	14,293
4	Constant – 180 cfs	-156	143	-13	-80	10
	2-year event	-6,819	4,959	-1,860	-2,420	14,449
	5-year event	-9,615	6,825	-2,789	-4,746	14,244

Source: URS 2023

As shown in **Table 3.11-7**, in the reach of Coyote Creek between Anderson Dam and Ogier Ponds, rates of erosion are expected to exceed rates of deposition during the flow conditions studied. This results in an overall net loss of sediment for the reach. As described in the *Update to April 30, 2021 Memo on Sediment Deposition in Coyote Creek above Ogier Ponds and Discharge to Estuary* (URS 2023), the Coyote Creek hydraulic and sediment transport model was defined by a series of unevenly spaced channel cross-sections. At each cross-section, hydraulic results (e.g., velocity, depth) and sediment results (e.g., suspended sediment concentration, sediment loads) were calculated (URS 2023). The net erosion and deposition of sediment within a creek reach is calculated as the difference in sediment load passing a section above and below the reach of interest. This method provides the net deposition (or erosion) within the reach though both erosion and deposition could occur at different locations within the reach (URS 2023).

During Seismic Retrofit construction, the rate of erosion in reaches of Coyote Creek downstream of Anderson Dam would be increased due to the higher flows enabled by the Stage 1 Diversion System and Stage 2 Diversion System, relative to the historical outlet capacity. While substantial deposition would occur in Ogier Ponds (refer to **Table 3.11-6**), in the reach between Ogier Ponds and Metcalf Ponds (see **Table 3.11-7**), there would also be a net loss of sediment due to the elevated erosion rates, thereby counteracting the depositional processes. Downstream of Metcalf Ponds, between the ponds and the estuary, net positive deposition can start to be seen in the model. Over 14,000 tons of net sediment deposition would occur in this reach during each of the storm events modeled for Scenarios 3 and 4.

The modeled TSS levels in the reservoir releases and downstream in Coyote Creek (**Table 3.11-5**), as well as the estimated amounts of sediment deposition in Ogier Ponds and Metcalf Ponds (**Table 3.11-6**), are very high relative to historical (Pre-FERC Order) conditions and the existing conditions baseline. As reference, water quality monitoring at five locations along Coyote Creek downstream of Anderson Dam conducted from December 2019 to April 2020 showed TSS concentrations from 2.0 mg/L to a maximum of 37.20 mg/L (Valley Water 2021); refer to **Table 3.11-2** ~~**Table 3.11.-3**~~. Elevated TSS levels would be expected in waterbodies during the wet season following storms (due to erosion in the upstream watershed); however, the elevated levels of suspended sediments predicted under both Scenarios 3 and 4 following storms with moderate return intervals (2-year, one-half 2-year, and 5-year) would be substantially higher than what would be expected baseline conditions. While the chance of a 5-year storm event happening in any given year is 20 percent, the chance of a 5-year event occurring at least once within a 7-year period such as the Seismic Retrofit construction period is roughly 79 percent. The odds are higher for 2-year event or one-half of a 2-year event to occur. The impacts of elevated suspended sediment are also of concern with respect to water quality and biological resources; refer to the respective sections of this EIR (Section 3.4, *Biological Resources – Fisheries Resources,* Section 3.5, *Biological Resources—Wildlife and Terrestrial and Resources,* and Section 3.14, *Water Quality*) for the analysis of impacts to these resources. As detailed in those sections, despite the short-term adverse effects of sediment mobilization and release from Anderson Reservoir during Seismic Retrofit construction, the transport of this sediment downstream to lower Coyote Creek and San Francisco Bay would be beneficial for these downstream ecosystems and habitats and related beneficial uses because the system has historically been deprived of sediment. ~~From~~ However, from the perspective of hydrology, the erosion and sedimentation impact would be significant.

As described in ~~Chapter 2,~~ ~~*Project*~~ *Description* Section 2.7.3, Valley Water would implement a Sediment Deposition Monitoring Plan and a Sediment Monitoring Plan. Monitoring under the Sediment Deposition Monitoring Plan would evaluate available habitat conditions for steelhead and would assess and confirm the anticipated extent of the impacts from in-reservoir sediment mobilized and released during FOCP and Project construction on spawning habitat quantity and quality. ~~to continuously monitor~~ Continuous suspended sediment monitoring under the Sediment Monitoring Plan would be used to assess sediment discharges from Anderson Reservoir through completion of Project construction activities~~, and to monitor the effect of releases carrying suspended sediment to Coyote Creek downstream of the dam~~. The Sediment Monitoring Plan was created as part of the FOCP and would continue to be implemented during the seismic retrofit construction. Monitoring would take place at the Madrone Gage (USGS Station #11170000 [previously Valley Water Station #5082]), Coyote Ranch Road Gage (USGS Station #11170450**)**, Edenvale Gage (USGS Station #11171500), and Highway 237 Gage (USGS Station #11172175). ~~Serpentine Trail Pedestrian Bridge, USGS Station #11170000 (previously Valley Water Station #5082), Coyote Ranch Road, and USGS Gage Station #11172175. The~~ Results of the Sediment Monitoring Plan ~~would use monitoring results~~ and Sediment Deposition Monitoring Plan would be utilized for ongoing assessment of anticipated erosion and deposition within Coyote Creek, Ogier Ponds, and Metcalf Ponds. Assessment of monitoring results would inform post-construction implementation of Conservation Measures, including maintenance of North Channel Reach and Live Oak Restoration Reach, the Ogier Ponds CM, and the Sediment Augmentation Program, to offset ~~to inform adaptive management measures to minimize the~~ discharges of suspended sediment (Valley Water 2021).

~~Thresholds will be established based on the anticipated seasonal baseline targets supported by existing data. When an exceedance is measured, the cause of the exceedance will be investigated. This will involve looking into active construction areas and other construction water quality monitoring, as well as review of real-time data on rim landslide potential to rule that out. Note that the Contractor will be regularly monitoring work areas per their [SWPPP] and construction specific turbidity monitoring requirements. If a turbidity source is found to be related to active construction downstream of the dam and can be isolated, corrective actions may include stormwater BMP repairs, placement of additional stormwater BMPs, or possibly use of baker tanks to settle out turbidity levels. If the turbidity source is dredge and fill activity in the reservoir, treatment options may include temporary work stoppage and rapid assessment and modification to stormwater BMPs and erosion control devices (e.g., turbidity curtains). If no identified source is determined, it will be assumed that the cause is natural. If determined to be natural cause, no further action will be taken. Note that a wide range of turbidity in winter months has been recorded. As a very last resort or in case of emergency, upon consultation and full concurrence with NMFS, the SWRCB, and the San Francisco Bay RWQCB, Valley Water may reduce or shutdown dam releases for a brief, agreed upon period.~~

~~As indicated above, while BMP repairs and other measures would be implemented for sediment discharges where a specific cause/source of the sediment can be identified, if sediment is entrained in reservoir releases as the result of "natural" causes,~~ If mobilization and release of exposed sediment during and following greater than 2- to 5- year storm events are determined to be proximately causing releases that exceed background suspended sediment concentrations, they would need to be controlled in accordance with CWA and Porter-Cologne Water Quality Control Act requirements. However, adaptive management options to prevent sediment from being released from the reservoir are limited, primarily because the FERC 2020

Interim Flood Risk Reduction prohibits storing and settling storm related runoff behind the dam until the retrofit is complete due to the heightened risk to public health and safety. Therefore, methods that rely on runoff detention to reduce sediment in runoff releases cannot be deployed (e.g., sediment curtains, runoff detention, and passive or active treatment to settle sediment out of flow). Also, other conventional erosion controls would be inundated and therefore ineffective. ~~other than temporarily halting reservoir releases (Valley Water 2021). The term “natural” is used in this context to describe that basic hydrologic and geomorphic processes that could erode and transport sediment from the reservoir bed would occur unimpeded during the construction period. Though, the~~

The erosion/sedimentation associated with inflow passing over the previously inundated reservoir areas during Seismic Retrofit construction would not ~~really~~ be entirely “natural,” as it would still be occurring within the footprint of ~~a dam/~~reservoir construction areas, but because the flows and entrained suspended sediment would be unimpeded, the geomorphic processes would resemble ~~a more natural condition than under previous inundation~~ that which occurs when the dam is fully operational. The term “natural” as used here is consistent with its usage in the Sediment Monitoring Plan. Due to the reservoir being dewatered during construction and virtually all inflows being passed through directly to Coyote Creek, this would liberate much of the fine sediment that has accumulated within the reservoir over the years.

It is important to remember that both the existing conditions and Pre-FERC Order Baselines, where vast quantities of sediment are trapped behind Anderson Dam due to decades of accumulation, are “unnatural” in their own right. Since its construction, Anderson Dam has blocked the natural path of sediment from the upstream watershed to the lower reaches of Coyote Creek. Erosion and sedimentation are natural processes, which are important for stream system and ecological health. Indeed, it is at least partly owing to the absence of sediment in stream flows downstream of Anderson Dam (since the sediment is normally trapped behind the dam and not released) that substantial incision and loss of coarse sediment has occurred in the downstream areas. There is a natural balance between erosion and sedimentation that has been upset by the dam. Thus, the Seismic Retrofit construction process, which would alter the dam/reservoir operations during the construction period by maintaining the reservoir in a dewatered state exposing accumulated sediments to mobilization and release, would change the existing “unnatural” detainment of sediment and potentially release a large amount of sediment to the downstream areas exposed by construction activities~~. Regardless, the erosion and sedimentation associated with storm runoff passing over the previously inundated areas would be diffuse and a specific source would not be identifiable—as such, corrective action would not be taken in accordance with the Sediment Monitoring Plan, short of emergency measures in consultation with regulatory agencies (i.e., temporarily halting reservoir releases)~~.

A Sediment Deposition Monitoring Plan would also be implemented during Seismic Retrofit construction, although this plan is more targeted to address impacts to fisheries and spawning habitat. Like the Sediment Monitoring Plan, the Sediment Deposition Monitoring Plan was developed as part of the FOCP and will continue to be implemented during construction of the Seismic Retrofit elements of the Project. The Sediment Deposition Monitoring Plan would evaluate available habitat conditions for steelhead within the Coyote Creek FCWMZ (Valley Water 2020d). This depositional monitoring would be conducted annually and would inform the Sediment Augmentation Program and Maintenance of the Spawning Gravel and Rearing Habitat Improvements at Live Oak Restoration Reach, which would be maintained during the Seismic

Retrofit construction period. As such, spawning gravels and sediment would be placed as needed, potentially on and above newly deposited fine sediments transported from the reservoir, based on the monitoring, thereby minimizing and offsetting potential impacts of the deposition of fine sediments on fish habitat.

Implementation of the Water Quality Sampling Plan and Sediment Monitoring Plan would ~~reduce~~ measure impacts associated with elevated suspended sediment in releases from Anderson Dam during Seismic Retrofit construction~~, with respect to sediment caused by erosion at active construction areas~~. However, since the Water Quality Sampling Plan and Sediment Monitoring Plan would not specify BMPs to address elevated sediment levels due to runoff passing over the previously inundated areas of the reservoir when it is dewatered, it would not ~~account for~~ minimize much of the erosion and sedimentation/siltation that could occur during construction (i.e., the sediment liberated from the reservoir beds during runoff events). As discussed above, and shown in **Table 3.11-5**, substantial quantities of sediment could be discharged from Anderson Reservoir following storms of a certain size during the wet season, even after the cofferdam and Stage 2 Diversion System are constructed (Scenario 4). This includes water with TSS concentrations as high as 39,140 mg/L (Scenario 3, 2-year event) or 30,470 mg/L (Scenario 4, 2-year event) being released from the reservoir, with TSS levels in Coyote Creek above Ogier Ponds still potentially over 25,000 to 30,000 mg/L. Depending on the meteorological conditions that occur during the construction period, these levels could be reached multiple times following multiple storms. It is possible that multiple 2-year or 5-year storms could occur during the construction period (which will include at least four precipitation seasons when the reservoir will be dewatered), along with multiple smaller or larger storms.

These effects from reservoir dewatering would be temporary after storms of a certain size, lasting only the period during which the reservoir would be completely or partially dewatered (Years 2 through 6). Moreover, the reservoir has already been partially dewatered (to deadpool) as part of the FOCP, so elevated risk of erosion and sedimentation due to the reservoir being in a dewatered state is already present to some extent under the post-FOCP conditions baseline. Nevertheless, the greatly accelerated rates of erosion and sediment transport following greater than 2- and 5- year storm events that could be realized through Seismic Retrofit construction (refer to **Table 3.11-5** and **Table 3.11-6**) would be a substantial change from the existing conditions and Pre-FERC Order Baselines and would largely be an adverse short-term effect on ~~to~~ the system, even if some "balancing" of historical sediment deficits may occur and that additional sediment ~~may~~ provides ~~some~~ beneficial impacts to marshes in south San Francisco Bay. Conservation Measures such as the Ogier Ponds CM, Spawning Gravel and Rearing Habitat Improvements at Live Oak Restoration Reach, and the Sediment Augmentation Program would offset and provide long-term beneficial impacts in regard to erosion and sedimentation; however, they would not address the immediate impacts that could occur during construction of the Seismic Retrofit components As a result, this seismic retrofit construction would temporarily cause substantial erosion and siltation, and this impact would be significant.

Meaningful measures to reduce ~~mobilization of~~ lakebed sediment mobilization are limited. For example, measures to stabilize sediment by hydroseeding bare soils in the reservoir would not be feasible throughout the reservoir and would not eliminate the unconsolidated lake sediment that is exposed when the reservoir is drawn down below deadpool and therefore available for mobilization in reservoir releases associated with 2- and 5-year storms ~~available both under the surface soils that would be eroded in larger storms and below the deadpool that would be~~

~~exposed through reservoir lowering as part of the Project~~. Similarly, potential measures to increase sediment settling within the reservoir (i.e. turbidity curtains or managing the reservoir at a higher elevation) would not be feasible during construction. Settling BMPs require stormwater detention prior to release through the Stage 1 or Stage 2 diversion system , but FERC public health and safety interim risk reduction measures mandate that stormwater not be retained behind the dam during construction. Instead ~~because safety measures to pass~~ inflows must be passed as quickly as possible through the diversion system (to keep storage behind the interim dam as low as possible) ~~are required~~ to reduce the risk of the interim dam being overtopped, in order to provide the highest level of public safety available while the dam is under construction.

Runoff Through In-Reservoir Construction Disturbance Areas

Similar to the processes described above, erosion and siltation/sedimentation as a result of Seismic Retrofit construction could occur via runoff passing over or through construction work areas or disturbance areas. First, the various construction/disturbance activities that would occur in the dewatered reservoir, such as access road modification and construction, stockpile and borrow area establishment and utilization, and cofferdam construction, could exacerbate the erosion and sediment transport processes described above. Utilization of these areas would alter the drainage patterns within the area and could contribute additional sources of sediment beyond those predicted via “natural” processes. The linear access roads to be constructed within the reservoir would be more compacted than the existing soils (as required to support heavy equipment and as a result of access road use), which could increase runoff flow velocities and potentially increase erosion in the adjacent areas.

Similarly, utilization of stockpile areas could introduce loose, easily erodible soils to the area, which could exacerbate erosion and sedimentation effects during the wet season. The stockpile areas that would be located within the reservoir would be Stockpile Areas C, D, H, I, J, K, and L, as described in Section 2.5.2.2 within Chapter 2, *Project Description.* These areas would total 132 acres and would be used to stockpile a total of 5,002,300 cy of material. Stockpile Area M is an alternate stockpile area within the southern area of the reservoir, which is 30 acres and could be used to stockpile 1,150,000 cy of material. The stockpiled material would be excavated from the existing dam or from other areas where excess material is generated and, particularly as it dries and prior to reuse, would be susceptible to erosion. Similarly, utilization of the PGBP, located within the reservoir, east of Anderson Dam, would change the land surface due to the excavation of large volumes of material.

Construction of the cofferdam (which would occur during Year 2) would also alter the surface of the formerly-inundated reservoir bottom, by erecting the 300-foot-long, 80-foot-wide dam just upstream of the existing dam work area. Theoretically, the cofferdam could mitigate siltation/sedimentation effects by detaining runoff/inflow from upstream areas and maintaining a small pool in which entrained sediment could settle out prior to discharge of runoff water to Coyote Creek. However, as indicated by the sediment transport modeling (refer to **Table 3.11-5** and **Table 3.11-6**), the cofferdam would only offer relatively limited benefit in this regard, at least following 2- or 5-year storms (see Scenario 4 compared to Scenario 3). Under the “constant inflow” scenario, the cofferdam would be more beneficial in terms of reducing the amount of sediment discharged downstream.

Runoff Through Out-of-Reservoir Construction Disturbance Areas

The construction disturbance areas outside of the existing reservoir footprint would similarly alter drainage patterns, potentially leading to erosion and sedimentation/siltation. These would include the staging areas (of which there would be six); access roads in upland areas; stockpile and borrow areas outside of the reservoir area; and the construction work areas themselves, such as the dam excavation area, spillway and outlet works work areas, areas where trenching will occur for realignment of the AFM and Main Avenue Pipeline, as well as disturbance areas associated with the permanent roadway modifications. With respect to each of these areas where Project construction work would occur, changes to the ground surface, both in terms of slope/elevation and in the compaction or cohesiveness of soils, would have potential to cause or exacerbate any erosion and sedimentation/siltation effects that could occur (e.g., during rainstorms that occur during the construction period). Establishment of staging areas would require removal of vegetative groundcover and debris, grading to create a flat surface, and placement of gravel or a separation fabric over the ground surface, depending on the type of usage. Although no impervious ground surface would be created as part of staging area establishment, these activities (in particular, vegetative groundcover removal) would generally increase runoff flow velocity, thereby increasing potential for erosion and sedimentation/siltation.

Effects associated with the upland stockpile and borrow areas (e.g., BHBA) would be similar to those described above with respect to the in-reservoir areas. Generally, the stockpiling of materials would create opportunities for erosion and subsequent transport of sediment/silt to waterbodies. The stockpiled material is likely to be loose, unconsolidated material without substantial cohesion or resistance to erosive forces, and thus these materials could be washed downgradient to Coyote Creek. By contrast, the depressions or cavities that would be left by the borrow activities would expose underlying soils and materials to potential erosion and offsite transport of sediments/silts. Other construction work areas (e.g., where excavation may occur for construction/installation of Project components) would similarly expose loosened soils that could be susceptible to erosion, and, in some cases, the excavated areas/altered land surface could concentrate flows and thereby exacerbate the erosion issues.

In general, these potential adverse effects would be avoided or reduced either through Project design features, compliance with the Construction General Permit and implementation of the SWPPP for construction activities outside of the reservoir, implementation of applicable Valley Water BMPs and VHP conditions and AMMs, and/or construction monitoring activities. As noted above, the cofferdam installed as part of the Stage 2 Diversion System would have the benefit of detaining sediment/silt that may be entrained in runoff water from upstream areas, as well as maintaining a small pool behind the cofferdam that could allow entrained sediment to settle out. As indicated in **Table 3.11-5**, these benefits would primarily be realized during the constant inflow conditions, as opposed to following large storms. Another Project feature that would reduce potential for siltation downstream in Coyote Creek is the ATS, which would be used to treat stormwater from applicable construction work areas prior to release into Coyote Creek. As described in Chapter 2, *Project Description,* stormwater accumulating in the downstream excavation area of the dam, at spillway and outlet works construction, and at the BHBA would be collected and pumped to an ATS prior to release into Coyote Creek. The ATS would remove sediment, reduce turbidity, and balance pH from these waters. Utilization of the ATS would minimize the adverse impacts to Coyote Creek that could occur from the runoff that passes over/through, and collects in, the construction work areas and other disturbance areas associated with the Seismic Retrofit construction.

Additionally, given that the Project would disturb greater than 1 acre of land, it would be subject to the Construction General Permit. As described in Section 3.11.2, the Construction General Permit requires that the applicant prepare and implement a SWPPP for construction activities outside of the reservoir, which would include BMPs to prevent soil erosion and discharge of sediment and other construction-related pollutants to surface waters. The specific BMPs that would be implemented as part of the SWPPP would be developed at the time of the SWPPP preparation but would include measures to control erosion at the source, such as through minimizing soil disturbance, preserving existing vegetation where feasible, and stabilizing and revegetating disturbed areas as soon as possible after grading or construction activities. Temporary soil stabilization measures/practices that could be utilized include covering disturbed areas with mulch, temporary seeding, soil stabilizers, binders, fiber rolls or blankets, temporary vegetation, and permanent seeding (SWRCB 2009). Additionally, the SWPPP would include sediment control measures, which would be used to capture any soil that becomes eroded. This may include perimeter control measures such as installing silt fences or placing straw waddles below slopes (SWRCB 2009). The SWPPP would need to be prepared by a qualified professional and monitoring would be required during the construction period to ensure that the BMPs achieve the performance standards (e.g., receiving water and effluent limitations) included in the Construction General Permit.

Many of the erosion and sediment control measures that would be included in the SWPPP may also be slated for implementation as part of Valley Water's BMP Handbook or through compliance with applicable VHP conditions and AMMs. A number of Valley Water BMPs would serve to reduce potential for erosion and offsite movement of sediments, such as BMP AQ-1 (Use Dust Control Measures), BMP WQ-4 (Limit Impacts From Staging and Stockpiling Materials), BMP WQ-1 (Conduct Work from Top of Bank), BMP WQ-2 (Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms), BMP WQ-5 (Stabilize Construction Entrances and Exits), BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-10 (Prevent Scour Downstream of Sediment Removal), BMP WQ-11 (Maintain Clean Conditions at Work Sites), BMP WQ-16 (Prevent Stormwater Pollution). Similarly, many VHP conditions and AMMs require erosion and sediment control measures that would serve to reduce the potential impacts of seismic retrofit construction, including conditions 3, 4 5, 7, 11, and 12, and AMMs 4, 16, 17, 20, 25, 26, 38, 39, 40, 51, 52, 53, 61, 63, 64, 65, 66, 67, 68, 69, 70, 71, 73, 74, 75, 77, 83, 84, 93, 94, 96, and 97. Refer to Section 3.11.3.7 for descriptions of the applicable BMPs. The full text of the BMPs ~~and AMMs~~ is provided in Appendix A.

As such, whether included in the SWPPP pursuant to the Construction General Permit for out-of-reservoir construction activities, implemented in accordance with Valley Water's BMP Handbook, or in compliance with the VHP, the Seismic Retrofit construction activities would incorporate erosion and sediment control measures to minimize the prospect of substantial erosion and siltation/sedimentation. These measures would assure that the Project's extensive disturbance areas during construction would not cause substantial erosion or siltation, and this impact would be less than significant.

Conservation Measures Construction

Ogier Ponds CM

Construction of the Ogier Ponds CM would alter drainage patterns in the sense that it would change the flow path of the creek, by creating a new section of creek channel at the area of the existing ponds. The new section of creek channel would start at Pond 1 and connect to the pre-1997 channel alignment located west of Ponds 2, 3, 4, and 5, thereby separating Coyote Creek from Ogier Ponds. As described in Chapter 2, construction of the Ogier Ponds CM would require dewatering of the pond areas to be filled (i.e., the entirety of Ponds 1 and 5 and portions of Ponds 2 and 4 ~~5~~), diversion of creek flow around the work area, and control of groundwater to minimize expected seepage into the work areas. Earthen berms would also be constructed to separate the unfilled portions of Pond 2 ~~Ponds 2 and 5~~ from the restored channel, and the new channel area would be cleared of vegetation, excavated and graded.

The construction work within or adjacent to the channel required for construction of the Ogier Ponds CM would have the potential to loosen materials that could be washed downstream, thus contributing to accelerated rates of erosion and sedimentation. Additionally, use of staging and stockpiling areas and mobilization of equipment in upland areas or areas directly adjacent to the creek could contribute sediment-laden runoff to Coyote Creek. As such, the construction activities for the Ogier Ponds CM would have potential to cause erosion and offsite movement of sediments; however, as discussed above in *Runoff Through Construction Disturbance Areas* these effects would be avoided or minimized through implementation of the SWPPP, Valley Water BMPs, and VHP conditions and AMMs.

Maintenance of the North Channel Reach ~~Extension~~

The restoration of the North Channel through the historic creek alignment, which would occur as part of FOCP, would include grading additional channel area to connect it to the South Channel downstream. Maintenance of the North Channel Reach would involve minor and intermittent activities such as maintenance of the wetland bench, restoration plantings, and flow capacity, including replacement of plantings and/or materials that would be required to restore the wetland bench. ~~While the grading and restoration of the channel would reduce potential for erosion over the long-term (e.g., removing deep holes where ponding could occur),~~ As such, there would be limited potential for short-term effects during construction, ~~as~~ though some loosened soils ~~loosened by~~ grading could be eroded and washed downstream. Likewise, vehicle and equipment movement/staging adjacent to the riparian areas could minimally contribute to erosion and discharge of sediment to Coyote Creek. However, as discussed above, these potential adverse effects would be avoided or reduced through implementation of measures included in the SWPPP and in applicable Valley Water BMPs and VHP conditions and AMMs.

Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach

The spawning gravel and rearing habitat improvements in the Live Oak Restoration Reach that would be conducted as part of the Project, would be done to off-set the potential effects of reservoir dewatering and sediment deposition on spawning and rearing habitat from the FOCP and Project. In this respect, the effects with respect to hydrology would be a net positive.

However, with any work within or near the stream channel, there would be potential during construction to disturb the streambed and/or cause erosion of streambanks, which can subsequently cause silt/sediment to be transported downstream. Implementation of applicable Valley Water BMPs and VHP conditions and AMMs would avoid or reduce these potential adverse effects.

Sediment Augmentation Program

The Sediment Augmentation Program would place sediment in locations of Coyote Creek between Anderson Dam and Ogier Ponds. Sediment augmentation activities would be designed to improve geomorphic processes with respect to steelhead habitat and reduce the legacy channel incision that is typical in Coyote Creek downstream of the dam. ~~The Sediment Augmentation Program would involve removing and stockpiling approximately 55,000 cy of suitable sediment from the exposed sources in the dry Anderson Reservoir lakebed and then delivering sediment loads to various locations in Coyote Creek based on locations most in need as determined by construction phase sediment monitoring and disposition monitoring.~~ The Sediment Augmentation Program would involve initially placing 500 cy of coarse sediment in the Live Restoration Reach following completion of ADSRP construction, and later during adaptive management within the Live Oak Restoration Reach or Ogier Ponds Restoration Reach based on locations most in need of additional sediments, as determined by construction phase sediment monitoring and deposition disposition monitoring. The Live Oak Restoration Reach or Ogier Ponds Restoration Reach would be replenished with up to 500 cy every 5 years based on annual monitoring results.

The potential for impacts during construction would be similar to that described above for the Seismic Retrofit component and other conservation measures. Stockpiling of sediment, if done improperly, would create a pathway for erosion and offsite siltation/sedimentation, while use of trucks and heavy equipment (e.g., for delivery of sediment loads to replenishment sites) could loosen soils and potentially allow for erosion and discharge of fine sediments. Given that it would be implemented over many years, the program may not be subject to the Construction General Permit. Nevertheless, implementation of applicable Valley Water BMPs and VHP conditions and AMMs would substantially reduce potential for erosion and subsequent siltation/sedimentation during construction activities for the program.

Phase 2 Coyote Percolation CM

The Phase 2 Coyote Percolation Dam CM would involve construction of a roughened channel (approximately 500-feet long by 110-feet wide) using engineered streambed materials composed primarily of natural materials (e.g., boulders, cobble, gravel, and sand) placed in such a way as to mimic the configuration of a natural streambed. As described in Chapter 2, construction activities associated with the Phase 2 Coyote Percolation Dam CM would occur during the summer and fall of Years 1 and 2 ~~4 and 5~~ and would include site mobilization, control of flows in Coyote Creek (dewatering), demolition, vegetation clearing, and grubbing, creek material placement and enhancement, roughened ramp construction, and revegetation seeding and planting. Dewatering of the CM area would be implemented through the construction upstream and downstream cofferdams that would be constructed with a bypass feature (pipes) to allow flows to bypass the work area and maintain flows in Coyote Creek throughout Project implementation.

Given the work within the streambed that would be required during construction of the Phase 2 Coyote Percolation Dam CM and operation of construction equipment on adjacent streambanks, there would be similar potential for erosion (i.e., loosening of soils from operation of construction equipment) and subsequent siltation/sedimentation to that discussed above for the Seismic Retrofit component and other conservation measures involving such activities. These effects would be reduced to a less-than-significant level via implementation of Valley Water BMPs and VHP conditions and AMMs. The dewatering required for construction of this conservation measure would expose the base of the pond with previously deposited sediments subject to erosion. As the Coyote Percolation Pond is occasional drained for maintenance in the baseline conditions there would be little potential for erosion and mobilization of sediment above existing conditions. As such, the impacts from dewatering the pond and exposing sediments on the pond bottom as part of this conservation measure would be less than significant.

Construction Monitoring

As described in Chapter 2, *Project Description,* a variety of construction monitoring efforts would be undertaken during the Seismic Retrofit component and Conservation Measure component construction periods. This includes water quality monitoring, fisheries monitoring, *phytophthora* pathogen monitoring, groundwater monitoring, and biological resources monitoring. In general, the monitoring efforts would have limited potential to result in substantial erosion or siltation on- or offsite. Activities such as collecting samples would be conducted on foot and would not involve operation of heavy equipment within the streambed or banks. ~~Setting up fyke nets, electrofishing~~ Electrofishing, installing VAKI Riverwatcher, installing PIT antenna equipment, and related activities could disturb sediments on the streambed or banks, but these impacts would be temporary and very minor. Measures to reduce potential *phytophthora* spread, as identified through the monitoring process, would likely reduce potential for siltation (e.g., hygiene and sanitation measures, such as vehicle and equipment washing). As a result, impacts from construction monitoring activities would be less than significant.

Seismic Retrofit Post-Construction Operations and Maintenance

All these flow scenarios under normal operations are within the flow regimes of the Pre-FERC Order baseline and existing conditions baseline and would not create additional erosion or sedimentation above the baseline conditions. Impacts from future flows would be less than significant.

Higher Flows During Normal Operating Conditions

The Seismic Retrofit components of the Project would greatly increase the capacity of the dam's outlet works and could thus provide the ability to release substantially greater volumes of water, resulting in higher flows downstream in Coyote Creek. As opposed to the dam's outlet works prior to the FOCP, which had a maximum capacity of 500 cfs, outflows from Anderson Reservoir following completion of the Seismic Retrofit would occur in four ways: (1) normal releases, up to 170 cfs to Coyote Creek via the 33-inch bypass pipeline (part of the LLOW); (2) releases up to 1,315 cfs to Coyote Creek through the 78-inch conveyance pipeline (also part of the LLOW, and is the pipeline that facilitates bi-directional transfers of water between Anderson Reservoir the raw water distribution system); (3) releases up to 5,300 cfs from the HLOW; and

(4) uncontrolled releases from the spillway. ~~the Seismic Retrofit would establish new outlet works with a total combined capacity of 6,840 cfs. This would include the LLOW, which would have a maximum capacity of 1,540 cfs, but would operate up to 1,400 cfs under majority of operations. The HLOW would have a capacity of 5,300 cfs and would be used during emergencies that require a DSOD-mandated drawdown of the reservoir (i.e., to respond to an earthquake emergency) (Valley Water 2023d). The new spillway constructed as part of the Seismic Retrofit would be able to safely convey the PMF, which is estimated to be approximately 98,000 cfs, but would be utilized less frequently due to the new larger LLOW.~~ Theoretically, the new dam release facilities constructed as part of the Seismic Retrofit could enable higher flows during operation, which could cause erosion downstream if substantially higher than existing flows.

Releases from Anderson Dam following completion of the Seismic Retrofit components of the Project would be governed by the FAHCE operational rule curves, which would be beneficial for fish. Dam operations under the Pre-FERC Order Conditions Baseline were based on a variety of factors, including water supply, environmental, flood risk, and other considerations. For example, to maintain a wetted Coyote Creek, maximize managed aquifer recharge consistent with the District Act and Sustainable Groundwater Management Act (SGMA), and benefit the environment, a flow requirement of 2.5 cfs at streamflow station 5058 (Edenvale), has been maintained per Valley Water's LSAA with CDFW (Valley Water 2023a ~~2022a~~). Typically, when it is not raining, a total release of 30 to 55 cfs at the base of Anderson Dam is needed to maintain 2.5 cfs at streamflow station 5058, which is approximately 14.8 miles downstream of the dam (Valley Water 2023a ~~2022a~~). The median of daily flows by month at Madrone stream gage (USGS station 11170000), for the water years 2000 through 2019, shows a range of 20-25 cfs in the in the winter (October through April), whereas a range of 40-50 cfs has been observed in the warmer summer season (May through September), when water supply and maintaining groundwater recharge has a higher demand. Total releases at the base of Anderson Dam above 60 cfs are typically more than what is needed to meet water supply and downstream environmental flow requirements, although higher releases may be necessary when recovering from a prolonged drought (Valley Water 2023a ~~2022a~~).

A major difference compared to the Pre-FERC Order Conditions Baseline under FAHCE would be to introduce "pulse" flows during the winter/spring. Under FAHCE, the pulse flows would be 50 cfs for 5 days, occurring up to two times from February 1 – April 30 if storage thresholds are met. Storage-based winter base rule curves would provide releases of 5, 10, 15, 23, and a highest winter base rule curve which would provide for a minimum release of 26 cfs and up to the amount required for recharge and downstream LSAA flow requirements. The revised operating rules under FAHCE would primarily serve to improve conditions for anadromous fish; refer to Section 3.4, *Biological Resources – Fisheries*, for discussion of these largely beneficial effects.

With respect to hydrology and potential impacts related to erosion and siltation/sedimentation, the Pre-FERC Order Conditions Baseline is itself representative of an impacted, "unnatural" system. In this regard, operation of the reservoir over its history has already contributed to changes in the downstream stream morphology. While stream dynamics are complex, this may have included accelerated rates of erosion downstream of the dam due to the "hungry water" effect, whereby flows downstream of a dam that are low in sediment due to deposition above the dam have additional competency to erode and entrain sediment downstream of the dam. As discussed above, the dam would have acted to trap the vast majority of the naturally-transported sediment that was carried in runoff water entering the reservoir from upstream areas, creating the sediment depleted water that is discharged.

With respect to flow magnitude, the dam acted to reduce peak flows that would have occurred following storms under a "natural" hydrological regime. Reservoirs act to store high runoff events and release them under a prolonged low or moderate flow at later times. This results in "shaving off the peak" of the hydrograph and extending the hydrograph out into the future. In practice at Anderson Reservoir, release of winter stored runoff increased summertime flows, resulting in an overall dampening/homogenizing of the flow pattern.

With this context in mind, some undesirable effects (e.g., channel incision) in Coyote Creek downstream of Anderson Dam are part of the Pre-FERC Order Conditions Baseline. The winter baseflows contemplated under FAHCE would not be a significant change relative to the Pre-FERC Order Conditions Baseline; thus, no substantial change to erosion or siltation/sediment is expected as a result. The 50 cfs pulse flows under FAHCE would be higher than typical, baseline operating conditions, where the median of daily flows by month, for the water years 2000 through 2019, at USGS 11170000 range from 20-25 cfs in winter (November through April); however, the pulse flows would be similar to summer flows under the Pre-FERC Order Conditions Baseline. As noted above, releases range from 40-50 cfs in the summertime (May through October). As such, these pulse flows would not be expected to result in substantial additional erosion and siltation/sedimentation relative to that occurring under the Pre-FERC Order Conditions Baseline. Periodic, high flows that might occur due to the new larger LLOW can be beneficial to stream geomorphology (e.g., to prevent excessive encroachment of perennial vegetation and also freshen the stream bed with new features, increasing instream complexity and habitat opportunities). Additionally, as discussed above, relative to the pre-dam state, the pulse flows under FAHCE and the use of the LLOW in response to reaching the FAHCE flood rule curve would be a movement toward the "natural" hydrograph, meaning less dampened and reintroducing some peak flow events.

Imported water would still be used to supplement flows in Coyote Creek for groundwater recharge and habitat benefits. Imported water would mostly be discharged via the CDL (as in existing baseline conditions and Pre-FERC Order baseline), but could also be discharged from the CVPE if the cold-water pool in Anderson Reservoir were limited – in which case cold water would be released from the reservoir to provide flows through the CWMZ at approximately 10 cfs, then additional releases could be made below the CWMZ in the CVPE (at up to 30 cfs) to support full groundwater recharge.

As part of FOCP, Valley Water restored the North Channel of Coyote Creek immediately downstream of Anderson Dam, including extending the limits of this historic creek alignment to reconnect it with the South Channel downstream (historically, all managed dam releases have been discharged directly to the South Channel). This allows high flows to be directed through the restored North Channel, which can accommodate such flows, thus limiting flows within the South Channel and minimizing erosion and flooding of the Live Oak picnic area at this location. Moreover, ~~several~~ conservation measures that would be implemented as part of the Project would serve to minimize any adverse effects associated with operational erosion/sedimentation in Coyote Creek downstream of Anderson Dam. ~~First, as described in Chapter 2, *Project Description,* Valley Water would restore the North Channel of Coyote Creek immediately downstream of Anderson Dam, including extending the limits of this historic creek alignment to~~

~~reconnect it with the South Channel downstream (historically, all managed dam releases have been discharged directly to the South Channel). This would allow high flows to be directed through the restored North Channel, which would be designed to accommodate such flows, thus limiting flows within the South Channel and minimizing erosion and flooding of the Live Oak picnic area at this location. Habitat enhancements in the restored North Channel may also include the establishment of a sediment injection point, per the Sediment Augmentation Program, for the placement of 500 cy of sediment that would be mobilized by high flows for improving downstream substrate conditions. Additionally,~~ Specifically, Valley Water would implement spawning gravel and rearing habitat improvements in the Live Oak Restoration Reach directly downstream of Anderson Dam to address the potential effects of reservoir dewatering and sediment deposition. ~~Each of these aspects/measures~~ This measure would be included in the Sediment Augmentation Program, described below.

To address the effects of coarse sediment loss for steelhead habitat from creek banks and bed incision below Anderson Dam, Valley Water would implement the Sediment Augmentation Program as described above. This would include initial placement of approximately 500 cy of coarse sediment within the Live Oak Restoration Reach following completion of Project construction. ~~removing and stockpiling approximately 55,000 cy of suitable sediment from exposed sources in the dry Anderson Reservoir lakebed between the Dunne Avenue Bridge and the Holiday Estates boat launch staging area throughout the duration of Project construction. The sediment would be placed in Coyote Creek at multiple locations downstream of Anderson Dam through Ogier Ponds from Year 2 through Year 10 of construction, with monitoring and off-hauling continuing through Year 15~~. Over the long-term, ~~approximately~~ up to 500 cy of sediment would be placed in the Live Oak Restoration Reach or within the Ogier Ponds CM restoration reach at least every 5 ~~every 5-7~~ years during the operational phase.

These CMs would help to reduce erosion that could occur due to higher flow releases under operation of the revised dam facilities, as well as ongoing and historical erosion that has occurred immediately downstream of the dam. Replenishment of sediment in these key areas will reduce some of the adverse geomorphic effects that are expected downstream of dams (see the discussion of "hungry water" above). In general, implementation of the FAHCE operational flow regime, along with the CMs included in the Project, would likely lead to an improvement in the health of Coyote Creek sediment conditions relative to the Pre-FERC Order Conditions Baseline. Therefore, impacts would be less than significant.

Peak Flows Associated with Emergency Drawdown or Release Conditions

While the FAHCE rule curves would govern releases the majority of the time during Project operation, the reservoir may need to be lowered quickly during emergency situations, such as responding to a DSOD mandate to draw down the reservoir after an earthquake. This would potentially result in very high flows for short periods of time. The seismic retrofit would greatly increase the capacity of the dam's outlet works, thereby making a quick drawdown of the reservoir's water level possible in an emergency situation. This would comply with DSOD requirements as described in Chapter 2, *Project Description,* to provide a new outlet works at Anderson Reservoir to be capable of lowering the reservoir's maximum storage depth by 10 percent within 7 days and draining its full content within 90 days (DSOD 2018 ~~2017~~). Between the LLOW and HLOW, the reconstructed Anderson Dam would be able to release up to 6,840 cfs. Relative to the dam's maximum discharge capacity via its outlet works of 500 cfs under the Pre-FERC Order Conditions Baseline, this would represent a substantial increase in the potential peak controlled releases/flows from the dam. Under the Pre-FERC Order Conditions Baseline very high flows would pass over the spillway when the reservoir was filled and the volume of water coming into the reservoir was greater than the capacity of the outlet to release water (500 cfs). Under post-construction operations high flows may still pass over the spillway when the reservoir is filled; however, this would be less likely given the ability to release greater volumes of water prior to a large storm (Valley Water 2023b).

Similar to uncontrolled releases observed in the Pre-FERC Order Condition (i.e., 2017 spill event resulted in flows of 7,400 cfs at the Madrone Gage), controlled releases of high flows can increase potential for erosion downstream, as greater volumes of water traveling at greater velocities would increase the erosive power of the flows. Given the infrequency of emergency drawdown scenarios, these effects would also be infrequent and would occur in the context of necessary dam operations for the protection of life and property. In this respect, the effects would be less of a concern, although single, extreme events can cause a large amount of erosion and siltation/sedimentation that can be damaging to the ecosystem. Refer to Impact HYD-1, subsection iv. below for discussion of potential effects related to flooding caused by the higher releases made possible by the seismic retrofit elements of the Project.

Many of the Project features described above would serve to minimize potential adverse effects associated with peak flows in the event of an emergency. For example, the ~~reconstructed North Channel would enable Valley Water to split high flows between the North and South Channels of Coyote Creek, thereby minimizing the concentration of flows and the erosive power. The~~ ongoing sediment augmentation activities, as part of the Sediment Augmentation Program, would ~~also~~ help to replenish sediment that may have been washed out during a high-flow event. As noted above, the existing conditions include very high flows during and after large winter storms that inundate the floodplain and carry large amounts of sediment downstream. Therefore, impacts would be less than significant.

Dam Facility Maintenance

Valley Water would maintain all Project-constructed features and facilities to ensure their proper function. The newly retrofitted Anderson Dam and Reservoir would be maintained under Valley Water's existing DMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP Program EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). The DMP includes BMPs and mitigation measures to minimize water quality impacts. For example, Valley Water would minimize the negative impacts of reservoir dewatering on water quality or sediment quality through implementation of DMP Mitigation Measure General-3, which requires the development a dam-specific reservoir dewatering plan for each dewatering event. BMPs HM-1 and HM-4 through HM-8, and DMP Mitigation Measures Water Quality-1 and Wildlife-4 all deal with minimizing impacts to water quality from herbicides, pesticides, and rodenticides. The Project's post-construction maintenance activities would not differ substantially from those impacts identified in the DMP EIR. Further, previously identified DMP impacts would not be exacerbated with implementation of the Project. Conservation Measure Post Construction Operations and Maintenance

Over the long-term, the CMs included in the Project would generally have positive effects with respect to erosion and siltation/sedimentation. Implementation of the Sediment Augmentation Program would largely counteract the erosion and loss of course sediment that has historically occurred downstream of Anderson Dam, and which may continue to occur during Project operation associated with occasional higher flows. The replacement of course sediment at key locations would be beneficial and may curb further erosion and incision, which are ongoing issues in Coyote Creek. The Phase 2 Coyote Percolation Dam CM, which includes the roughened ramp fishway below the bladder dam (already installed as part of FOCP), would likely reduce the susceptibility of this reach to erosion. Implementation of the Spawning Gravel and Rearing Habitat Improvements at Live Oak Restoration Reach would place spawning gravels and sediment as needed, potentially on and above newly deposited fine sediments transported from the reservoir, based on the monitoring, thereby minimizing potential impacts of the deposition of fine sediments on fish habitat.

Finally, the disconnection of Ogier Ponds from Coyote Creek would likely be a benefit with respect to hydrology over the longer term, as it would aim to restore a natural stream channel with hydrologic connection to flood plains. Under existing conditions, the ponds provide a location for the water flow to slow down substantially, such that sediment can settle out (see sediment deposition modeling in **Table 3.11-6**). Reconnecting Coyote Creek to the historic channel would reestablish a more continuous, uninterrupted flow path that could increase sediment transport further downstream. Planting of native vegetation in areas along the floodplain in this area to create riparian habitat would also serve to reduce erosion along the reach. Therefore, impacts would be less than significant.

Maintenance activities for Conservation Measure facilities have low potential to result in substantial erosion and siltation on- or offsite. Activities such as repair or replacement of new levees at Ogier Ponds and the roughened channel at the Phase 2 Coyote Percolation Dam CM would not result in substantial erosion, although minor erosion could occur like that as discuss above in *Runoff Through Construction Disturbance Areas*. Construction and applicable Valley Water BMPs and VHP conditions and AMMs would be implemented during maintenance activities. Vegetation management, debris removal, sediment removal, and related activities for the North Channel Reach ~~Extension~~, new channel at Ogier Ponds CM, and roughened channel at Phase 2 Coyote Percolation Dam CM could result in some erosion and potential siltation/sedimentation, but these effects would be less than significant given implementation of applicable BMPs and AMMs such as WQ-2 (Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms), WQ-5 (Stabilize Construction Entrances and Exits), WQ-8 (Minimize Hardscape in Bank Protection Design), WQ-9 (Use Seeding for Erosion Control, Weed Suppression), WQ-16 (Prevent Stormwater Pollution and Site Improvement), WQ-10 (Prevent Scour Downstream of Sediment Removal), VEG-1 (Minimize Local Erosion Increase from In-channel Vegetation Removal), BANK-1 (Bank Stabilization Design to Prevent Erosion Downstream), BANK-3 (Bank Stabilization Post-Construction Maintenance), and REVEG-1 (Seeding); and VHP ~~VMP~~ AMMs 21, 22, 23, 24, 30, 31, 32, 50, 55, 56, 62, 82, 102, 103, 104, 108, 111, 113, and 114. These BMPs and AMMs serve to minimize the potential for erosion from maintenance activities in and near Coyote Creek.

Post-Construction Project and FAHCE Adaptive Management

Monitoring activities under the AMP are unlikely to have substantial erosion or siltation impacts (see Construction Monitoring Impact analysis). Similarly, adjustments to FAHCE rule curves or modifications of Conservations Measures are likely to have erosion and siltation impacts similar to but smaller in magnitude than the activities being managed, and impacts would be less than significant.

Significance Conclusion Summary

Construction of the Seismic Retrofit components has the potential to discharge large volumes of sediment following storms of a certain size while the reservoir is dewatered given the exposure of sediments previously inundated on the bottom of Anderson Reservoir, disturbance of soil from in-reservoir construction activities, and the limited capacity to store water behind the coffer dam during construction. This constitutes a significant impact from a hydrology perspective because it would cause substantial temporary erosion and siltation downstream. However, despite the short-term adverse effects of sediment mobilization and release from Anderson Reservoir during Seismic Retrofit construction, the transport of this sediment downstream to Coyote Creek and San Francisco Bay would be beneficial for downstream ecosystems and habitats and related beneficial uses because the system has historically been deprived of sediment. In the long term, these sediment releases, in addition to implementation of Conservation Measures such as the Ogier Ponds CM, Spawning Gravel and Rearing Habitat Improvements at Live Oak Restoration Reach, and the Sediment Augmentation Program, guided by data derived from the Water Quality Sampling Plan, Sediment Monitoring Plan, and the Sediment Deposition Plan, would offset and provide long-term beneficial impacts in regard to erosion and sedimentation; however, they would not address the ~~immediate~~ short-term, acute impacts that could occur during construction of the Seismic Retrofit components following 2 to 5-year or greater storm events.

Mitigation Measure WQ-1 requires implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. While the WQMPP would address in-reservoir construction areas, no additional ~~No~~ feasible mitigation is available to address this impact, given the massive area of the reservoir bottom which would be exposed by the dewatering and amount of accumulated sediment (approximately 2.9 million cy), and the inability to detain water in the reservoir during the construction period due to public health and safety risk. For example, it may be feasible to hydroseed portions of the reservoir bottom, but it would not stabilize enough sediment to reduce the sediment mobilization in a meaningful way and stabilization would not function effectively when inundated by reservoir inflow. Similarly, measures to settle sediments within the reservoir, rather than allowing them to move downstream (turbidity curtains or operating the reservoir at a higher level) would not be feasible during construction because they required detention of reservoir inflows, ~~which of the potential to~~ increases risks of the interim dam being overtopped and is inconsistent with the FERC Interim Risk Reduction Measures. Therefore, the impacts from sedimentation during construction of the Seismic Retrofit components is considered **significant and unavoidable**.

Erosion and sedimentation impacts at out-of-reservoir construction areas would be **less-than-significant** with implementation of the SWPPP, Valley Water BMPs, and VHP conditions and AMMs.

Construction of Conservation Measure components would be **less-than-significant** with respect to erosion and sedimentation because erosion and siltation would not be substantial, given implementation of the SWPPP, Valley Water BMPs, and VHP conditions and AMMs.

Similarly, the post-construction operational and maintenance effects of the Project (e.g., implementation of FAHCE rule curves, emergency drawdown, and Conservation Measures) would be **less than significant,** because erosion and siltation would not be substantially different from Pre-FERC Order conditions.

Similarly, adjustments to FAHCE rule curves or modifications of Conservations Measures during Post-construction FAHCE Adaptive Management are likely to have erosion and siltation impacts similar to but smaller in magnitude than the activities being managed, and impacts would be **less than significant**.

Mitigation Measures

WQ-1 Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan ~~No mitigation is feasible.~~

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite (Less than Significant)

Seismic Retrofit Construction

As discussed under subsection i. above, construction of the Seismic Retrofit components would alter drainage patterns in a number of ways, albeit temporarily, many of which could increase the rate or amount of surface runoff. Perhaps most significantly, construction would involve denuding areas of vegetation to create access or stable surfaces, which reduce the capacity of these areas to absorb water and slow runoff (as well as increasing their susceptibility to erosion). For example, staging areas, access roads, and construction work areas outside of the reservoir may involve some amount of vegetation clearing and grubbing, and grading, which will create surfaces that have less natural material and root systems to slow runoff. Likewise, utilization of such areas by heavy equipment during construction will further compact soils, making the ground surface harder and less conducive to infiltration of water to soil or groundwater. The further dewatering of the reservoir during Seismic Retrofit construction (refer to discussion under subsection i.) could increase the rate of surface runoff (e.g., following storms), but it should not substantially change the total amount of runoff that may occur and collect behind the dam.

In general, the changes to drainage patterns caused by construction activities would not be anticipated to result in flooding on- or offsite. Runoff from construction work areas within the reservoir (e.g., stockpile areas, PGBP, access roads, etc.), as well as many work areas in uplands adjacent to the reservoir, would drain to the collection area behind the cofferdam or interim dam(s). This water could then be discharged via the Stage 2 Diversion System in a controlled manner, which would not result in flooding. Other work areas may drain directly to Coyote Creek; however, the volume of water from these work areas would not be expected to result in overtopping of banks or any other form of flooding on- or offsite. Construction of the Seismic Retrofit would not involve creation of any interim impervious surfaces, as staging areas, access roads, and other types of work area surfaces would not be paved (permanent additions of impervious surface due to the Seismic Retrofit elements of the Project are discussed under *Operations and Maintenance Impacts Analysis* below).

Construction activities would take place in the reservoir April through November and construction and staging areas would be winterized during the wet season to minimize impacts from sedimentation and excess runoff. Additionally, implementation of the SWPPP for out-of-reservoir construction activities, and applicable Valley Water BMPs~~,~~ and VHP conditions and AMMs would serve to reduce the rate and amount of surface runoff from construction disturbance areas. BMPs such as temporary soil stabilization measures/practices (e.g., covering disturbed areas with mulch, temporary seeding, soil stabilizers, binders, fiber rolls or blankets, temporary vegetation, and permanent seeding) reduce potential for erosion, but would also generally slow runoff and encourage infiltration to soil and groundwater. As such, impacts would be less than significant.

Conservation Measures Construction

Several of the Conservation Measure components would alter drainage patterns and the potential for runoff generation during construction, in a manner similar to that described above for the seismic retrofit component. The Ogier Ponds CM would alter drainage patterns via establishment and utilization of access roads, staging and stockpiling areas, and other work areas. These areas would involve vegetation clearing and grubbing, and grading, which would generally increase the rate and volume of surface runoff from the areas, as described above. ~~The~~ Maintenance of the North Channel Reach ~~Extension~~ would only involve minor maintenance activities, and increased surface runoff would be limited ~~similar activities on somewhat of a smaller scale~~. These effects would be minimized through implementation of the SWPPP, Valley Water BMPs, and VHP conditions and AMMs and would not be expected to result in flooding on- or offsite. The runoff from disturbance areas associated with construction of these measures would likely flow into one of the existing ponds or into Coyote Creek, neither of which would pose a threat of flooding.

The maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach would have limited potential to result in impacts related to increased surface runoff and associated flooding. This conservation measure would be limited to placement of gravel and woody debris and other in-channel improvements within the Live Oak Restoration Reach. There may be some staging and ground-disturbance outside the channel that could potentially increase surface runoff rates and volumes, but these effects would be minimal. Similarly, the Sediment Augmentation Program would involve limited use of staging areas, use/establishment of access roads, and/or other ground-disturbing activities that could potentially increase surface runoff such as to cause on- or offsite flooding.

Construction of the Phase 2 Coyote Percolation Dam CM would utilize an existing 0.8-acres parking area for staging of construction equipment, supplies, and materials, as well as an existing road that provides access to the Coyote Percolation Dam from Metcalf Road. As such, construction of the improvements would not require vegetation clearing and grading of such areas, and would not increase the surface runoff potential of the construction work/disturbance areas above the existing conditions baseline. The actual improvements would be conducted within the channel, which would not affect surface runoff conditions.

Construction related impacts from Conservation Measure components would have a less-than-significant impact on surface runoff that could result in flooding.

Construction Monitoring

None of the construction monitoring activities proposed for implementation as part of the Project would substantially increase the rate or amount of surface runoff such as to potentially result in flooding on- or offsite. The monitoring activities would not require creation of staging areas, access roads, or other types of surfaces or facilities that could alter surface runoff behavior. As such, no impact on flooding from runoff would occur.

Seismic Retrofit Post-Construction Operations and Maintenance

During operations and maintenance, the seismic retrofit components of the Project would alter drainage patterns through permanent additions of impervious surface area. This impervious surface area would increase the rate and amount of surface runoff, although not to a degree to result in any on- or offsite flooding. As described in Chapter 2, *Project Description,* several sections of roadway in the immediate vicinity of Anderson Dam would be widened and/or relocated as part of the Project, resulting in a greater road surface area. In particular, various portions of Coyote Road would be widened resulting in a total of approximately 2.14 acres of additional impervious surface area relative to the Pre-FERC Order Conditions Baseline. Other areas that were disturbed during construction (e.g., access roads, staging areas, stockpile areas, etc.) would be restored to their pre-construction conditions, and as such, would not be expected to exhibit characteristics (e.g., compacted soils) conducive to elevated stormwater runoff over the long term.

In general, impervious surfaces increase the amount of water runoff following storms, as no portion of the precipitation falling on these areas is allowed to infiltrate into the soil and groundwater. Rather, the water flows directly off the surface and at a higher velocity compared to "natural" ground conditions. In the case of the Seismic Retrofit component, the impervious surface that would be added would be due to expansion of existing impervious facilities (e.g., Coyote Road and access roads in the vicinity of Anderson Dam). The impervious surface would not be added to a completely new area that is entirely pervious. Additionally, the existing Coyote Road and nearby access roads are in relatively rural areas with pervious, natural groundcover on each side of the road. The permanent roadway modifications installed as part of the Project would be designed to drain runoff into a stormwater system that would discharge runoff to Coyote Creek in a controlled manner or flow directly to the surrounding pervious lands. As such, this runoff from the widened Coyote Road would be expected to either infiltrate to the soil in surrounding areas or flow to Coyote Creek.

Given these factors, the additional impervious surface that would be created via the Seismic Retrofit components would not substantially alter the Pre-FERC Order Conditions Baseline with respect to runoff that could contribute to flooding. In any situation where there is precipitation heavy enough to result in localized flooding, the roadway improvements would not be considered a primary contributing factor, such that the flooding likely would have occurred regardless. The Project would also comply with the Municipal Regional Stormwater NPDES permit as applicable (refer to Section 3.11.2.2 ~~3.11.1.1~~).

Maintenance of the dam facilities would be done consistent of the DMP, and are covered by the DMP EIR, AMMs, and mitigation measure as discussed in Section i above. Maintenance activities for the Seismic Retrofit components would not create new areas of impervious surface. Certain activities, such as vegetation management activities, could increase surface runoff rates, as vegetation tends to slow runoff and provides greater soil infiltration. To the extent vegetation is thinned or removed, this could increase the rate and amount of surface runoff generated during a precipitation event. However, the volume of additional runoff would be minor and would not contribute to flooding potential.

Effects from additional runoff during operation and maintenance of the Seismic Retrofit components would be less than significant.

Conservation Measures Post-Construction Operations and Maintenance

Once constructed, none of the Conservation Measure components would create any permanent areas of impervious surface. As such, the conservation measure components would not increase the rate or amount of surface runoff over the long-term relative to the pre-FERC Order conditions baseline. Therefore, there would be no potential for increased runoff due to CM operations to potentially result in flooding on- or offsite.

Maintenance and monitoring activities for the Conservation Measures components would not create new areas of impervious surface. Certain activities, such as vegetation management activities, could increase surface runoff rates, as vegetation tends to slow runoff and potentially result in greater soil infiltration. To the extent vegetation is thinned or removed, this could increase the rate and amount of surface runoff generated during a precipitation event. However, the volume of additional runoff would be minor and would not contribute to flooding potential.

The effects from additional runoff during the post-construction operations and maintenance of Conservation Measure components on flooding would not be significant.

Post-Construction Project FAHCE Adaptive Management

AMP monitoring and adaptive management activities would not alter runoff from Project sites because they would not result in surfaces or facilities that could substantially alter surface runoff. As such, no impact from runoff that could cause flooding would occur.

Significance Conclusion Summary

Implementation of the SWPPP for out-of-reservoir construction activities, and applicable Valley Water BMPs~~,~~ and VHP conditions and AMMs, would reduce potential for construction disturbance areas to generate increased surface runoff and associated on- or offsite flooding for the Seismic Retrofit, Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, and Phase 2 Coyote Percolation Dam CM. The Seismic Retrofit components of the Project would create relatively minor amounts of new impervious surface (widened/expanded existing roadways), which would not result in a significant increase in surface runoff and flooding, whereas the Conservation Measure components would not include any new impervious surfaces. In summary, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

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 (Less than Significant)

Seismic Retrofit Construction

As discussed above, Seismic Retrofit construction would increase potential surface runoff from disturbed/compacted areas within the construction footprint. The dewatering of the reservoir would change runoff patterns, primarily by reducing the inundated area and increasing erosion/sedimentation; however, the runoff from the upstream areas from the dam and the former reservoir bottom will be captured behind the cofferdam and/or directly passed through to Coyote Creek downstream. Similarly, many of the stockpile areas and the PGBP would be located upstream of the dam within the reservoir bottom. While these areas would not create or contribute substantial runoff water, the runoff water that passes through these areas could carry large amounts of suspended sediment. The staging areas located downstream of the dam would increase runoff potential since creation of the staging areas would involve vegetation clearing and grading (refer to discussion under subsection i. above).

The majority of the runoff water from construction disturbance areas, or the water that flows into the reservoir and collects behind the cofferdam/interim dam, would flow to Coyote Creek or infiltrate into surrounding soil. Coyote Creek is a managed stream with flood protection and stormwater drainage functions. Existing constructed stormwater facilities in the reservoir vicinity are limited to roadside ditches along area roads; no piped conveyance systems, retention ponds, or other stormwater facilities exist in immediate proximity to Anderson Reservoir or Coyote Creek downstream of the reservoir (City of Morgan Hill 2017 ~~2016~~, **Figure SSI-10**). Thus, there would be no potential for runoff generated as a result of Seismic Retrofit construction to exceed the capacity of stormwater drainage systems. Any additional flow to Coyote Creek would be marginal compared to the overall flow of the Creek and/or that flow that would have occurred irrespective of the changes brought about by the Seismic Retrofit construction activities.

Due to the use of hazardous materials during construction (e.g., fuel, oil, lubricants, etc. in construction equipment), there would be potential for discharge of polluted runoff if such materials were handled, stored, or disposed of improperly and/or if any accidental releases of such materials were to occur. Seismic Retrofit construction would require use of a wide range of equipment, as listed in **Table 2-3** in Chapter 2, *Project Description,* much of which would involve hazardous materials. The equipment could potentially leak during operation if it is not maintained properly; additionally, hazardous materials could spill during re-fueling or maintenance/servicing activities that may be necessary during the construction period. Hazardous materials stored onsite at staging areas or temporarily at work areas could also spill if proper protocols are not followed and containment provided. These issues are discussed further in Section 3.10, *Hazards and Hazardous Materials*.

Such releases of hazardous materials during Seismic Retrofit construction, if they were to occur, could result in subsequent polluted runoff if the spill materials were not cleaned up prior to a precipitation event. While the spilled hazardous materials may remain in soil or on the ground surface during the dry season, the materials could be mobilized and washed down to receiving waterbodies (e.g., Coyote Creek) during the first rainstorms of the winter season. Without preventative measures, these effects would be considered significant.

Implementation of the SWPPP for out-of-reservoir construction activities, in compliance with the Construction General Permit, along with applicable Valley Water BMPs and VHP conditions and AMMs, would substantially reduce the potential for accidental releases of hazardous materials during Seismic Retrofit construction, as well as the potential for impacts in the event of such releases. The SWPPP would include good housekeeping measures for: construction materials, waste management, vehicle storage and maintenance, landscape materials, and potential pollutant sources (SWRCB 2009). Examples include conducting an inventory of products used, implementing proper storage and containment, and properly cleaning all leaks from equipment and vehicles (SWRCB 2009). While the SWPPP would be prepared prior to construction, consideration of these factors and inclusion of appropriate BMPs for pollutant control would reduce the potential adverse impacts during Seismic Retrofit construction.

The following Valley Water BMPs would reduce potential impacts associated with hazardous materials releases: ~~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). These BMPs would include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites, and providing training spill cleanup materials for field personnel, among other measures. Furthermore, compliance with VHP measures, including AMMs 2, 7, 8, 9, 11, 12, 72, 75, 76, 87, 88, and 100, whether implemented independently or incorporated as part of the SWPPP, would reduce potential impacts from hazardous materials during out-of-reservoir construction activities. Implementation of measures included either as part of the SWPPP, Valley Water BMPs, or VHP AMMs, would prevent Seismic Retrofit construction activities from contributing substantial amounts of polluted runoff, and this impact would be less than significant.

Conservation Measures Construction

Construction of Conservation Measure components would have similar impacts to those described above for the Seismic Retrofit components of the Project. Each of the conservation measures involving construction activities would involve similar types of equipment as the Seismic Retrofit component, which would have the potential to leak during construction and/or would require storage or servicing with hazardous materials. Implementation of the SWPPP, and applicable Valley Water BMPs and VHP AMMs, would reduce any potential adverse effects associated with hazardous materials and polluted runoff to a level that is less than significant.

All Conservation Measures would all be located along or adjacent to Coyote Creek and runoff from disturbance/work areas would likely flow directly to the creek (or possibly one of the Ogier Ponds). Although Coyote Creek is not considered a stormwater drainage system, per se, the runoff from CM work areas would not meaningfully affect the capacity of the creek. Therefore, the effects would be less than significant.

Construction Monitoring

None of the construction monitoring processes/activities would increase the rate or amount of surface runoff. The construction monitoring activities would not include impervious surfaces or substantial vegetation removal or grading, which could affect surface runoff behavior. Likewise, the construction monitoring activities would all take place within Anderson Reservoir itself or within or along Coyote Creek; no other existing or planned stormwater drainage systems would be affected. Construction monitoring efforts could potentially use small amounts of hazardous materials (e.g., oil or lubricant needed for monitoring equipment, fuel for vehicles transporting personnel to monitoring sites); however, reasonable care exercised by field personnel would prevent substantial impacts from occurring. As such, effects would be less than significant.

Seismic Retrofit Post-Construction Operations and Maintenance

During the post-construction period, the Seismic Retrofit components of the Project would increase the surface runoff rate and amount to some degree in areas where impervious surface is expanded due to the Project (refer to the discussion under subsection ii.). The Seismic Retrofit components (in particular, the permanent roadway modifications) would increase the amount of impervious surface in the area of the dam by approximately 2.14 acres. However, this would be an incremental change and the majority of the land surface in this area would remain pervious (i.e., water falling on the land as precipitation could infiltrate into the soil and groundwater). The Project would comply with the Municipal Regional Stormwater NPDES permit as applicable (refer to Section 3.11.2.2 ~~3.11.1.1~~). Additionally, no hazardous materials would be stored or used on the site during the post-construction period, except that which may be necessary during maintenance and repair activities. Thus, runoff water from new impervious areas would not include substantial pollutants, which could flow to Coyote Creek or other surrounding areas.

Coyote Creek would not typically be considered a “stormwater drainage system,” although it does serve to convey stormwater from the Project area. Any additional runoff from the expanded impervious surfaces resulting from the Seismic Retrofit component of the Project would not affect stormwater facilities.

Dam maintenance would be subject to the DMP, including its BMPs and mitigation measures. Implementation of applicable Valley Water BMPs and VHP AMMs during maintenance work for the Seismic Retrofit components would prevent substantial impacts from occurring due to releases of hazardous materials and generation of polluted runoff.

Therefore, post-construction impacts from operation and maintenance of Seismic Retrofit components would be less than significant.

Conservation Measures Post-Construction Operations and Maintenance

None of the Conservation Measures would create any permanent areas of impervious surface that would contribute runoff to a stormwater system. Implementation of applicable Valley Water BMPs and VHP AMMs during maintenance work for the Conservation Measure components would prevent substantial impacts from occurring due to releases of hazardous materials and generation of polluted runoff. Therefore, post-construction impacts from operation and maintenance of Conservation Measure components would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

AMP monitoring and adaptive management activities would not alter runoff from Project sites, because they would not result in surfaces or facilities that could alter surface runoff behavior. As such, no impact to stormwater systems would occur.

Significance Conclusion Summary

The seismic retrofit components and CMs would have some potential to generate increased runoff and/or polluted runoff during construction (e.g., due to denuded construction staging and work areas and use, storage, and disposal of hazardous materials); however, implementation of the SWPPP for out-of-reservoir construction activities, and applicable Valley Water BMPs and VHP AMMs would reduce potential impacts to a level that is less than significant. Likewise, while the increased impervious surface area from the Project, and potential use of hazardous materials during maintenance activities, could contribute polluted runoff, implementation of applicable BMPs and AMMs would reduce these effects to less than significant. Adherence to the requirements of the SWPPP for out-of-reservoir construction activities and Valley Water BMPs and VHP AMMs would reduce impacts related to polluted runoff to **less than significant.** While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. Adaptive management activities would have no potential for impacts. Overall, the Project impact would have **less than significant** impacts to storm drainage system capacity or polluted runoff.

Mitigation Measures

No mitigation is required.

iv. Impede or redirect flood flows (Less than Significant)

Seismic Retrofit Construction

Construction of the Seismic Retrofit components would redirect flood flows through the Stage 1 and 2 Diversion Systems and maintain the reservoir in a dewatered state throughout the anticipated 7-year construction period. The extended dewatering period necessary for Seismic Retrofit construction would alter the behavior of flood flows passing through the dam. Modeling was conducted to help determine the potential effects of Seismic Retrofit construction with respect to flooding, as shown in **Table 3.11-8**. See Appendix K for details on the methodology for and results of the Project flood impacts analysis.

Table 3.11-8. Flow Frequency Analysis

		Stochastic Flows (cfs)			
% Freq.	Return Period	Pre-FERC Order (1)	Post-FOCP (2)	Project Construction (3)	Post-Project FAHCE (4)
0.2	500	18,144	2,500	5,830	16,392
0.5	200	13,512	2,500	5,485	12,143
1	100	10,211	2,500	5,185	8,999

2	50	6,253	2,500	4,880	5,875
5	20	530	2,500	4,455	3,369
10	10	516	2,500	4,020	2,505
20	5	506	2,500	3,430	1,609
50	2	Ops Decision	2,500	2,420	Ops Decision

Source: Valley Water 2023b

Notes:

Scenarios considered: (refer to "Potential Flood Impacts for ADSRP" Appendix K for complete description)

1. **Historic Conditions – ~~Seismic~~ Pre-FERC Order Restrictions ~~(Pre-FERC Order)~~.** This scenario represents operational conditions that existed in 2019 with ~~seismic~~ restrictions for both Anderson and Coyote Dam. Anderson was operated to fully release if its DSOD restriction was exceeded. Coyote Dam was operated with the DSOD restriction established in 1992. ~~to fully release if its DSOD restriction was exceeded, unless Anderson was already above its restriction, at which point Coyote outlet would discharge 5 cfs~~.
2. **Post-FOCP and Project Year 1 – Stage 1 Diversion (Existing Conditions)** This scenario represents operational conditions that are expected to occur after the FOCP is completed. The FOCP includes construction of the ADTP, which is the Stage 1 diversion system during the Project. Coupled with the existing outlet, it is operated to a maximum discharge of 2,500 cfs to maintain deadpool.
3. **Project Construction – Stage 2 Diversion** This scenario represents operational conditions that are expected to exist during the Project, while the emergency spillway is offline. Starting in Year 2, the Stage 2 diversion would release up to 6,000 cfs to maintain the reservoir at deadpool, although the Stage 2 diversion can release up to 6,800 cfs if the reservoir were nearly full.
4. **Post ADSRP (FAHCE Operations) –** This scenario represents the presumed operational conditions after the Project is completed and FAHCE rule curves are enacted. The LLOW, HLOW, and spillway would be functional and the reservoir would be operated at its full storage capacity. Regular reservoir releases would be the FAHCE rule curves.

The modeling shows that the 5-year return period (20 percent annual chance) flow would be elevated under both the Post-FOCP scenario and Project Construction scenario compared to the Pre-FERC Order scenario. As can be seen in **Table 3.11-8**, the 5-year flow would reach 2,500 cfs under the Post-FOCP scenario and 3,369 cfs under the Project Construction scenario, compared to 530 cfs under the Pre-FERC Order scenario. The 20-year return period (5 percent annual chance) or greater, flows under the Post-FOCP, Project Construction and Post-Project scenarios would be reduced compared to the Pre-FERC Order scenario.

All flows would be elevated under the Project Construction scenario relative to the Post-FOCP scenario (i.e., existing conditions baseline). Under the Project Construction scenario, modeled flows would not exceed 5,830 cfs, or the 500-year (0.2 percent annual chance) return period. By contrast, under the Pre-FERC Order scenario (i.e., historic conditions), flows could reach a maximum of 16,535 cfs during an equally unlikely event (a 500-year return period). As reference, some of the most damaging floods in recent history occurred in February 2017, when flows in Coyote Creek below the dam reached roughly 7,400 cfs due to heavy rains and an uncontrolled spill from Anderson Reservoir that lasted for a period of 10 days (Valley Water 2017, 2020b).

Figure 3.11-5 (see end of Section 3.11.5) shows the potential inundation areas associated with flow rates along Coyote Creek up to 7,000 cfs. As shown in **Figure 3.11-5**, there would be moderate potential for flooding impacts along Coyote Creek below roughly 3,000 cfs. At this flow rate, there is limited inundation beyond the immediate Coyote Creek streambanks, except at select locations, such as Watson Park adjacent to US 101, the area of William Street Park/Olinder Park, and Los Lagos Golf Course. At greater flow volumes/rates, additional inundation would occur, with some houses or other structures potentially being threatened; however, wide scale flooding would not occur with flows up to 7,000 cfs, which is inclusive of the maximum flows projected under extreme storm events that could occur during Seismic Retrofit construction. Note that the inundation mapping shown in **Figure 3.11-5** takes into account the flood protection measures that are being implemented as part of FOCP and in advance of Seismic Retrofit construction, as discussed further below.

Given that very high flows have been possible during recent history (refer to Pre-FERC Order scenario in **Table 3.11-8**), potential flooding impacts associated with Seismic Retrofit construction would be reduced compared to both the Pre-FERC Order and Post-FOCP (existing) conditions. The substantially greater capacities of the Stage 1 and 2 Diversion Systems available in the Project Construction conditions relative to the outlet works that existed in the Pre-FERC Order would enable dam operators to pass through more flows during a large storm event without the potential for an uncontrolled spillway release. In this respect, the potential for catastrophic flooding would be reduced.

It is also important to realize that many of the storm events modeled, as presented in **Table 3.11-8**, are exceptionally rare. Thus, the duration of time that the higher flows could be reached and would persist under the different scenarios is low. This duration of flow exceedance is shown in **Table 3.11-9** below.

Table 3.11-9. Duration of Flow Exceedance

Flow Threshold	300	500	1000	1,400	2000	3000	4000	5000	6000	7000
Percentage of Time (1973-2022) above Threshold										
Pre-FERC Order	8.06%	0.93%	0.15%	.08%	0.04%	0.01%	0.01%	0.01%	0.00%	0.00%
Post-FOCP	7.42%	3.01%	0.72%	0.42%	0.26%	0.01%	0.00%	0.00%	0.00%	0.00%
Project Construction	7.40%	2.98%	0.69%	0.39%	0.21%	0.12%	0.04%	0.02%	0.00%	0.00%
Post-Project FAHCE	1.80%	1.71%	1.71%	1.71%	0.02%	0.01%	0.00%	0.00%	0.00%	0.00%
Number of Total Days (1973-2022) above Threshold										
Pre-FERC Order	1410.4	162.9	25.8	13.4	7.4	2.5	1.3	0.9	0.6	0.3
Post-FOCP	1299.1	526.9	125.4	73.6	46.3	1.3	0.0	0.0	0.0	0.0
Project Construction	1294.9	520.8	121.0	68.3	36.2	20.4	7.1	3.2	0.0	0.0

Flow Threshold	300	500	1000	1,400	2000	3000	4000	5000	6000	7000
Post-Project FAHCE	315.4	309.7	309.7	300.1	2.9	1.2	0.5	0.0	0.0	0.0

Source: Valley Water 2023b

Notes:

*Refer to **Table 3.11-8** for description of the scenarios considered.*

As indicated in **Table 3.11-9**, modeling used hydrologic data for a period spanning 49 years (1973-2022) to estimate durations of elevated releases from Anderson Reservoir under the same four scenarios that were used to model peak flows (**Table 3.11-8**). The higher flows possible under the Project Construction scenario, for example, would occur rarely. Above the 4,000 cfs threshold, only 7.1 days were observed during the 49-year study period under the Project Construction scenario, translating to 0.04 percent of the time. The 5,000 cfs threshold was only exceeded for 3.2 days (0.02 percent of the time) under the Project Construction scenario. This was a greater duration of high flows than under the Post-FOCP scenario, where no days were observed when flows exceeded even 3,000 cfs. Relative to the Pre-FERC Order scenario, a greater number of days were observed with flows exceeding 5,000 cfs than under the Project Construction scenario; however, the Pre-FERC Order scenario had more time with flows exceeding the 6,000 and 7,000 cfs thresholds as compared to the Post-FOCP (existing conditions) and Project Construction scenarios.

The modeling shows that moderately high flows (e.g., above 500 or 1,000 cfs) would occur much more frequently under the Post-FOCP and Project Construction scenarios, compared to pre-FERC Order conditions. This is due to the larger capacities of the outlet works under these scenarios and the operational approach of passing through all inflow (i.e., no storage) during the Seismic Retrofit construction period. These more frequent moderately high flows would not result in flooding impacts downstream as Coyote Creek has the capacity to pass at least 3,000 cfs without flooding homes, due to the implementation of FOCP flood management measures as discussed in the Environmental Setting section (3.11.1) (Valley Water 2023a). In addition, as discussed in the Environmental Setting, Valley Water would implement additional flood management measures along Coyote Creek to accommodate even higher controlled flows, known as the Coyote Creek Flood Protection Project, that has been designed to protect communities in San José from storms similar to the 2017 event that causes flooding in residential areas of downtown San José. As mentioned above, the 2017 event was approximated to be a 20-year event (or 5 percent chance of occurring annually) and included flows of about 7,400 cfs passing through the Anderson spillway, which combined with several tributaries downstream. Using the 2017 storm event as the design criteria for the Coyote Creek Flood Protection Project would also provide protection for those same communities when Project Construction flows are made.

Altogether, the modeling shows that the potential for flooding along Coyote Creek would be somewhat elevated during the Seismic Retrofit construction period relative to the Post-FOCP condition. However, the potential flood flows associated with storms during the Seismic Retrofit construction period (Project Construction scenario) would not be anticipated to result in widespread, damaging floods, particularly given implementation of the two phases of the Coyote Creek Flood Protection Project. The potential for flooding would be largely reduced relative to Pre-FERC Order Conditions, when uncontrolled spillway releases could result in very high flows in Coyote Creek during exceptionally large storm events.

Several downstream recreational facilities are already prone to temporary inundation under the Pre-FERC Order Conditions Baseline. In particular, the Coyote Creek Trail is a regional trail that is owned and operated by the Santa Clara County Department of Parks and Recreation (SCCDPR) connects parkland from the Anderson Lake Visitor Center to Hellyer Park via the Coyote Creek Parkway. The Coyote Creek Trail includes several low-flow crossings across Coyote Creek that flood routinely, rendering the trail unavailable to provide a regional connection for bicycle commuters and trail users of other types. SCCDPR has observed that key crossings close at approximately 25 cfs at the Edenvale Gage; this includes a creek crossing that provides the sole access to a picnic area within Hellyer Park. Based on the hydrologic record between 1988 and 2020, streamflow at the Edenvale Gage exceeds 25 cfs approximately 13 percent of the time. This data set is difficult to correlate to Anderson Dam releases that are modeled in **Table 3.11-8** and **Table 3.11-9**, because rates of in channel percolation, evaporation, and stream inputs other than Anderson Reservoir contributions vary widely depending on hydrologic conditions. Depending on conditions, releases from Anderson Reservoir of 55 cfs to 90 cfs could trigger the key low-flow crossings to be closed and historically, those flow rates occurred 13 percent and 4 percent of the time, respectively.

While the Coyote Creek Trail crossings will continue to be periodically closed during Project Construction scenarios, the general trend observed in **Table 3.11-9** shows that releases of 300 cfs will continue to occur routinely, but for shorter periods (8.06 percent in the Pre-FERC Order scenario versus 7.40. percent in the Project Construction scenario) due to the new larger capacity Stage 2 Diversion. However, the maximum geographic extent of inundated parkland would be less under the Project Construction conditions in comparison to the Pre-FERC Order Conditions.

The dam would be essentially out of commission during the 7-year construction period and thus would perform greatly reduced flood protection functions (e.g., catching runoff from upstream areas during large storms through maintenance of an open “flood pool” in the reservoir, nor would it be available to provide water consistently to Coyote Creek making the habitat and groundwater recharge programs completely reliant on imported water releases (see Section 3.4, Biological Resources – Fisheries, for greater discussion). Anderson Dam was never intended or designed as a flood protection facility, but has provided a level of incidental flood protection. The completion of the FOCP has increased the ability to drain the reservoir quicker and has already provided greater flood protection in addition to keeping storage in the reservoir at a greatly reduced level (thus providing greater capacity to hold back large storm events). The modeling indicates flows from very large storms (e.g., 50-year, 100- year and 500-year events) would have reduced peak flows when comparing Pre-FERC Order Conditions to the Project Construction scenario. As a result, impacts from impeding or redirecting flood flows during seismic retrofit construction would be less than significant.

Conservation Measures Construction Impacts Analysis

The Ogier Ponds CM would involve construction of a new channel for Coyote Creek around the ponds. Construction would take place during the dry seasons when flood flows are very unlikely and construction areas would be winterized during the wet season to accommodate high flows. Sediment augmentation and maintenance of the Live Oak habitat enhancement would add gravels to the creek, which would have potential for minor redirections of flood flow; however, the effects of these measures on flood flow would not be substantial. Construction of the Ogier Ponds CM, <u>Maintenance of the</u> North Channel <u>Reach</u> ~~Extension~~, and Phase 2 Coyote Percolation

Dam CM would each involve construction activities within the Coyote Creek Channel. To the extent that construction equipment could be in the channel during high flow events, this could potentially impede the passage of flood flows and/or exacerbate flooding effects. However, in accordance with BMP WQ-1 (Conduct Work from Top of Bank), work activities occurring in the channel would be conducted from the top of bank if access is available and there are flows in the channel. Additionally, in accordance with VHP AMM 73, wet season construction would be avoided.

Thus, it is unlikely that construction equipment associated with the Conservation Measure components would be present in the channel during high flows (which would almost certainly occur during the wet season). Moreover, the degree to which construction equipment or materials in the channel could impede flood flows would likely not be substantial. As seen in **Table 3.11-8** and **Table 3.11-9**, the rates of flow that are possible during Seismic Retrofit construction (Project Construction scenario) associated with storm events are relatively modest compared to the Pre-FERC Order scenario. Additionally, the period and frequency during which very high flows occurred over the 49-year study period was very low. Therefore, impacts from impeding or redirecting flood flows would be less than significant.

Construction Monitoring Impacts Analysis

None of the construction monitoring activities that would be conducted for the Project would include substantial above-ground features or equipment that could greatly impede or redirect flood flows. Many of the construction monitoring efforts, as described in Chapter 2, *Project Description,* would involve field surveys and observations that would be conducted on foot. Some minor equipment may be placed within or adjacent to the stream channel (e.g., PIT antennas and VAKI Riverwatcher units); however, these facilities would not obstruct the flow of Coyote Creek. As a result, no impact would occur.

Seismic Retrofit Post-Construction Operations and Maintenance

During the post-construction period, the flood protection capability of Anderson Dam would be improved relative to the Pre-FERC Order Conditions Baseline, as reservoir storage restrictions would be removed and the new LLOW would be operable. As noted above, Anderson Dam was never intended or designed as a flood protection facility; nevertheless, the reservoir has been operated to provide incidental flood protection to downstream communities, while maintaining water storage at the end of the wet season in April, in accordance with the 1982 Anderson-Coyote Combined Incidental Flood Risk-Reduction Rule Curve (Valley Water 2023a ~~2022a~~). The Anderson-Coyote Combined Incidental Flood Risk-Reduction Rule Curve is based on estimated monthly inflows into the reservoir. During the wet season, when inflows from precipitation events are expected, Valley Water may release water from storage to avoid spilling from the reservoir (Valley Water 2023a ~~2022a~~). This results in no water supply impact since it is anticipated that the water released from storage will be replaced by water from the precipitation event.

Following completion of the Seismic Retrofit construction, the Anderson-Coyote Combined Incidental Flood Risk-Reduction Rule Curve would be implemented, in conjunction with the new reservoir operating rules under FAHCE. As shown in **Figures 2-13 and 2-14** in Chapter 2, *Project Description,* the FAHCE rule curves include an Incidental Flood Risk-Reduction Rule Curve Release stipulation, which requires releases when combined reservoir storage volumes exceed a certain threshold that varies based on the time of year. This maintains a “flood pool” that is reserved for catching runoff from storm events during the rainy season. The threshold for incidental flood risk-reduction releases ranges from roughly 75,000 AF in December to 110,000 AF in May (the point at which it meets the maximum storage capacity of the combined reservoirs, and flood releases are thus no longer necessary). The model results in **Table 3.11-8** and **Table 3.11-9** include a scenario to evaluate post-construction conditions (Post-Project FAHCE), which includes the assumes adherence to the Anderson-Coyote Combined Incidental Flood Risk-Reduction Rule Curve that has been incorporated FAHCE (Appendix D).

Thus, the reconstructed Anderson Dam, in concert with Coyote Dam, would provide at least the same level of flood protection during the post-construction period as under the Pre-FERC Order Conditions Baseline. In fact, the flood protection functions of the dam/reservoir would be improved, since the improvements to the outlet works as part of the Seismic Retrofit components would allow for more rapid drawdown of the reservoir water level in the event of large storms. Specifically, whereas the Pre-FERC Order capacity of Anderson Dam’s outlet works was 500 cfs (under maximum head), the capacity of the LLOW and HLOW following seismic retrofit construction will be approximately 1,480 cfs and 5,300 cfs, respectively, when the reservoir is completely full. However, only releases from the LLOW would be used for normal operation of the FAHCE rule curves, including the Anderson-Coyote Combined Incidental Flood Risk-Reduction Rule Curve, and a more realistic maximum of 1,400 cfs is assumed to be the post-construction maximum for controlled releases. This improved operational ability will allow dam operators to better maintain reservoir levels within the parameters specified in the Anderson-Coyote Combined Incidental Flood Risk-Reduction Rule Curve, and reduce the probability of an uncontrolled spill, which would have the potential for much higher downstream flows.

As shown in **Table 3.11-8**, modeling indicates that maximum flows associated with various storm intensities would be reduced under post-construction conditions (Post-Project FAHCE scenario) compared to the Pre-FERC Order Conditions. Very high flows are still possible under the post-construction conditions; however, these would not be quite as high as under the Pre-FERC Order Conditions Baseline. For example, during a 100-year storm event (1 percent annual chance), flows would reach 8,999 cfs under the Post-Project FAHCE scenario compared to 10,211 cfs under the Pre-FERC Order scenario. During a 500-year event (0.2 percent annual chance), flows would be 16,392 cfs under the Post-Project FAHCE scenario, compared to 18,144 cfs under the Pre-FERC Order scenario. Presumably, this reduction in flood flows under the Post-Project FAHCE scenario is due to the increased LLOW capacity enabling a greater amount water to be released in a controlled fashion prior to a storm's arrival rather than via an uncontrolled spill, although spills could still occur under the future conditions. Given that storms of such intensity are extremely rare, these very high flows did not occur over the duration of modelled flow analysis for the four Project scenarios shown in **Table 3.11-9**, which considered a 49-year period (1973-2022). As such, there were no days (0.0 percent of the time) during which flows exceeded 5,000 cfs under the Post-Project FAHCE scenario, whereas there were 0.9 days (0.01 percent of the time) when flows exceeded 5,000 cfs under the Pre-FERC Order scenario.

The high flows during extreme events under the Post-Project FAHCE scenario could certainly result in extensive flooding and damage along Coyote Creek downstream. As discussed above, the February 2017 floods caused widespread damage when flows in Coyote Creek reached only 7,400 cfs (Valley Water 2017). Albeit, since 2017, flood management measures (e.g., floodwalls, levees, berms, and property elevation/acquisition) have been implemented at key locations to reduce potential impacts from high flows. Nevertheless, given the rarity of these extreme events, and the fact that flooding impacts during Project operation would be reduced relative to baseline (Pre-FERC Order) and post FOCP conditions, the impacts from impeding or redirecting flood flows caused by seismic retrofit operation would be less than significant.

Maintenance of the dam facilities would be done consistent of the DMP, and are covered by the DMP EIR, AMMs, and mitigation measures. While certain activities (e.g., routine maintenance, repair, or replacement of dam parts and facilities) could involve large equipment that may be temporarily located in areas where flows could be impeded (e.g., within stream channel or reservoir area), these activities would take place in the dry season and the scale of these activities would not reasonably result in substantial impedance or redirection of flood flows.

Conservation Measures Post-Construction Operations and Maintenance

Certain Conservation Measure components that would place materials in the channel, such as the Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach and the larger Sediment Augmentation Program, could increase channel roughness in such a manner to reduce flow velocities resulting in potentially increasing surface water elevations in the channel, and potentially increasing the flooding risk. As described in Chapter 2, *Project Description,* these conservation measures would involve placement of gravel and woody debris in restoration areas within Coyote Creek (the Ogier Ponds CM would also involve planting of native vegetation in floodplain areas, which could slow down flows, while the Phase 2 Coyote Percolation Dam CM would create a roughened fish ramp). These types of channel features tend to slow down flows, which is generally positive for the ecosystem, but can also contribute to flooding concerns. Due to the scale of these activities (affecting just a few relatively small reaches of Coyote Creek), however, the potential adverse effects with respect to flooding downstream would be less than significant.

None of the maintenance activities for the Conservation Measures would substantially impede or redirect flood flows. Additionally, as discussed above, adherence to applicable Valley Water BMPs and VHP <u>conditions and</u> AMMs would avoid work during the wet season and require within-channel work to be done from the top of bank, where possible, thus minimizing potential for impacts.

Certain maintenance activities could improve passage of flood flows, such as vegetation management and sediment removal (e.g., that associated with the Ogier Ponds CM and Phase 2 Coyote Percolation Dam CM). Excessive vegetation growth and sediment accumulation within the channel or floodplain can reduce channel capacity and thereby increase flood risk; thus, the routine maintenance activities proposed as part of the Conservation Measures would minimize this potential impact. None of the monitoring activities during the post-construction period would substantially impede or redirect flood flows.

Post-Construction Project and FAHCE Adaptive Management

AMP monitoring and adaptive management activities would not alter the potential for flooding from Project sites because they would not result in surfaces or facilities that could substantially alter surface runoff behavior. As such, no impact to flooding would occur.

If the changes to the Anderson-Coyote Combined Incidental Flood Risk-Reduction Rule Curve through the adaptive management process are considered in the future, additional evaluations for changes in flood risk impacts would be required.

Significance Conclusion Summary

During construction of the Seismic Retrofit component, there would be increased potential for flooding (i.e., higher flows could occur in Coyote Creek more frequently during storm events) relative to the existing conditions baseline for flows under the 50-year return period; however, this flooding risk would be largely reduced relative to Pre-FERC Order Conditions and would not result in widespread, damaging floods based on the analysis shown in **Figure 3.11-5**. During the post-construction period, flooding risk associated with operation of the dam would be reduced relative to the Pre-FERC Order Conditions Baseline. Several downstream recreational facilities along the Coyote Creek Trail are already prone to temporary inundation under the Pre-FERC Order Conditions Baseline because the trail closes at relatively low flows, approximately 55 cfs to 90 cfs. However, the general trend observed in **Table 3.11-9**, shows that flows less than 1,400 cfs will be more common place (0.08% of the time in Pre-FERC Order scenario versus 1.71% of the time in the Post-Project FAHCE scenario), but overall flood risk releases will occur over a shorter period of time (flows exceeding 300 cfs occurred 8.06 % of the time in the Pre-FERC Order scenario versus the modeled 1.80 % of the time in the Post-Project FAHCE scenario). The maximum geographic extent of disruption of parkland would be less under the Project Construction conditions and the Post-Project FAHCE conditions. Construction, operation, and maintenance of the Seismic Retrofit and Conservation Measures components would not result in substantial impacts related to impedance or redirection of flood flows, and adaptive management also would not result in impacts. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact HYD-2: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of dam failure (Less than Significant)

Seismic Retrofit Construction

As discussed under Impact HYD-1, subsection iv., flooding risk during Seismic Retrofit construction would be elevated relative to existing conditions (Post-FOCP scenario); however, the magnitude of flows possible during Seismic Retrofit construction (approximately 6,000 cfs) would not be expected to result in widespread and extremely damaging flooding, although some structures could potentially be threatened during this level of storm event. The potential for catastrophic flooding risk during Seismic Retrofit construction would be substantially reduced compared to Pre-FERC Order Conditions, where flows could reach 18,144 cfs during a 500-year storm. This is due to the reservoir remaining empty during the Seismic Retrofit construction period and flows being passed through the reservoir with the increased capacity of the Stage 1 Diversion System and Stage 2 Diversion System. The modeling shows that there would be no potential for dam overtopping and failure (at least up to a 500-year event) during the Seismic Retrofit construction period. Similar to Impact HYD-1, subsection iv., the effects of Seismic Retrofit with respect to significant risk of loss, injury or death involving flooding would be less than significant.

Another concern with respect to flooding during the Seismic Retrofit construction period is the potential failure of Coyote Dam, which is located approximately 1.5 miles upstream of Anderson

Reservoir. A ~~seismic~~ restriction has been in place for Coyote Reservoir since 1992, limiting storage in this reservoir to 11,843 AF, or 52.5 percent of total capacity (Valley Water 2023a ~~2022a~~). DSOD determined that such a restriction was necessary based on fault rupture concerns at Coyote Dam. ~~given the construction of the dam and proximity to the Calaveras Fault. Should an earthquake occur when Coyote Reservoir is full there is a chance the underlying soils could liquify and/or the dam could otherwise slump allowing water to flow uncontrolled over slumping soils, which would cause additional erosion of dam material and the possibility of the complete loss of the dam.~~ If Coyote Dam were to fail, the downstream effects would be ~~at least partially mitigated~~ reduced by the presence of Anderson Reservoir, which itself has been under a ~~seismic~~ restriction since 2009. During Seismic Retrofit construction, ~~Anderson Dam would be largely out of commission and could be in various states of deconstruction or reconstruction, depending on the point in the construction process. Although interim dams would remain during the wet seasons of the Seismic Retrofit construction period, and these interim dams would be winterized to provide additional reinforcements ahead of the wet season, the interim dams may not be sufficient to contain any natural inflow to Anderson Reservoir along with the very large, one-time flow from failure of Coyote Dam upstream.~~

~~The~~ In addition, the storage restriction on Coyote Reservoir limits the potential effects of severe damage to the dam from an earthquake and the possibility of uncontrolled flows. With restricted capacity the possibility of water overtopping damage caused by an earthquake is nearly completed avoided.

~~Coyote Dam could experience damage at any time during the year, given that the failure risk is principally related to a possible earthquake along the Calaveras Fault, which could strike at any time. From the perspective of the Seismic Retrofit construction process, such a failure during the dry season could potentially be worse since active construction on the dam would likely be underway and the interim dam would not be winterized. However, in this dry season scenario Coyote Reservoir would very likely have storage less than permitted by the seismic restriction. Conversely, if such a failure were to occur during the wet season, it could be exacerbated by elevated inflows to Anderson Reservoir from the upstream watershed, thereby increasing the total volume of water.~~

~~The inundation map for the failure of Coyote Dam (Valley Water 2020f) shows widescale flooding for downstream communities along Coyote Creek and surrounding areas all the way out to the San Francisco Bay. However, the fair weather failure analysis assumes a failure of Coyote Dam at full capacity at the spillway lip without any additional inflow, while flood waters pass through Anderson Dam spillway without any additional failures (Valley Water 2020f). As noted above, however, Coyote Dam is currently subject to a storage restriction of 52.5 percent of capacity, so the mapping does not reflect current conditions. In some respects, the flooding from a failure of Coyote Dam during the Seismic Retrofit construction period would be less severe than that represented by the inundation map since less water would likely be present in both Coyote and Anderson reservoirs at the time of a failure due to the storage restriction in place; but in other respects, the flooding could potentially be worse if the failure were to occur during the period of Seismic Retrofit construction when the Anderson spillway is offline and if the inflow from Coyote Reservoir were to cause an overtopping of the interim dam.~~

In general, the probability of dam failure in any given year is extremely low. Coyote Dam is designated as an extremely high hazard dam by DSOD due to the potential downstream impacts caused by a failure; nevertheless, the dam has stood for 87 years (having been constructed in 1936) and the odds of an earthquake strong enough to cause a catastrophic failure are extremely low in any given year. However, the risk of dam failure for Coyote Dam is present under existing conditions and will continue to exist after Seismic Retrofit construction until a similar Seismic Retrofit Project ~~project~~ is implemented for Coyote Dam. Additionally, the seismic retrofit of Anderson Dam would not exacerbate the risk of failure of Coyote Dam or increase potential downstream flooding compared to existing conditions.

~~Thus, the increment of change for the impacts analysis is the degree to which such a failure would be exacerbated by the state of Anderson Dam during the Seismic Retrofit construction period. As discussed above, this may depend on the specific point in the 7-year construction period during which a failure were to occur, but it is possible that the impacts would be no worse or even better than if Anderson Dam were up and fully operational. For example, if Anderson Reservoir was operational and completely full at the time of a Coyote Dam failure, there would be no storage space within Anderson Reservoir available to catch the inflows; whereas, if Anderson Reservoir was completely empty during Seismic Retrofit construction, there would be some storage space available, even if the dam may be in a partial state of deconstruction/reconstruction. The Seismic Retrofit includes winterization measures to reduce the risk of failure of the interim dam during construction. An ACB-lined spillway would be constructed on the downstream slope of the interim dam to convey some volume of overtopping flow safely past the interim dams as a winterization measure. Sheet pile guide walls installed along the interim dam crests would guide flows into the ACB-lined spillways. Flows from the bottom of the ACB-lined spillways would be conveyed to Coyote Creek through a gabion-lined discharge channel.~~

Based on the above analysis, including the limited duration when Anderson Dam would be under construction, limited probability of an earthquake at a location and magnitude to severely damage Coyote Dam, ~~seismic~~ restrictions limiting storage in Coyote Reservoir, and ~~measures to minimize the risk of interim dam overtopping of~~ available capacity for Anderson Dam to capture and pass flows in the event Coyote Dam failed during construction of the Seismic Retrofit, the risk of loss, injury or death involving flooding from dam failure is considered less than significant.

Conservation Measures Construction

As discussed in Impact HYD-1, subsection iv., several of the Conservation Measure components would involve construction activities within the channel (Coyote Creek). Thus, there could potentially be equipment within or near the channel that could impede or redirect flood flows, potentially exacerbating flooding effects. However, Valley Water BMPs and VHP conditions and AMMs would limit the potential for impacts by requiring that work activities occurring in the channel be conducted from the top of bank if access is available and there are flows in the channel (BMP WQ-1), and that wet season construction be avoided (AMM 73). In this regard, the potential for equipment to be in the channel during a high flow event (which would very likely occur during the wet season, if it were to occur) would be unlikely. As such, the analysis under Impact HYD-1, subsection iv., concluded that impacts related to impedance or redirection of flood flows from CMs construction would be less than significant.

No other aspects of the Conservation Measure components construction process would increase potential for flooding nor expose people or structures to substantial risk of loss from flooding. Similarly, none of the Conservation Measures would increase the likelihood of a dam failure. Theoretically, a failure of Coyote Dam (see discussion above) could occur at the time that construction activities for Conservation Measure components are underway. ~~As such, the presence of construction equipment and materials within or along Coyote Creek could potentially exacerbate the effects of the flooding/inundation caused by the dam failure~~. If Coyote Dam were to fail, the downstream effects would be reduced by the presence of Anderson Reservoir, which itself has been under a seismic restriction since 2009. During Seismic Retrofit construction, each interim reservoir at the end of each construction season has capacity that exceeds the capacity of Coyote Reservoir. However, the likelihood of a dam failure in any given year is extremely low, and the risks posed by Coyote Dam are present under existing conditions. Moreover, construction of the Conservation Measures would not exacerbate risk of failure of Coyote Dam ~~Moreover, the increment of additional impact that could occur as a result of the construction of the Conservation Measure components during such a scenario would be minor in the context of the widespread flooding caused by a dam failure.~~ Therefore, the impacts on the risk of loss, injury or death involving flooding from dam failure would be less than significant.

Construction Monitoring

None of the construction monitoring activities would cause or substantially exacerbate flooding (see discussion under Impact HYD-1, subsection iv.). Furthermore, none of the construction monitoring efforts would cause or substantially exacerbate the effects of a dam failure (e.g., Coyote Dam). No impact would occur.

Seismic Retrofit Post-Construction Operations and Maintenance

The reservoir release rule curves under FAHCE post-construction provide for capacity for storm flows similar to that provided in the Pre-FERC Order Conditions. Releases are based on available storage and none of the release volumes would induce flooding downstream. Pulse flows would require releases of up to 90 cfs while downstream flooding does not occur until approximately 3,000 cfs. The FAHCE rules curves would not expose people or structures to significant risk of loss, injury, or death involving flooding from dam failure.

The long-term effects of the Seismic Retrofit components with respect to flooding and/or inundation due to dam failure would be beneficial relative to the Pre-FERC Order Conditions Baseline, as the Seismic Retrofit components would improve the stability and resilience of the dam structures to earthquake damage and potential failure. As described in Chapter 2, *Project Description,* the Project addresses seismic deficiencies of the dam, specifically providing a stable dam embankment capable of withstanding the MCEs on the Calaveras and Coyote Creek Range Front Faults. In addition to the seismic deficiencies of the dam, presently the spillway lacks the capacity to safely pass the flood flows related to passage of the PMF event and emergency reservoir drawdown; this would be corrected by the Project which would include an improved spillway. The Project would also construct new outlet works (LLOW and HLOW) at the dam that capable of lowering the reservoir's maximum storage depth by 10 percent within 7 days, and draining its full content within 90 days, in accordance with DSOD requirements (DSOD 2018 ~~2017~~). All of these improvements would make it less likely for the dam to fail in the future either due to earthquake faulting/rupture or by overtopping of the dam during the PMF.

The failure of Anderson Dam when at full capacity would result in catastrophic flooding for downstream communities, including the cities of Morgan Hill, San José, and Milpitas. The dam failure inundation map for Anderson Dam (Valley Water 2019) shows flooding depths of over 20 feet in many inhabited areas, with massive flooding hitting Morgan Hill in a matter of minutes. Following the dam failure, flooding would reach San José within about 2 hours and would reach depths of 10 to 20 feet in many densely populated areas of the city (Valley Water 2019). The inundation map considers a fair weather failure scenario whereby the failure is assumed to occur with the dam at full capacity at the spillway lip without any additional inflow (Valley Water 2019). In this respect, the inundation map is not a true representation of the downstream flooding risk during a failure under the Pre-FERC Order Conditions Baseline, as the storage capacity at Anderson Reservoir had been restricted to 52,553 AF (55 feet below the dam crest) during this period, which is substantially less than full capacity. Nevertheless, if a failure were to have occurred during the Pre-FERC Order period, this still would have resulted in substantial, damaging flooding downstream. Like Coyote Dam, DSOD rates Anderson Dam as an extremely high hazard dam due to the potential for downstream impacts.

As such, the Seismic Retrofit components would be a great benefit to the region by reducing the potential for dam failure and the associated devastating impacts. Following construction of the Project, the storage restriction would be lifted, and the reservoir would be returned to full capacity. Although the dam crest would be raised as part of the Project, the spillway elevation would not change, and thus the maximum water surface elevation for storage at the reservoir would not change relative to the Pre-FERC Order Conditions Baseline. As described in Chapter 2, *Project Description,* the Project is expected to decrease the storage capacity at the reservoir somewhat, as the current reservoir capacity of 89,278 AF (which has been reduced compared to historical conditions by approximately 1,790 AF due to sediment accumulation within the reservoir) is expected to be reduced to 88,000 AF following construction. Although a portion of the accumulated sediment would be transported out of the reservoir area during diversion of reservoir inflows around the construction area (thus recovering lost storage), storage would also be lost due to in-reservoir disposal. Thus, the total volume of water that would be stored behind the dam and could potentially be released during a dam failure would not increase and would decrease slightly, in the future following construction of the Project.

As noted under Impact HYD-1, subsection iv., flood management measures have been implemented and planned along Coyote Creek specifically to accommodate an event like the 2017 storm, which will also accommodate the higher flows that would be possible as a result of the Project and expanded outlet works capacity.

Additionally, none of the maintenance activities during the post-construction period would substantially increase the risk of flooding from dam failure. If anything, the proper maintenance of dam components and facilities consistent with the DMP would reduce the potential for dam failure.

Based on the above analysis, the impact of Seismic Retrofit post-construction operations and maintenance on risks of loss, injury, or death caused by flooding due to dam failure would be less than significant.

Conservation Measures Post-Construction Operations and Maintenance

None of the Conservation Measure components that would be implemented as part of the Project would increase the potential for dam failure or substantially increase the potential risk to downstream communities from flooding. As discussed above, certain aspects of the Conservation Measure components could potentially exacerbate flooding (e.g., channel roughening, replenishment of coarse sediment, disconnecting ponds that may serve as detention facilities [Ogier Ponds]); however, other activities to be conducted as part of the Conservation Measure components would serve to reduce flooding potential (e.g., vegetation management along stream banks). Taken together, the effects of the Conservation Measures with respect to flooding would be marginal in the context of the greater Coyote Creek system, including Anderson Dam.

The risk of loss, injury or death involving flooding from dam failure caused by Conservation Measure operations and maintenance would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

AMP monitoring and adaptive management activities would not increase the risk of loss, injury or death involving flooding from dam failure. As such, no impact would occur.

Significance Conclusion Summary

Construction of the Seismic Retrofit components would not directly increase the risk of flooding due to dam failure ~~but could potentially~~ and would not exacerbate the impacts from a failure of Coyote Dam, which is located upstream of Anderson Dam and is also susceptible to seismic risks. The probability of such a dam failure would be low, however, and the risk of Coyote Dam failing was present under the Pre-FERC Order Conditions Baseline. In addition, Anderson Reservoir would have sufficient capacity to capture and pass water released in the event Coyote Dam failed during construction of the Seismic Retrofit, even if Coyote Reservoir was at the full storage capacity.

None of the Conservation Measure components would substantially increase the risk of loss, injury or death involving flooding, including that as a result of dam failure.

Over the long-term, the Project would greatly improve the safety of downstream communities with respect to flooding and dam failure, as it would correct existing deficiencies in Anderson Dam. Similarly, maintenance and monitoring activities during the post-construction period would not increase the risk of flooding. As such, the Project would not cause significant risk of loss, injury or death involving flooding from dam failure, and the impact would therefore be **less than significant.**

Mitigation Measures

No mitigation is required.

Impact HYD 3: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation (Less than Significant)

As discussed in Section 3.11.2.4 (Tsunamis, Seiches, and Flooding) the Project site is not vulnerable to tsunami or seiche therefore these impacts are not discussed in the analysis below. The risk of release of pollutants due to inundation from flood hazard is discussed below.

Seismic Retrofit Construction

As discussed in HYD 1 and HYD 2, construction of the Seismic Retrofit components would not result in significant impacts to flooding. The only area that would be inundated during construction are part of the bottom of Anderson Reservoir that are typically inundated during normal operations. Construction activities would bring heavy equipment to the reservoir bottom which use hazardous materials (e.g., fuel, oil, lubricants, etc.). There would be potential for discharge of pollutants in areas subject to inundation if such materials were handled, stored, or disposed of improperly and/or if any accidental releases of such materials were to occur. Hazardous materials stored onsite at staging areas or temporarily at work areas could also spill if proper protocols are not followed and containment provided. These impacts are discussed further in Section 3.10, *Hazards and Hazardous Materials*.

Such releases of hazardous materials during construction, if they were to occur, could result in subsequent polluted runoff if the spill materials were not cleaned up prior to future filling of the reservoir. While the spilled hazardous materials may remain in soil or on the ground surface during the construction, the materials could be mobilized to receiving waterbodies (e.g., Coyote Creek) when the reservoir is filled post-construction. Without preventative measures, these effects would be considered significant.

Implementation of the SWPPP for out-of-reservoir construction activities, in compliance with the Construction General Permit, along with applicable Valley Water BMPs and VHP conditions and AMMs, would substantially reduce the potential for accidental releases of hazardous materials and other pollutants during seismic retrofit construction, as well as the potential for impacts in the event of such releases. The SWPPP would need to include good housekeeping measures for: construction materials, waste management, vehicle storage and maintenance, landscape materials, and potential pollutant sources (SWRCB 2009). Examples include conducting an inventory of products used, implementing proper storage and containment, and properly cleaning all leaks from equipment and vehicles (SWRCB 2009). While the SWPPP would be prepared prior to construction, consideration of these factors and inclusion of appropriate BMPs for pollutant control would reduce the potential adverse impacts during seismic retrofit construction.

Additionally, the following Valley Water BMPs would reduce potential impacts associated with hazardous materials releases: ~~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). These BMPs would include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites, and providing training spill cleanup materials for field personnel, among other measures. Furthermore, compliance with VHP measures, including AMMs 2, 7, 8, 9, 11, 12, 72, 75, 76, 87, 88, and 100, whether implemented independently or incorporated as part of the SWPPP, would reduce potential impacts from pollutants. Implementation of measures included either as part of the SWPPP for out-of-reservoir construction activities and applicable~~,~~ Valley Water BMPs~~,~~ or VHP conditions and AMMs, would prevent Seismic Retrofit construction activities from releasing pollutants due to inundation, and this impact would be s less than significant.

Conservation Measures Construction

Construction of the Conservation Measures components would have similar impacts to those described for the Seismic Retrofit components. Specifically, the Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, and Phase 2 Coyote Percolation Dam CM, would bring heavy equipment to areas that are subject to future flooding or inundation. Construction equipment would have the potential to leak during construction and/or would require storage or servicing with hazardous materials. Implementation of the SWPPP, and applicable Valley Water BMPs and VHP conditions and AMMs, would reduce any potential adverse effects associated with hazardous materials and polluted runoff due to inundation to a level that is less than significant.

Construction Monitoring

None of the construction monitoring processes/activities would involve heavy equipment. Construction monitoring efforts could potentially use small amounts of hazardous materials (e.g., oil or lubricant needed for monitoring equipment, fuel for vehicles transporting personnel to monitoring sites); however, routine reasonable care exercised by field personnel would prevent substantial impacts from occurring. As such, effects would be less than significant.

Seismic Retrofit and Conservation Measures Post-Construction Operations and Maintenance

Maintenance of Anderson Reservoir is subject to the DMP, including its BMPs and mitigation measure related to pollutant releases. No hazardous materials would be stored or used on the site during the post-construction period, except that which may be necessary during maintenance and repair activities, which would not be stored in areas that are subject to flooding or inundation. Implementation of applicable Valley Water BMPs and VHP conditions and AMMs during maintenance work for the seismic retrofit components would prevent substantial impacts from occurring due to releases of hazardous materials and generation of pollutants. Therefore, post-construction impacts from operation and maintenance of seismic retrofit components would be less than significant.

Conservation Measures Post-Construction Operations and Maintenance

Normal operations of the Conservation Measure components would not bring pollutants into contact with areas that are subject to flooding. Similar to maintenance of the Seismic Retrofit components, maintenance of Conservation Measure components would be subject to applicable Valley Water BMPs and VHP conditions and AMMs during maintenance work that would prevent substantial impacts from occurring due to releases of hazardous materials and generation of pollutants. Therefore, post-construction impacts from operation and maintenance of Conservation Measure components would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

AMP monitoring activities would have impacts similar to those described for Construction Monitoring. ~~F~~AMP adaptive management actions would have impacts similar to, but less in magnitude, than the measures being adaptively managed. As such, impacts would be less than significant.

Significance Conclusion Summary

The seismic retrofit components and Conservation Measures would have some potential to generate pollutants in areas that are subject to inundation during construction (e.g., use of heavy equipment in construction staging and work areas and use, storage, and disposal of hazardous materials); however, implementation of the SWPPP for out-of-reservoir construction activities and applicable Valley Water BMPs and VHP conditions and AMMs would reduce potential impacts to a level that is **less than significant**. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Likewise, the potential use of hazardous materials during maintenance activities could contribute pollutants in areas subject to inundation. Implementation of applicable BMPs and AMMs would reduce these effects to **less than significant**.

Overall, this the Project would result in a less than significant risk of pollutant release due to Project ~~project~~ inundation.

Mitigation Measures

No mitigation is required.

3.11.5 Cumulative Impacts

The geographic study area for the cumulative impact analysis for hydrology is Anderson Reservoir and Coyote Creek to San Francisco Bay.

This section describes the Project's contribution to cumulative hydrology impacts, as summarized in **Table 3.11-10**.

Table 3.11-10. Summary of Project Impact Contribution to Cumulative Hydrology Impacts

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact HYD-1a: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site	Yes	Yes	CC	MM WQ-1 ~~None~~	Yes
Cumulative Impact HYD-1b: 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 ~~matter~~ which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite	No	No	NCC	None	No
Cumulative Impact HYD-1c: 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 ~~matter~~ which would 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	No	No	NCC	None	No
Cumulative Impact HYD-1d: 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 matter which would impede or redirect flood flows	No	No	NCC	None	No
Cumulative Impact HYD-2: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of dam failure	No	No	NCC	None	No
Cumulative Impact HYD-3: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation	No	No	NCC	None	No

***Cumulative Impact HYD-1a: 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 ~~matter~~ which would result in substantial erosion* (Cumulatively Considerable)**

The Project would discharge large volumes of sediment following storms while the reservoir is dewatered given the exposure of sediments previously inundated on the bottom of Anderson Reservoir and the limited capacity to store water behind the coffer dam during construction. Construction and maintenance associated with the various components have the potential to loosen materials that could be washed downstream, thus contributing to accelerated rates of erosion and sedimentation. Additionally, use of staging areas and mobilization of equipment in upland areas or areas directly adjacent to the creek could contribute sediment-laden runoff to Coyote Creek. Conservation Measures such as the Ogier Ponds CM, Spawning Gravel and Rearing Habitat Improvements at Live Oak Restoration Reach, and the Sediment Augmentation Program would provide long-term beneficial impacts to erosion and sedimentation.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction, restoration, or operation also increase the likelihood of erosion to Anderson Reservoir or Coyote Creek.

Cumulative Effects of Project with the FOCP

The FOCP lowered the storage behind Anderson Reservoir to deadpool. This exposed previously inundated sediment that had accumulated behind the dam to erosion as flows from upstream run through the footprint of the reservoir. At the same time, the reduction of stored water reduced the reservoir's ability to settle out sediment being carried down from upstream sources. This may greatly increase the volume of sediments released downstream to Coyote Creek during certain-sized storm events. Construction of new access and haul roads, as well as removal of Coyote Road, during site mobilization involved substantial ground disturbance and operation of heavy equipment. This could result in erosion and subsequent transport/runoff of eroded materials to Anderson Reservoir and Coyote Creek.

Both projects involve construction activities that could increase erosion to Coyote Creek and the Project extends the period that Andreson Reservoir storage is lowered which greatly increases the potential for erosion of the sediments on the bottom of the reservoir. This is a significant cumulative impact even with implementation of a WQMPP for in-reservoir construction areas as required by **Mitigation Measure WQ-1**, and the Project's contribution is cumulatively considerable with the FOCP.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Other projects that could impact erosion in Coyote Creek include the SMP, Coyote Creek Flood Protection Project, Santa Clara County Parks Planning Projects and Natural Resource Management, as well as development projects in the County where ground disturbing activities may take place. These other projects involve construction and maintenance activities that could result in erosion and subsequent transport/runoff of eroded materials.

All construction projects over one acre in size must comply with the Construction General Permit and implementation of a SWPPP which requires erosion control measures and BMPs to avoid and reduce the risk of erosion of materials to adjacent water bodies. The Project, and other Valley Water projects, implement Valley Water erosion control BMPs to further reduce this risk such as: BMP AQ-1 (Use Dust Control Measures), BMP WQ-4 (Limit Impacts From Staging and Stockpiling Materials), BMP WQ-1 (Conduct Work from Top of Bank), BMP WQ-2 (Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms), BMP WQ-5 (Stabilize Construction Entrances and Exits), BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-10 (Prevent Scour Downstream of Sediment Removal), BMP WQ-11 (Maintain Clean Conditions at Work Sites), BMP WQ-16 (Prevent Stormwater Pollution). The cumulative effect of general construction activities is not cumulatively considerable with the implementation of a SWPPP and BMPs for work outside of the reservoir.

Construction of the seismic retrofit would add approximately two acres of impervious surface associated with roads and parking lots around Anderson Reservoir. Implementation of the SWPPP, Valley Water BMPs, and VHP conditions and AMMs would reduce surface runoff and associated sedimentation such that the Project with other projects would not result in a cumulatively significant impact.

However, the combination of the Project's and other probable future projects' erosion impacts is cumulatively significant, and Project's contribution of erosion to Coyote Creek from sediments on the bottom of Anderson Reservoir is cumulatively considerable.

Significance Conclusion Summary

The Project, FOCP, and most other probable future projects are over one acre in size and must comply with the Construction General Permit and implementation of a SWPPP or out-of-reservoir construction activities. The Project, and other Valley Water projects, also implement Valley Water erosion control BMPs. The cumulative effect of general construction activities from the Project with the FOCP and other probable future projects is not significant with the implementation of a SWPPP and BMPs and the Project's contribution to these impacts is not cumulatively considerable.

The Project's impact on erosion from the exposure of sediments on the bottom of Anderson Reservoir extends the period that these sediments are vulnerable to erosion during storms. This cumulative impact is significant, and the Project's contribution is cumulatively considerable.

Mitigation Measure WQ-1 requires implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. While the WQMPP would address in-reservoir construction areas, no additional ~~No~~ feasible mitigation is available to address this impact, given the large area of the reservoir bottom which would be exposed by the dewatering and amount of accumulated sediment (approximately 2.9 million cy). For example, it may be feasible to hydroseed portions of the reservoir bottom, but it would not stabilize enough sediment to reduce the sediment mobilization in a meaningful way. Similarly, measures to settle sediments within the reservoir, rather than allowing them to move downstream (turbidity curtains or operating the reservoir at a higher level) would not be feasible during construction because of the potential to increase risks of the interim dam being overtopped. The Project's seismic retrofit construction when added to the impacts of the FOCP and other probable future projects, would cause a significant cumulative impact related to erosion, and the Project's contribution is **cumulatively considerable**.

Mitigation Measures

WQ-1 Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan.

~~No mitigation is feasible.~~

Cumulative Impact HYD-1b: 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 ~~matter~~ which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite **(Not Cumulatively Considerable)**

Project construction and maintenance activities would involve denuding areas of vegetation to create access or stable surfaces, which reduce the capacity of these areas to absorb water and slow runoff. Utilization of areas by heavy equipment during construction would compact soils, making the ground surface harder and less conducive to infiltration of water to soil or groundwater. The Seismic Retrofit components of the Project would create relatively minor amounts of new impervious surface (widened/expanded existing roadways).

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction, restoration, or operation also increase the likelihood of flooding along Coyote Creek.

Cumulative effects of Project with the FOCP

The FOCP involved similar construction activities as the Project; however, all FOCP impacts would occur prior to the start of Project construction. Because impacts happen at different times there would not be a cumulative effect to the risk of flooding when Project and FOCP impacts are added.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Other projects that could increase flood risk in Coyote Creek include the SMP, Coyote Creek Flood Protection Project, Santa Clara County Parks Planning Projects and Natural Resource Management, as well as development projects in the County where ground disturbing activities and expansion of impervious surface may take place. These other projects involve construction and maintenance activities that create similar impacts as those identified for the Project.

In general, the changes to drainage patterns caused by construction activities from both the Project and other potential projects would not be anticipated to result in flooding on- or off-site. Runoff from construction work areas within the reservoir (e.g., stockpile areas, access roads, etc.), as well as many work areas in uplands adjacent to the reservoir, would drain to the collection area behind the coffer dam or interim dam(s). This water could then be discharged via the Stage 2 Diversion System in a controlled manner, which would not result in flooding. Other work areas may drain directly to Coyote Creek; however, the volume of water from these work areas would not be expected to result in overtopping of banks or any other form of flooding on- or off-site.

Implementation of the SWPPP and Valley Water BMPs would reduce potential for construction disturbance areas outside of the reservoir to generate increased surface runoff and associated on- or off-site flooding for the Project's construction. The flood risk from the Project when added to the impacts of other probable future projects is not cumulatively significant and the Project's contribution to flooding risk is not cumulatively considerable.

Construction of the seismic retrofit would add approximately two acres of impervious surface associated with roads and parking lots around Anderson Reservoir. Implementation of the SWPPP for out-of-reservoir construction activities and applicable~~,~~ Valley Water BMPs~~,~~ and VHP conditions and AMMs would reduce surface runoff such that the Project with other projects would not result in a cumulatively significant impact, and the Project's contribution would not be cumulatively considerable.

Significance Conclusion Summary

The Project and most other probable future projects are over one acre in size and must comply with the Construction General Permit and implementation of a SWPPP for out-of-reservoir construction activities. The Project, and other Valley Water projects, also implement Valley Water erosion control BMPs. The cumulative effect of general construction activities from the Project's construction activities with the FOCP and other probable future projects is not significant, and the Project's contribution is **not cumulatively considerable** with the implementation of a SWPPP and BMPs.

Mitigation Measures

No mitigation is required.

***Cumulative Impact HYD-1c: 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 ~~matter~~ which would 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* (Not Cumulatively Considerable)**

Due to the use of hazardous materials during construction, maintenance, monitoring, and adaptive management activities (e.g., fuel, oil, lubricants, etc. in construction equipment), there would be potential for discharge of polluted runoff if such materials were handled, stored, or disposed of improperly and/or if any accidental releases of such materials were to occur. Project activities would require use of a wide range of equipment, as listed in **Table 2-3** in Chapter 2, *Project Description,* much of which would involve hazardous materials. The equipment could potentially leak during operation if it is not maintained properly; additionally, hazardous materials could spill during re-fueling or maintenance/servicing activities that may be necessary during the construction period. Hazardous materials stored on-site at staging areas or temporarily at work areas could also spill if proper protocols are not followed and containment provided.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction, restoration, or operational also increase the likelihood of polluted runoff to Anderson Reservoir or Coyote Creek.

Cumulative Effects of Project with the FOCP

The FOCP involved similar construction activities as the Project and both projects have the potential to generate polluted runoff.

Implementation of a SWPPP, in compliance with the Construction General Permit, along with applicable Valley Water BMPs, would substantially reduce the potential for accidental releases of hazardous materials during Project activities, as well as the potential for impacts in the event of such releases. The SWPPP <u>for out-of-reservoir construction activities</u> is required to include good housekeeping measures for: construction materials, waste management, vehicle storage and maintenance, landscape materials, and potential pollutant sources (SWRCB 2009). Additionally, the following Valley Water BMPs would reduce potential impacts associated with hazardous materials releases: ~~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). These BMPs would include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites, and providing training spill cleanup materials for field personnel, among other measures. The FOCP was also required to prepare and implement a SWPPP and incorporated a similar set of BMPs to avoid the generation of polluted runoff. The impacts of the Project when added to the impacts of the FOCP would not create cumulatively significant impacts on polluted runoff, and the Project's contribution of polluted runoff is not cumulatively considerable with implementation of the SWPPP and Valley Water BMPs.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Other projects that could increase risk of polluted runoff in Coyote Creek include the SMP, Coyote Creek Flood Protection Project, Santa Clara County Parks Planning Projects and Natural Resource Management, as well as development projects in the County where ground disturbing activities and use of heavy equipment may take place. These other projects involve construction and maintenance activities that create similar impacts as those identified for the Project. All potential projects would be required to implement a SWPPP, in compliance with the Construction General Permit to minimize impacts from construction.

The impacts of the Project when added to the impacts of probable future projects would not create cumulatively significant impacts on polluted runoff, and the Project's contribution of polluted runoff is not cumulatively considerable with implementation of the SWPPP and Valley Water BMPs.

Significance Conclusion Summary

The Project, FOCP, and other probable future projects are over one acre in size and must comply with the Construction General Permit and implementation of a SWPPP <u>for out-of-reservoir construction activities</u>. The Project, and other Valley Water projects, also implement Valley Water pollution control BMPs. The cumulative effect of general construction activities with the FOCP and other probable future projects would not be significant, and the Project's contribution is **not cumulatively considerable** with the implementation of a SWPPP and BMPs. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Mitigation Measures

No mitigation is required.

Cumulative Impact HYD-1d: 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 ~~matter~~ which would impede or redirect flood flows (Not Cumulatively Considerable)

During construction of the Seismic Retrofit component, there would be increased potential for flooding (i.e., higher flows could occur in Coyote Creek more frequently during storm events) relative to the existing conditions baseline for flows under the 50-year return period (approximately 4,000cfs – 5,000cfs); however, this flooding risk would be largely reduced relative to Pre-FERC Order Conditions and would not result in widespread, damaging floods based on the analysis shown in **Figure 3.11-5**. During the post-construction period, flooding risk associated with operation of the dam would be reduced relative to the Pre-FERC Order Conditions Baseline.

Cumulative Effects of Project with the FOCP

The FOCP reduced storage in Anderson Reservoir to deadpool, which provided the full reservoir to capture high flows, while the existing outlet is maintained with a maximum capacity of 500 cfs. The FOCP would implement Coyote Creek Flood Management components that would provide long-term flood risk reduction along Coyote Creek. The risk of flooding is low during the FOCP and all FOCP impacts would occur prior to the start of Project construction. Because construction-related hydrology impacts happen at different times, there would not be a cumulative risk of flooding due to impeding or redirecting flood flows when Project and FOCP impacts are added.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Other projects that could increase flood risk in Coyote Creek include the SMP, Coyote Creek Flood Protection Project, Santa Clara County Parks Planning Projects and Natural Resource Management, as well as development projects in the County where ground disturbing activities and expansion of impervious surface may take place. Other projects would be required to comply with applicable Municipal Stormwater NPDES permits that minimize the impact of expanded impervious surfaces on the potential for flooding. The Coyote Creek Flood Protection Project would reduce the long-term risk of flooding along Coyote Creek by making improvements that would allow a storm event similar to the 2017 flood event to be safely passed to San Francisco Bay.

The Project's contribution to flooding risk, which is generally decreased relative to the Pre-FERC Order baseline, would not create cumulatively significant flood risks due to impeding or redirecting flood flows, and the Project's contribution to flood risks is not cumulatively considerable.

Significance Conclusion Summary

The Project, FOCP, and other probable future projects, specifically the Coyote Creek Flood Protection Project have project elements that would reduce flood risk along Coyote Creek. Expansion of impervious surfaces by potential future projects would be required to comply with applicable Municipal Stormwater NPDES permits that minimize the risk of flooding. The cumulative effect of the Project combined with impacts of the FOCP and other probable future projects on impeding or redirecting flood flows is not significant, and the project's contribution is **not cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Cumulative Impact HYD-2: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of dam failure **(No Cumulative Impact)**

The objective of the Project is to reduce the long-term risk of flooding from dam failure. Construction of the Seismic Retrofit components would not directly increase the risk of flooding ~~due to dam failure but could~~ potentially and would not exacerbate the impacts from a failure of Coyote Dam. ~~Coyote Dam, which is located upstream of Anderson Dam and is also susceptible to seismic risks.~~ If Coyote Dam were to fail, the downstream effects would be reduced by the presence of Anderson Reservoir, which itself has been under a seismic restriction since 2009. During Seismic Retrofit construction, each interim reservoir at the end of each construction season has capacity that exceeds the capacity of Coyote Reservoir.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction, restoration, or operational would increase the risk of flooding along Coyote Creek from dam failure.

Cumulative Effects of Project with the FOCP

The FOCP reduced storage in Anderson Reservoir to deadpool under orders from the FERC to minimize the risk of flooding from dam failure. As the FOCP reduces the risk from dam failure and impacts happen at different times, there would not be a cumulative effect to the risk of flooding when adding Project and FOCP impacts.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

None of projects listed in **Table 3.0-2** would have the potential to increase the risk of dam failure. Future development projects throughout the County that are in the established flood inundation area of Anderson Reservoir increase the risk of loss, injury or death from flooding in the event of dam failure, but the likelihood of dam failure is considered very minor.

The Project would ~~potentially~~ not exacerbate the impacts from a failure of Coyote Dam while Anderson Dam is lowered over three years of the construction period. Coyote Reservoir is under ~~seismic~~ restrictions that reduce the risk of dam failure and Anderson Dam would have capacity to capture and pass flows in the event Coyote Dam failed ~~include winterization measures while the dam is lowered to minimize the risk of failure.~~ Given these factors, the cumulative impact related to dam failure risks is not significant and the Project's contribution to risk from flooding from dam failure is not cumulatively considerable.

Significance Conclusion Summary

Over the long-term, the Project and the FOCP would greatly improve the safety of downstream communities with respect to flooding and dam failure, as it would correct existing deficiencies in Anderson Dam. Similarly, maintenance and monitoring activities during the post-construction period would not increase the risk of flooding. The risk of Coyote Dam failing is present under the Pre-FERC Order Conditions Baseline and is reduced by the FOCP through the draining of Anderson Reservoir to deadpool. Risk of flooding from dam failure increases marginally during construction of the Seismic Retrofit but is minimized through winterization measures in the wet season while the crest of the dam is lowered. Given the very low probability of dam failure, which would require a major earthquake in close proximity to Coyote Reservoir following a wet period that fills the reservoir beyond its capacity to release high flow, the cumulative effect of Project activities when added to impacts of the FOCP and other probable future projects is not significant, and the Project's contribution is **not cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Cumulative Impact HYD-3: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation (Not Cumulatively Considerable)

As discussed in Section 3.11.1.4 (Tsunamis, Seiches, and Flooding) the Project site is not vulnerable to tsunami or seiche therefore these impacts are not discussed in the analysis below. The risk of release of pollutants due to inundation from flood hazard is discussed.

The seismic retrofit components and Conservation Measures and maintenance and would have some potential to generate pollutants in areas that are subject to inundation during construction (e.g., use of heavy equipment in construction staging and work areas and use, storage, and disposal of hazardous materials)

Cumulative Effects of Project with the FOCP

The FOCP involved similar construction activities as the Project and both projects have the potential to generate pollutants subject to inundation from flooding.

Implementation of a SWPPP for out-of-reservoir construction activities, in compliance with the Construction General Permit, along with applicable Valley Water BMPs, would substantially reduce the potential for accidental releases of hazardous materials during Project activities, as well as the potential for impacts in the event of such releases. The SWPPP is required to include good housekeeping measures for construction materials, waste management, vehicle storage and maintenance, landscape materials, and potential pollutant sources (SWRCB 2009).

Additionally, the following Valley Water BMPs would reduce potential impacts associated with hazardous materials releases: ~~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). These BMPs would include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites, and providing training spill cleanup materials for field personnel, among other measures. The FOCP was also required to prepare and implement a SWPPP and incorporated a similar set of BMPs to avoid the generation of polluted runoff. The impacts of the Project when added to the impacts of the FOCP would not create cumulatively significant impacts on polluted runoff, and the Project's contribution of polluted runoff is not cumulatively considerable with implementation of the SWPPP and Valley Water BMPs.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

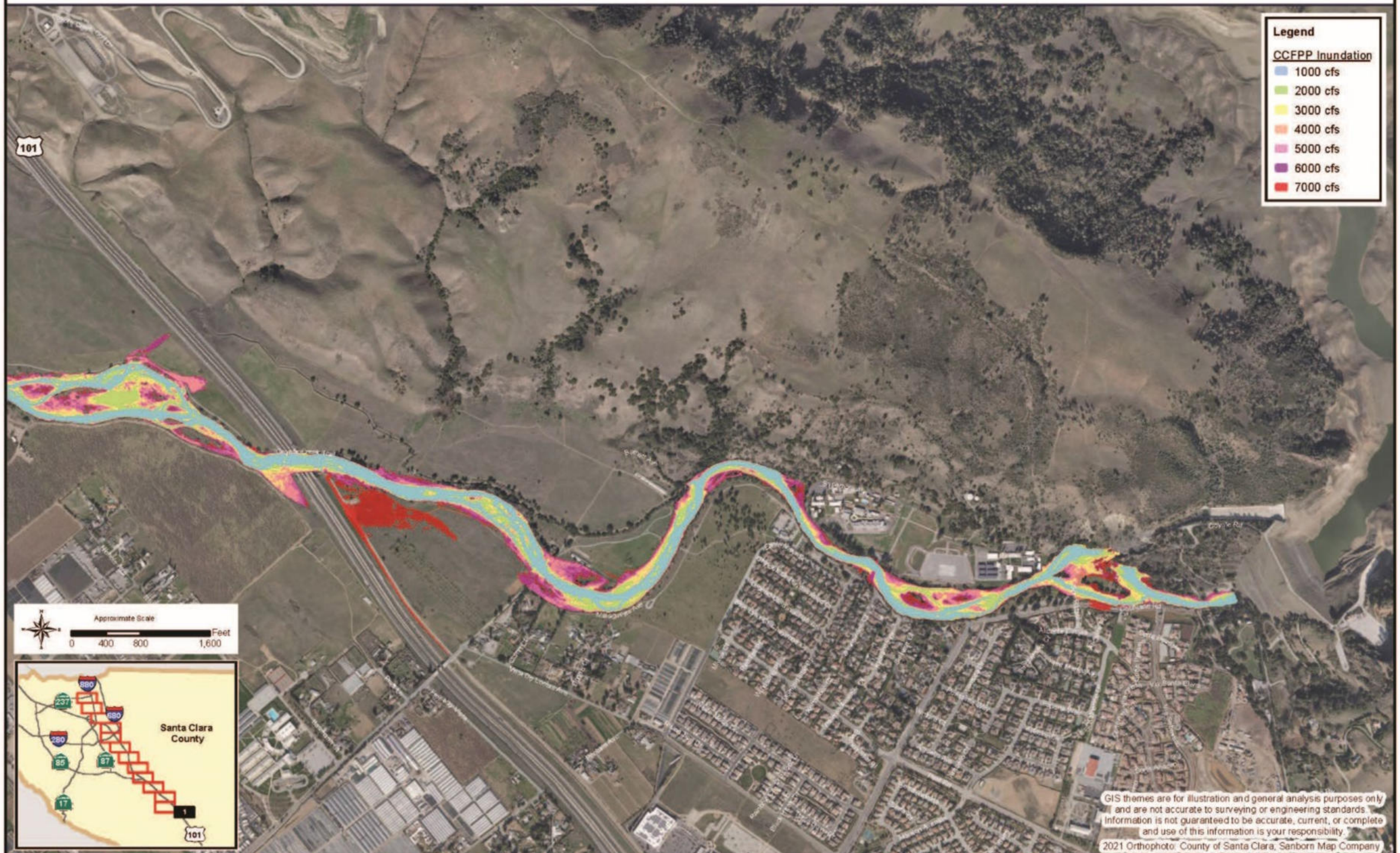
Other projects that could increase risk of polluted runoff in Coyote Creek include the SMP, Coyote Creek Flood Protection Project, Santa Clara County Parks Planning Projects and Natural Resource Management, as well as development projects in the County where ground disturbing activities and use of heavy equipment may take place in or adjacent to Coyote Creek floodplains. These other projects involve construction and maintenance activities that create similar impacts as those identified for the Project. All potential projects would be required to implement a SWPPP in compliance with the Construction General Permit to minimize impacts from construction.

The impacts of the Project when added to the impacts of probable future projects would not create cumulatively significant impacts on polluted runoff, and the Project's contribution of polluted runoff is not cumulatively considerable.

Significance Conclusion Summary

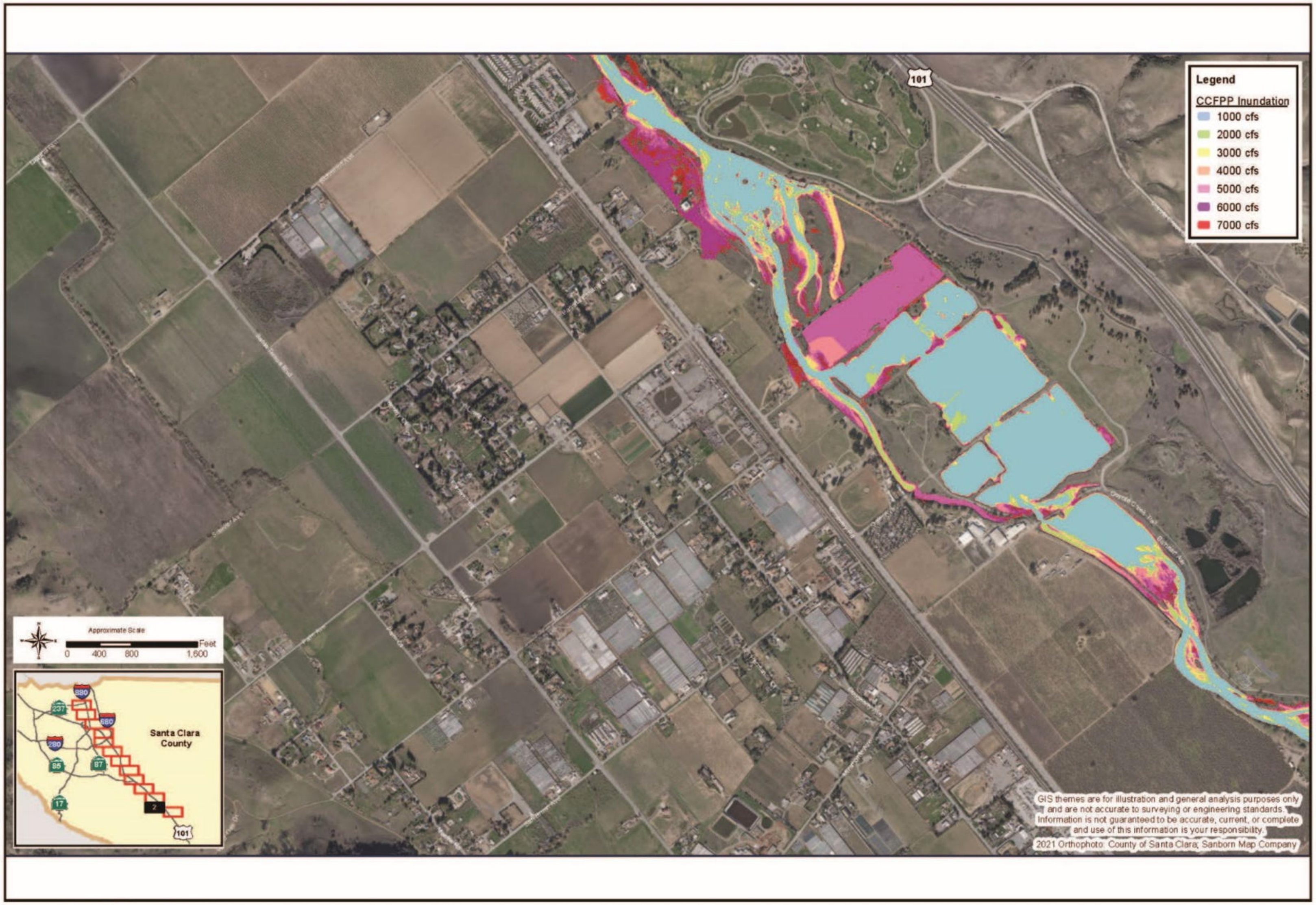
The Project, FOCP, and other probable future projects are over one acre in size and must comply with the Construction General Permit and implementation of a SWPPP for out-of-reservoir construction activities. The Project, and other Valley Water projects, also implement Valley Water pollution control BMPs. The cumulative effect of general construction and maintenance activities with the FOCP and other probable future projects on polluted runoff would not be **cumulatively significant**, and the Project’s contribution is **not cumulatively considerable**. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Figure 3.11-5. Coyote Creek Flood Flows



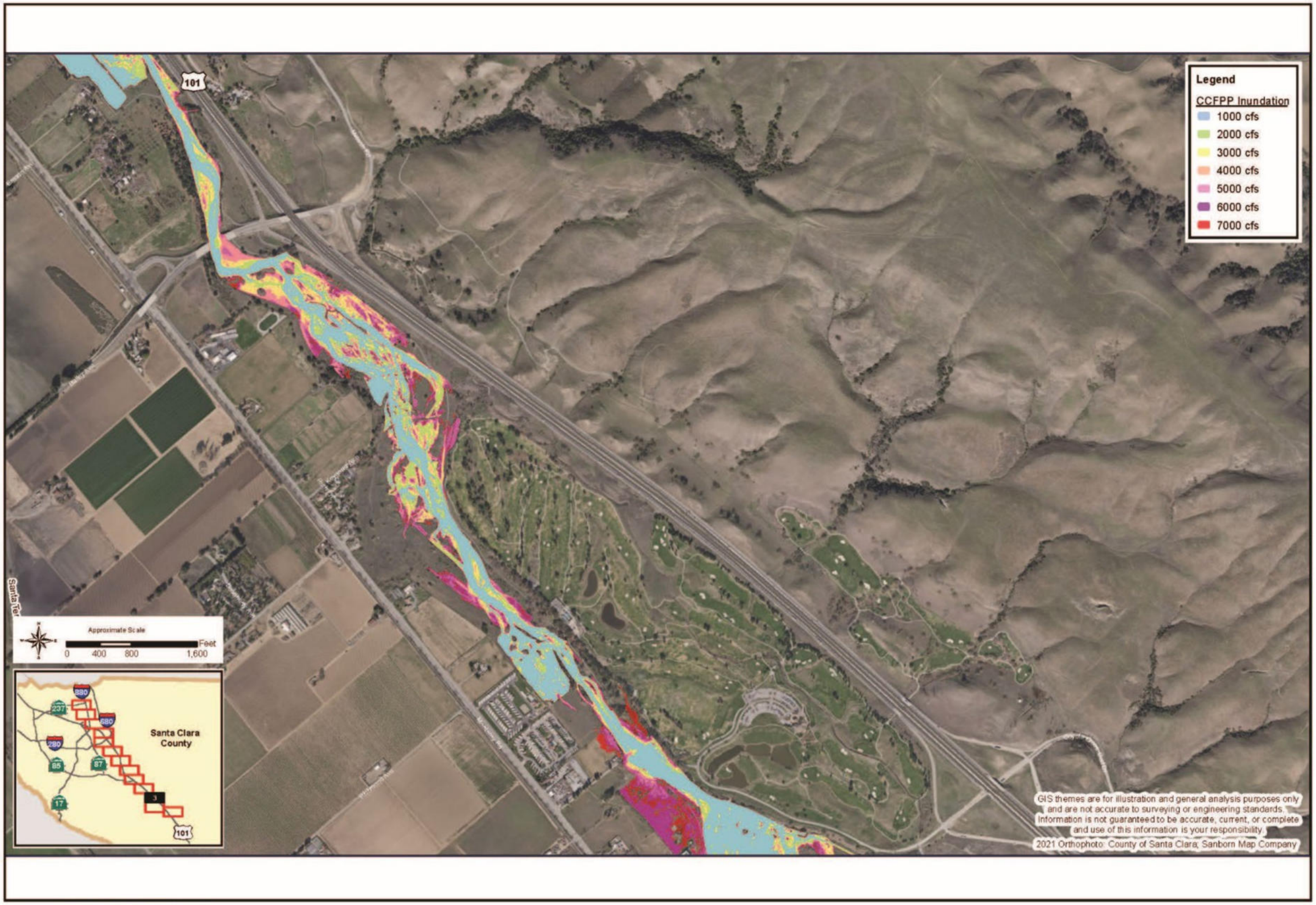
Source: Valley Water 2022b

Figure 3.11-5
Coyote Creek Flood Flows



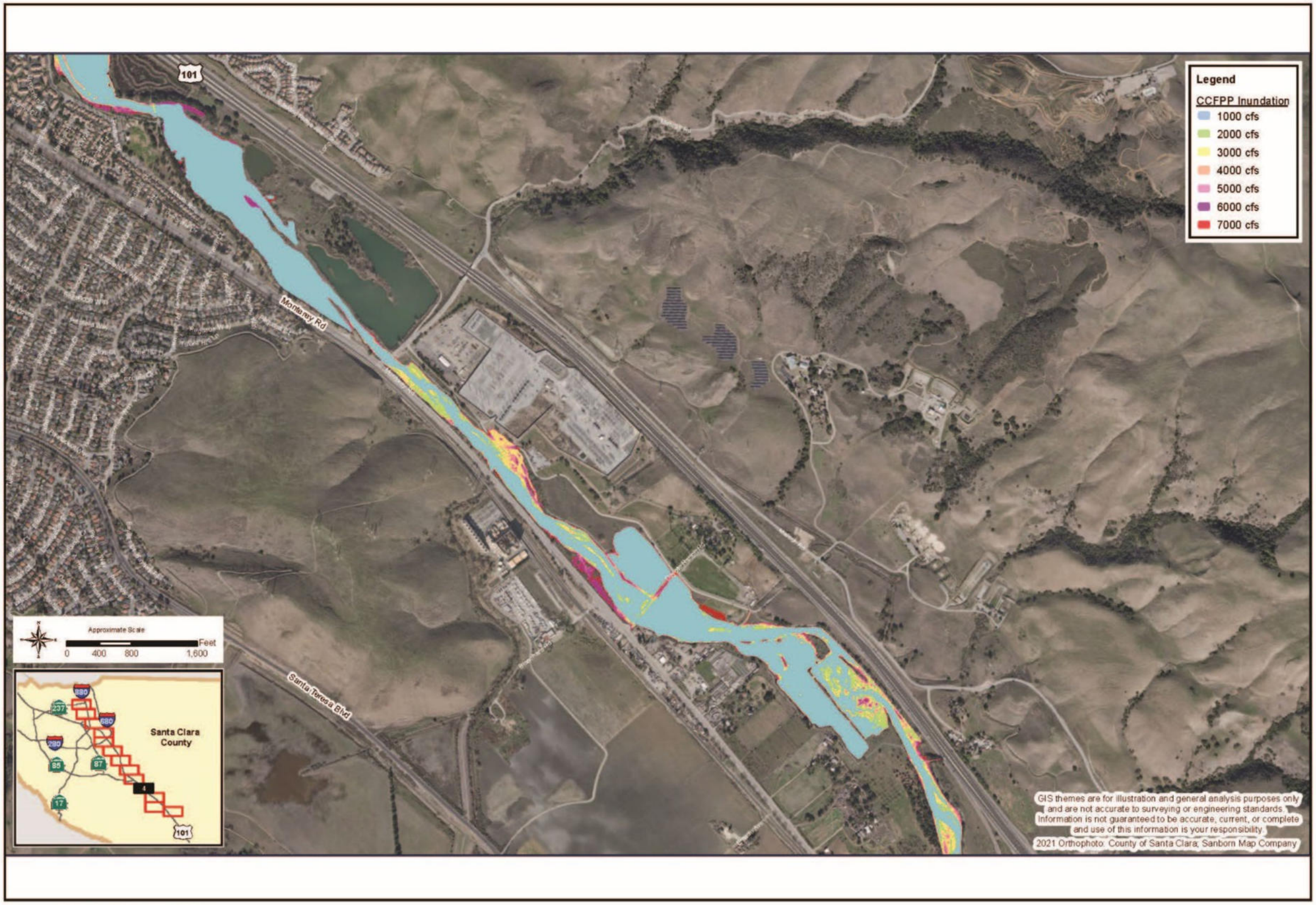
Source: Valley Water 2022b

Figure 3.11-5
Coyote Creek Flood Flows



Source: Valley Water 2022b

Figure 3.11-5
Coyote Creek Flood Flows



Source: Valley Water 2022b

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Figure 3.11-5
Coyote Creek Flood Flows

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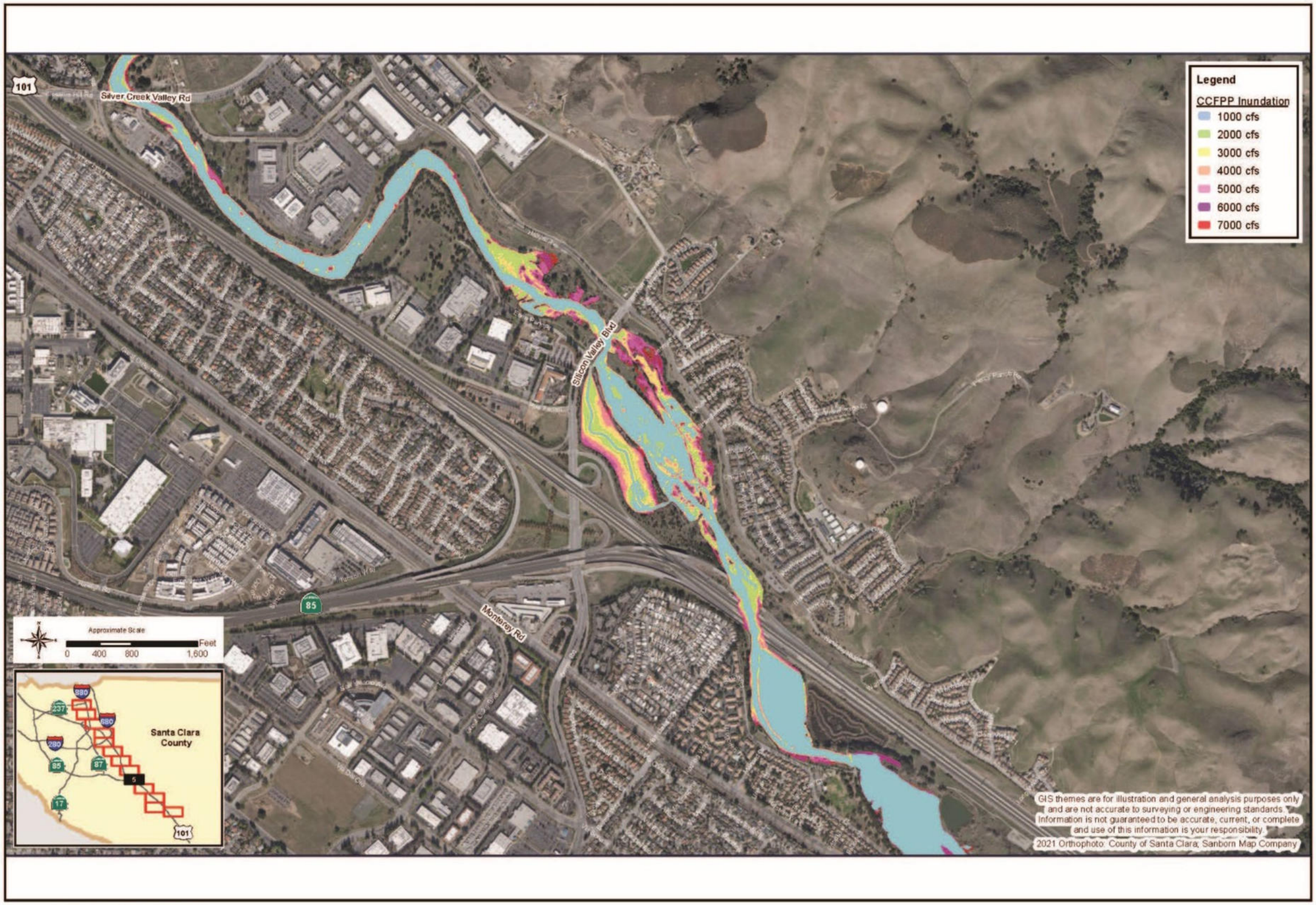
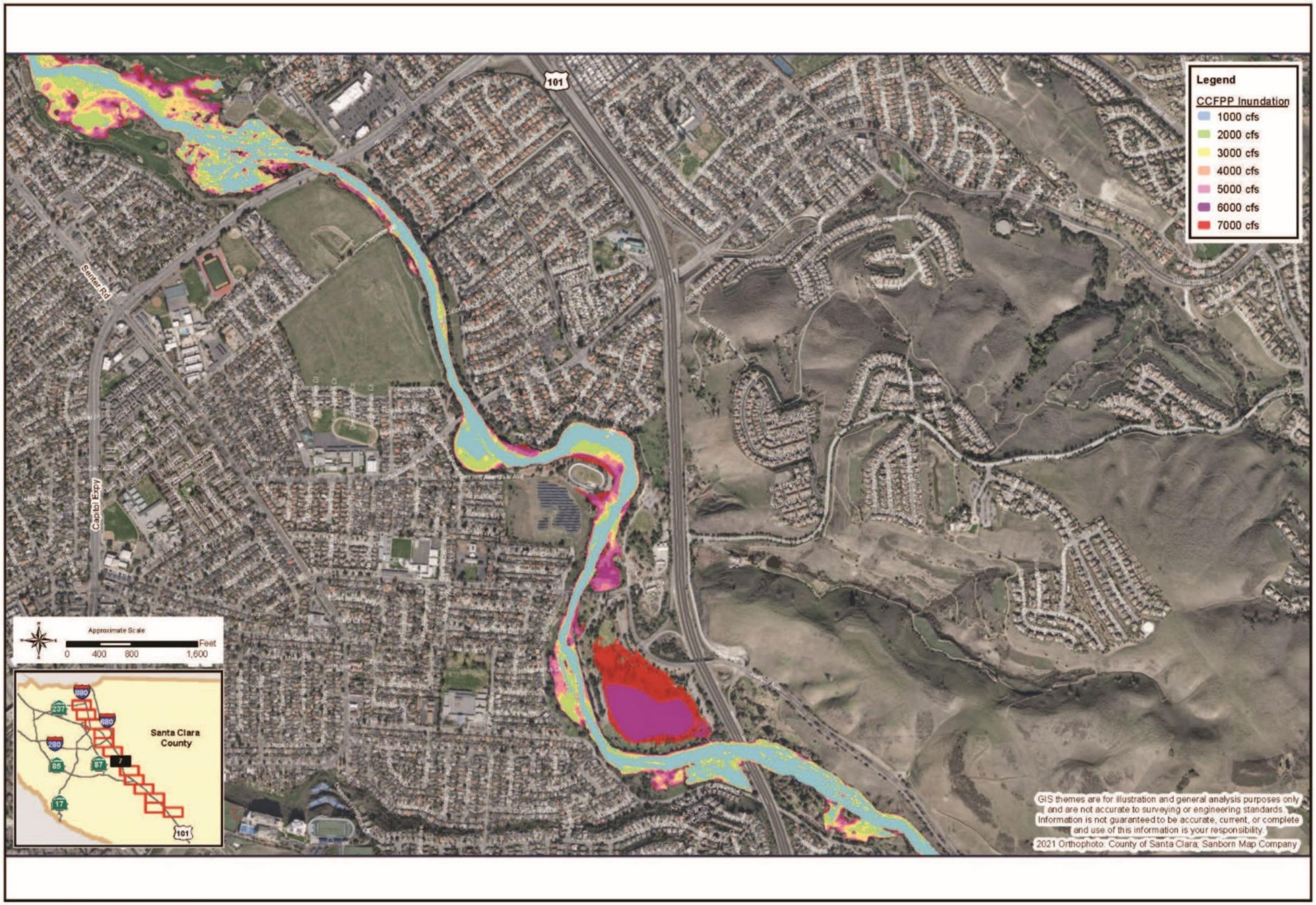


Source: Valley Water 2022b

Figure 3.11-5
Coyote Creek Flood Flows

Source: Valley Water 2022b

1 **Figure 3.11-5**
Coyote Creek Flood Flows



Source: Valley Water 2022b

Figure 3.11-5
Coyote Creek Flood Flows

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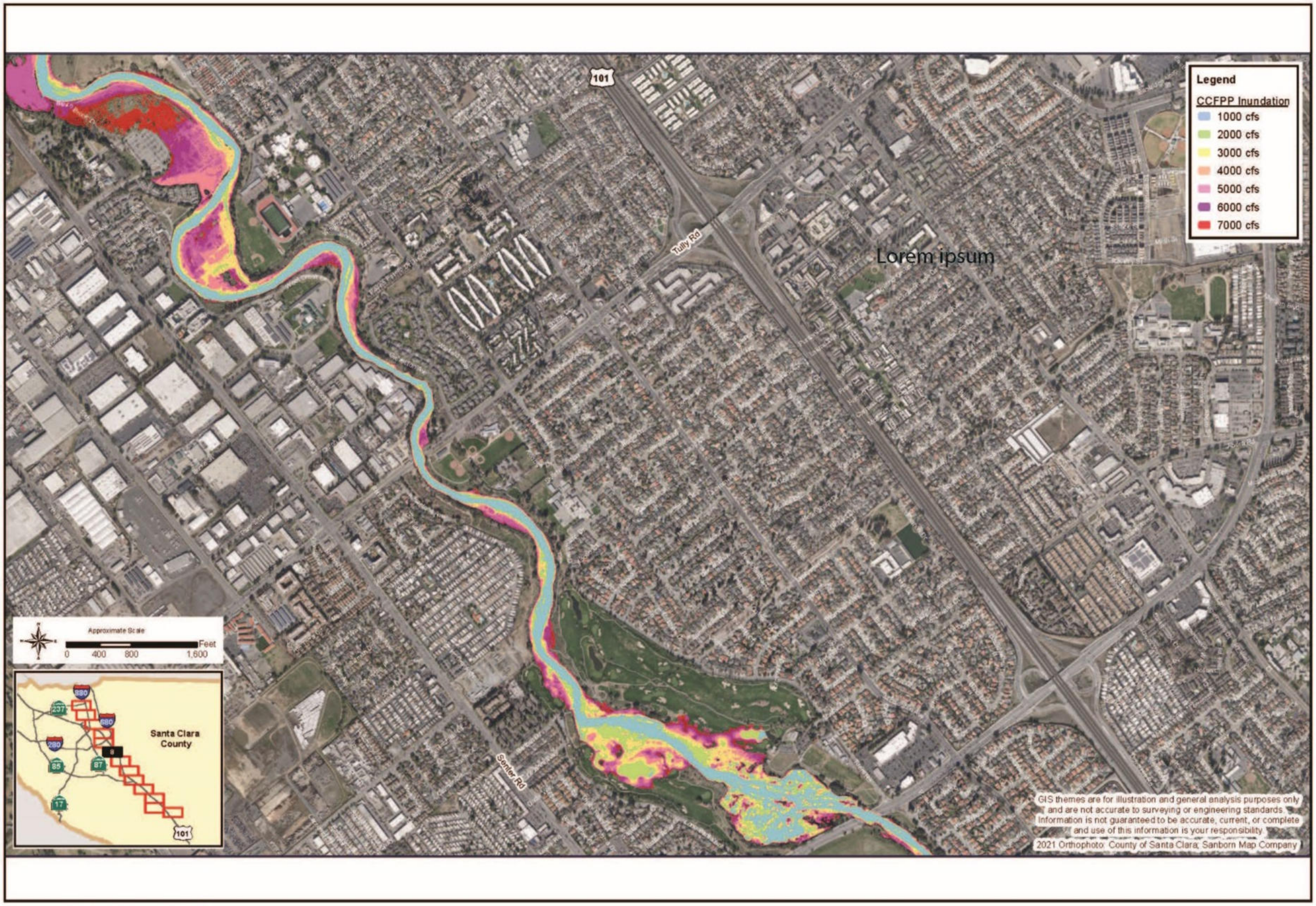

Source: Valley Water 2022b

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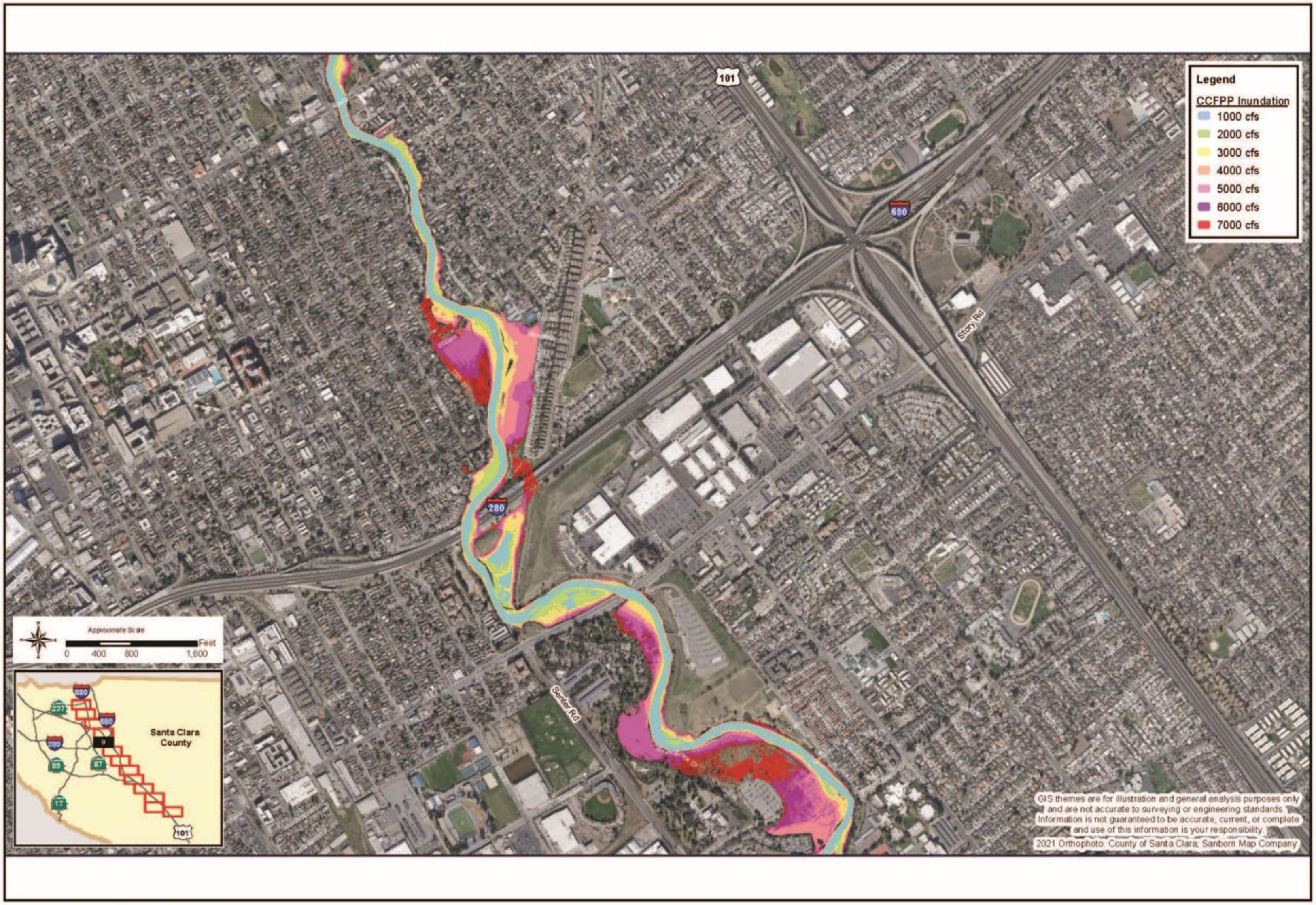
Figure 3.11-5
Coyote Creek Flood Flows



Source: Valley Water 2022b

Figure 3.11-5
Coyote Creek Flood Flows

Source: Valley Water 2022b

Figure 3.11-5
Coyote Creek Flood Flows

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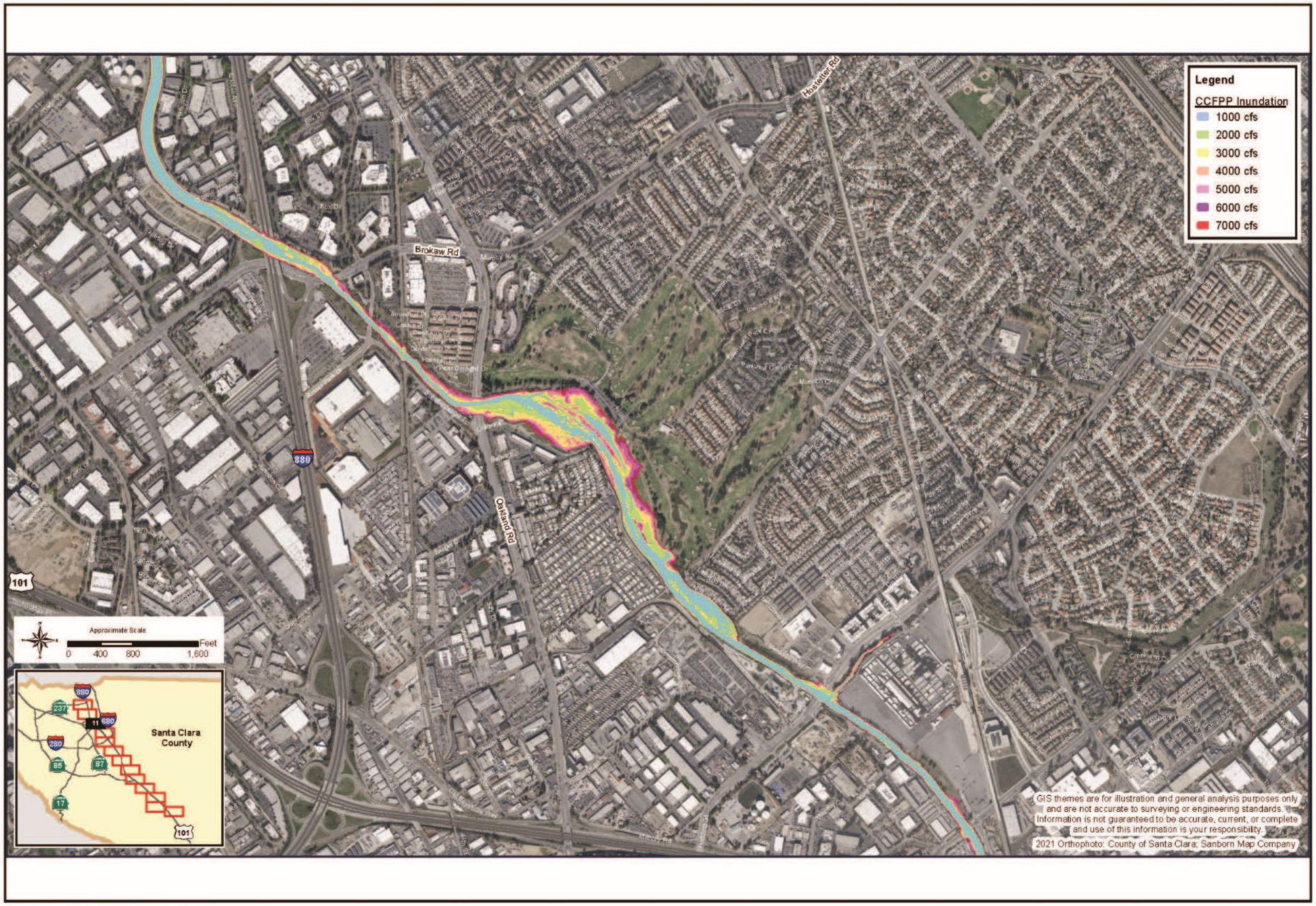

Source: Valley Water 2022b

Figure 3.11-5
Coyote Creek Flood Flows

Source: Valley Water 2022b

Figure 3.11-5
Coyote Creek Flood Flows

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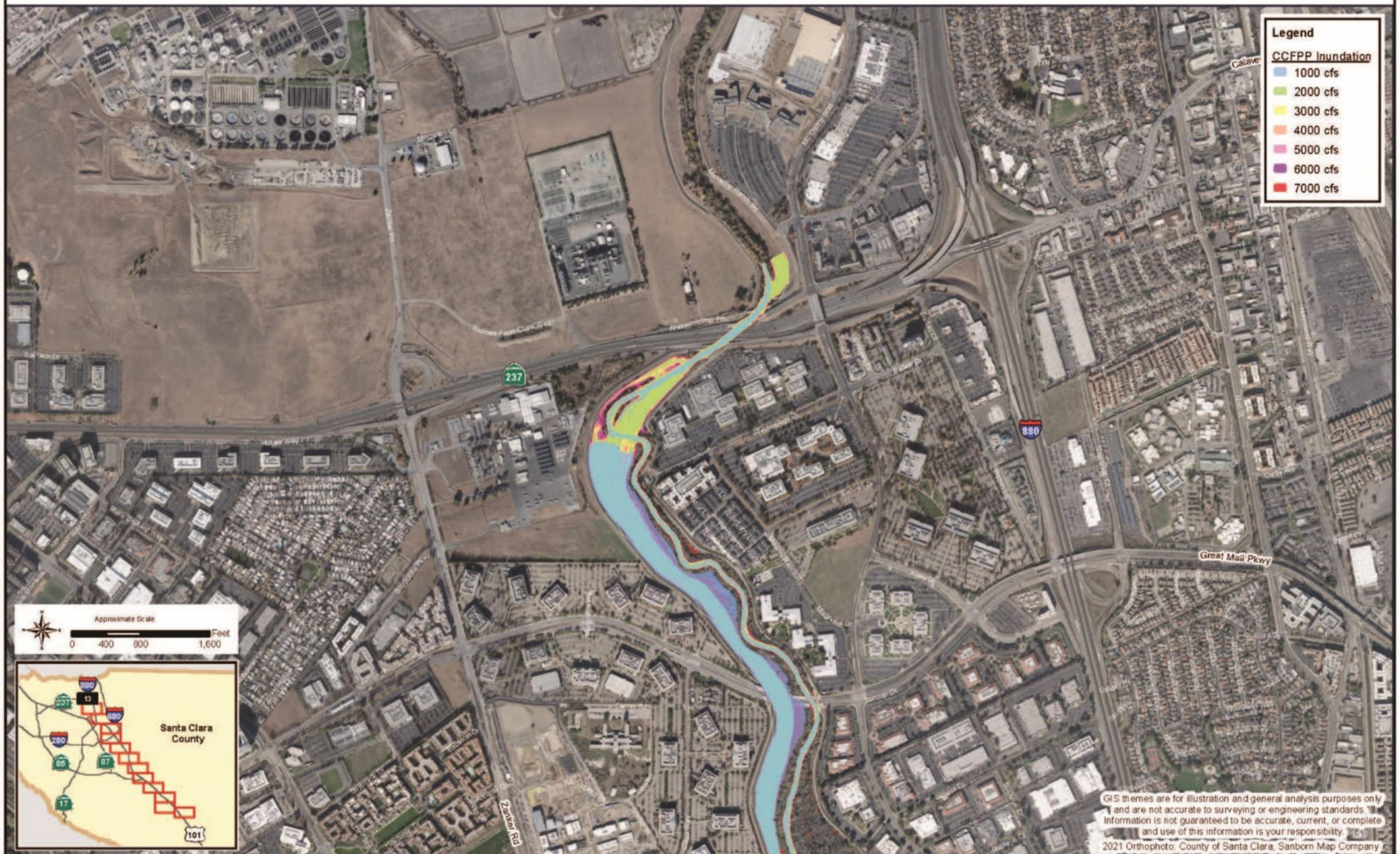

Source: Valley Water 2022b

Figure 3.11-5
Coyote Creek Flood Flows

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Valley Water. 2023c ~~2023~~. FY 2024-28 Capital Improvement Program Valley Water. 2023. Anderson Dam Seismic Retrofit Project Construction Operations Memorandum. July 11

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~~Valley Water. 2023d. Post-ADSRP Operations Technical Memorandum. July~~

3.12 Groundwater Resources

This section describes groundwater resources in the study area, including the area around Anderson Reservoir and downstream underlying Coyote Creek, and discusses the Project's impacts on these resources. The regulatory and environmental setting, which includes a description of applicable regulations and the existing groundwater resources in the study area, are provided as a basis to evaluate impacts. The impact analysis evaluates how the Project could temporarily and permanently impact the existing groundwater resources in and around the study area.

The study area used to assess impacts related to groundwater resources includes the Santa Clara Subbasin, as shown on **Figure 3.12-1**.

3.12.1 Environmental Setting

3.12.1.1 Groundwater Basin Characteristics

The groundwater basin underlying and/or potentially affected by the Project is the Santa Clara Subbasin (DWR Basin 2-9.02), which is a subbasin of the Santa Clara Valley Groundwater Basin (DWR 2004). The Santa Clara Subbasin extends from the northern border of the county to the groundwater divide near Morgan Hill. The subbasin is bounded by the Diablo Range to the east and the Santa Cruz Mountains to the west. The geographic extent of the Santa Clara Subbasin in relation to the Project is shown in **Figure 3.12-5**. As shown in **Figure 3.12-5**, the mapped extent of the subbasin terminates at Anderson Dam (in other words, the subbasin begins on the downstream side of the dam). While Llagas Subbasin is shown on **Figure 3.12-5**, it would not be affected by the Project, so it is not described in this section.

The water-bearing formations of the Santa Clara Subbasin include Pliocene- to Holocene-age continental deposits of unconsolidated to semi-consolidated gravel, sand, silt, and clay (Valley Water 2021). This includes the Santa Clara Formation of Plio-Pleistocene age and the younger alluvium of Pleistocene to Holocene age. The latter of these two units is the most important in the subbasin, as the permeability of the valley alluvium is generally high and principally all large production wells derive their water from the alluvium (DWR 2004). The combined thickness of the water-bearing units exceeds 1,500 feet (Valley Water 2021).

To assist with groundwater management, Valley Water has divided the subbasin into two management areas: the Santa Clara Plain and the Coyote Valley (see **Figure 3.12-1** and **Figure 3.12-5**). The Santa Clara Plain, covering the wide Santa Clara Valley floor and extending to the northern boundary with San Francisco Bay, comprises most of the subbasin. The Coyote Valley area extends from the southern portion of the Santa Clara Valley to the subbasin's southern boundary, north ~~south~~ of Morgan Hill. These two management areas are separated by an area referred to as Coyote Narrows, where the bedrock constricts the Santa Clara Subbasin, forming a hydraulic corridor between the two management areas. The Coyote Valley is mainly composed of thick alluvial sand and gravel deposits with interbedded thin, discontinuous clays (Valley Water 2021).

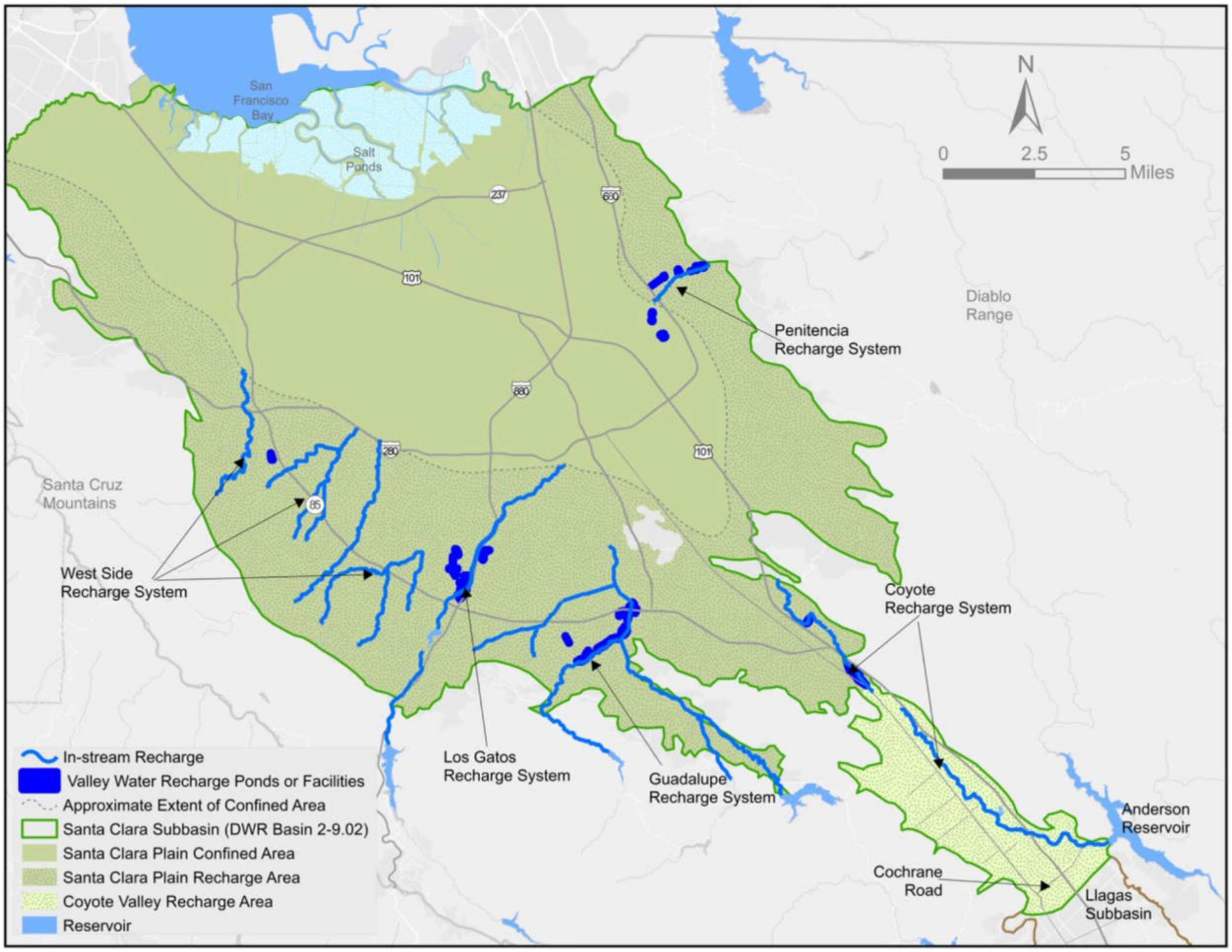
Valley Water estimates the operational storage capacity of the Santa Clara Plain to be 350,000 AF (Valley Water 2021). The operational storage capacity estimation takes into account available pumping capacity, avoidance of land subsidence, and problems associated with high groundwater levels, and is lower than the actual total storage capacity of the subbasin. The operational storage capacity of the Coyote Valley area is estimated to be between 23,000 AF and 33,000 AF (SCVWD 2002, as cited in Valley Water 2021).

3.12.1.2 Groundwater Recharge

Natural groundwater recharge in the Santa Clara Subbasin occurs primarily from the deep percolation of rainfall, natural seepage from creeks, and subsurface inflow from surrounding hills (Valley Water 2021). While the Coyote Valley is unconfined, with generally high lateral and vertical permeability throughout the area, and thereby conducive to recharge operations; a portion of the Santa Clara Plain is confined. The confined area is located in the northcentral portion of the Santa Clara Plain where a laterally extensive, low permeability aquitard restricts the vertical flow of groundwater and contaminants (Valley Water 2021). To augment natural recharge, which is far less than the amount of groundwater pumped, Valley Water has instituted a managed aquifer recharge program. This program accounts for 70 percent of the subbasin recharge, with approximately 60 percent of recharge capacity occurring along stream channels above the aquifer’s unconfined zone and approximately 40 percent occurring at off-stream percolation ponds (Valley Water 2021).

The principal (and only) managed recharge system in Coyote Valley is the Coyote Recharge System, consisting of Coyote Creek supplied via releases from Anderson Reservoir and imported water deliveries (Valley Water 2021). The Coyote Percolation Ponds are located in the Santa Clara Plain near the border with the Coyote Valley (roughly at the Coyote Narrows). Therefore, the Coyote Percolation Ponds and in-stream recharge along the Lower Coyote Creek recharge the Santa Clara Plain and not the Coyote Valley groundwater management area. In-stream recharge operations along the Upper Coyote Creek recharge the Coyote Valley. By contrast, the Santa Clara Plain has multiple recharge facilities, including the West Side Recharge System, Los Gatos Recharge System, Guadalupe Recharge System, and Penitencia Recharge System. **Figure 3.12-1** shows managed recharge facilities in the Santa Clara Subbasin.

Figure 3.12-1. Managed Recharge Facilities in the Santa Clara Subbasin



Source: Valley Water 2021

3.12.1.3 Groundwater Wells, Use, and Water Budget

Numerous groundwater wells are located near the study area and Anderson Reservoir, including about 500 water supply wells within Coyote Valley where groundwater supports over 90 percent of all beneficial use and is the only source of drinking water. Several water retailers operate large groundwater supply wells in the area, including Great Oaks Water Company, the City of San José, and the City of Morgan Hill There are also numerous privately owned wells used for domestic or agricultural purposes. Collectively these wells supply potable water to thousands of people, as well as businesses. Valley Water collects groundwater elevation data at approximately 20 monitoring wells within Coyote Valley.

There are numerous public and private supply wells along Coyote Creek, in particular, downstream of Anderson Dam. These include the wells operated by the City of Morgan Hill and other entities, described above. Several private water production wells are located along the rim of Anderson Reservoir. This area is outside of the Santa Clara Subbasin.

Groundwater pumping in the Coyote Valley area has averaged approximately 11,500 AFY between 2010 and 2019 (Valley Water 2021). In 2019, groundwater pumping in the Coyote Valley area was 11,100 AF (Valley Water 2019). Most of the groundwater pumping (72 percent) in the Coyote Valley area has supported municipal and industrial uses, while 26 percent has supported agriculture, and 2 percent has supported domestic uses (Valley Water 2021). The groundwater pumping in the Santa Clara Plain is even more heavily used (99 percent) for municipal and industrial purposes. From 2010-2019, groundwater pumping in the Santa Clara Plain area averaged 75,500 AFY (Valley Water 2021).

Groundwater pumping and subsurface outflow greatly exceeds natural recharge and subsurface inflow in the Santa Clara Plain and Coyote Valley (**Table 3.12-1**). Without Valley Water's managed recharge operations, there would be about a 50,000 AFY overdraft in the Santa Clara Plain and 13,500 AFY overdraft in Coyote Valley. The managed recharge helps to balance the deficit of inflows and balance the groundwater budget in most years. **Table 3.12-1** shows the water budget for the Santa Clara Plain and Coyote Valley areas from 2010 to 2019. Because of Valley Water's managed recharge operations, the average change in groundwater over that period was about 3,000 AF (increased storage) in the Santa Clara Plain and 0 AF in Coyote Valley (inflows and outflows balanced).

Table 3.12-1. Water Budget for Santa Clara Plain and Coyote Valley (2010-2019)

Water Budget Component	Acre-Feet per Year	
	Santa Clara Plain[1]	**Coyote Valley**
Inflow		
Managed Recharge[2]	53,000	13,500
Natural Recharge[3]	25,000	2,500
Subsurface Inflow[4]	7,500	0
Total Inflow	86,000	16,000
Outflow		
Groundwater Pumping[5]	75,500	11,500
Subsurface Outflow[6]	7,500	4,500

Water Budget Component	Acre-Feet per Year	
	Santa Clara Plain[1]	Coyote Valley
Total Outflow	83,000	16,000
Change in Storage	+3,000	0

Source: Valley Water 2021

Notes:

[1] This analysis is for the Santa Clara Plain principal aquifer.

[2] Managed recharge represents direct replenishment by Valley Water using local and imported water.

[3] For Santa Clara Plain, natural recharge includes the deep percolation of rainfall, natural seepage from creeks, and subsurface inflow from surrounding hills (mountain front recharge). For Coyote Valley, natural recharge includes all uncontrolled recharge, including the deep percolation of rainfall, septic system and/or irrigation return flows, and natural seepage through creeks.

[4] Subsurface inflow represents inflow from adjacent aquifer systems.

[5] Pumping is based on metered pumping volumes (about 94% of pumping for Santa Clara Plain and 91% of pumping for Coyote Valley), or pumping reported by well owners based on a table of average use and/or crop factors.

[6] Subsurface outflow represents outflow to adjacent aquifers in San Mateo County, Alameda County, and beneath San Francisco Bay (for Santa Clara Plain) and outflow to the Santa Clara Plain (for the Coyote Valley).

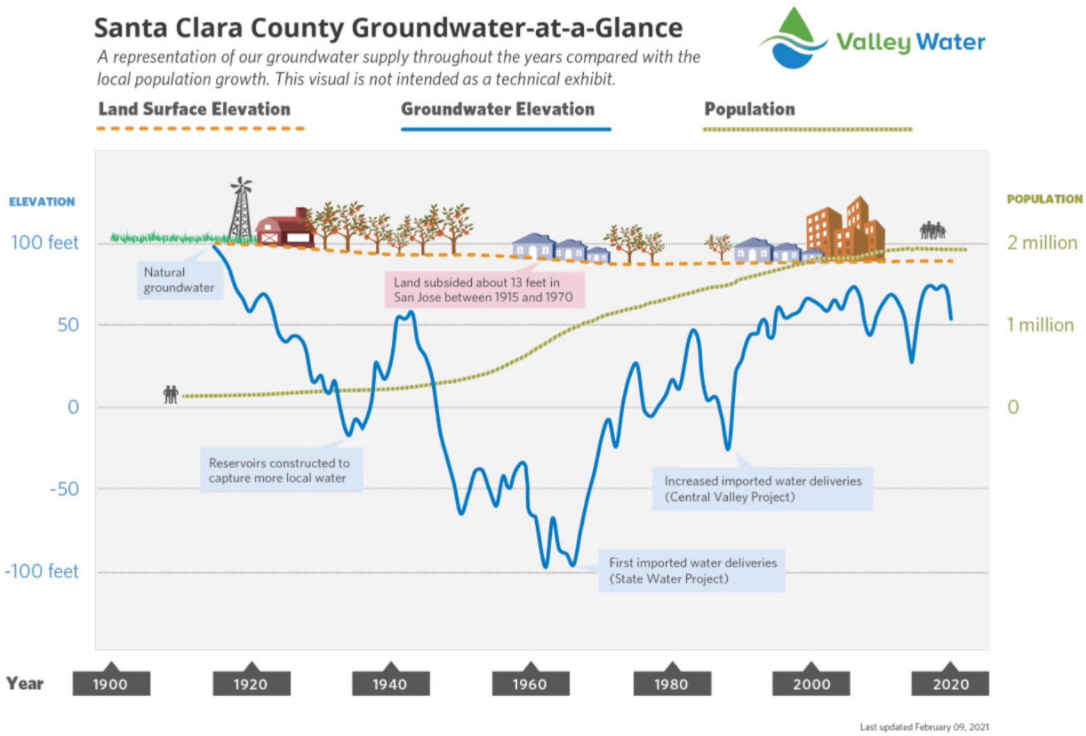
3.12.1.4 Subsidence, Groundwater Levels, and Groundwater Flow

From the early 1900s through the mid-1960s, water level declines from groundwater pumping induced permanent land subsidence in the northern Santa Clara Subbasin. Prior to importation of surface water via the Hetch Hetchy Aqueduct and South Bay Aqueduct and the introduction of the artificial recharge program, water levels declined more than 200 feet in the Santa Clara Valley (DWR 2004). Groundwater levels have generally increased since 1965 as a result of increases in managed recharge and decreases in pumping. **Figure 3.12-2** shows groundwater levels and land subsidence in the county since 1900 in relation to population growth. In 2019, average groundwater elevation in the Coyote Valley area was 277.2 feet, which was up 4.6 feet from 2018, and up 5.4 feet compared to the 5-year average (2015-2019) (DWR 2020). In 2019, average groundwater elevation in the Santa Clara Plain was 90.7 feet, which was down 1.9 feet from 2018, and up 13.2 feet compared to the 5-year average (2015-2019), based on Valley's index well 07S01W25L001 for the Santa Clara Plain (https://gis.valleywater.org/GroundwaterElevations/index.php).

Groundwater movement in the Santa Clara and LLagas Subbasins generally follows topographical and surface water patterns, flowing to the north/northwest toward the interior of the subbasins and eventually to San Francisco Bay (Valley Water 2021). Groundwater also moves toward areas of intense pumping at the local scale. In the Santa Clara Plain, regional groundwater elevations are typically highest near the margins, with elevations decreasing in the subbasin interior (Valley Water 2021). In the Coyote Valley, regional groundwater elevations are typically highest at the groundwater divide near the Llagas Subbasin boundary, with a downward vertical gradient. Generally, throughout the Santa Clara Subbasin, groundwater levels are higher in the spring as compared to the fall due to the lack of precipitation and higher demand in the summer months.

Post-FOCP implementation conditions would result in some adverse groundwater storage impacts that are also anticipated during Project construction. However, normal operations using imported water that is released to Coyote Creek as managed recharge would continue to support and prioritize groundwater recharge to the Coyote Valley groundwater management area to avoid and minimize construction phase impacts.

Figure 3.12-2. Santa Clara County Groundwater History



Source: Valley Water 2021

3.12.1.5 Groundwater Quality

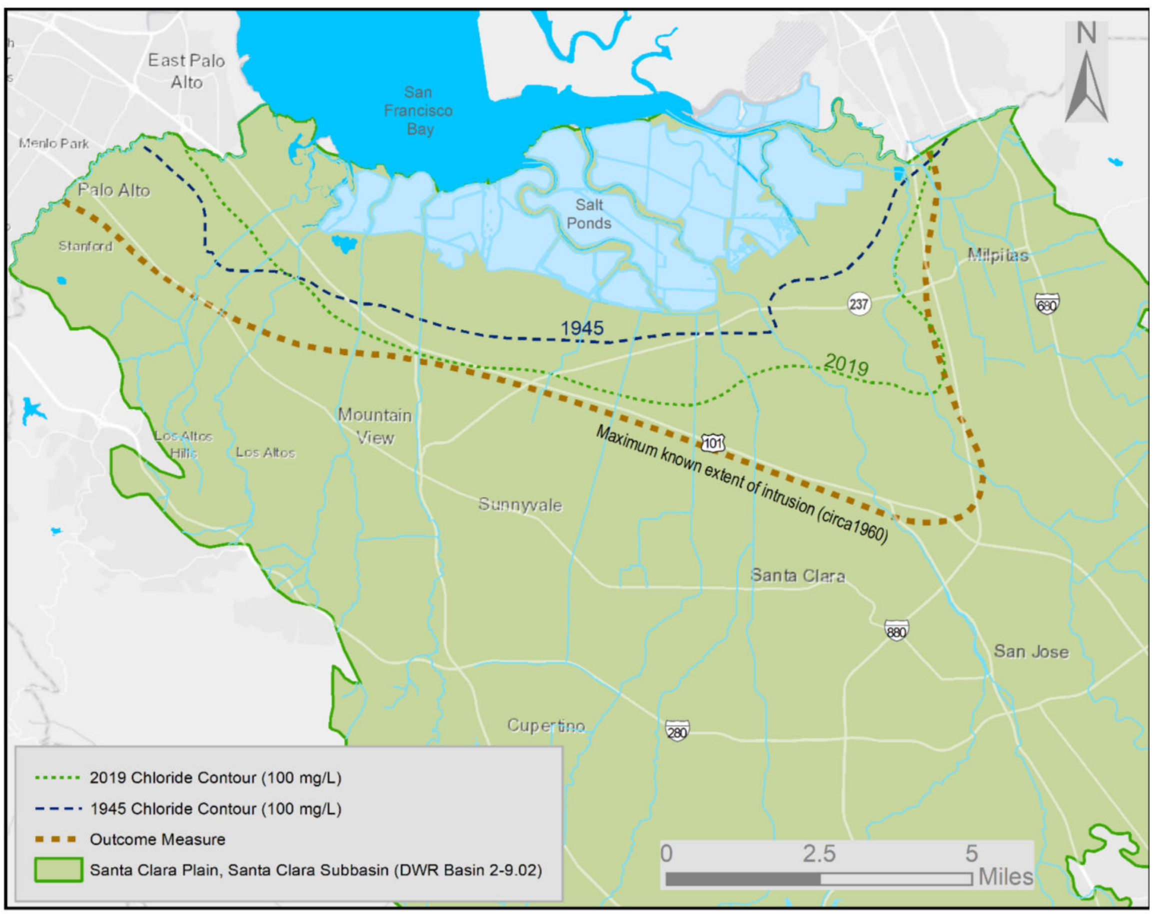
Groundwater in the Santa Clara Subbasin is generally of very good quality, with infrequent detections of water-quality parameters above health-based maximum contaminant levels (MCL) (Valley Water 2021). The Santa Clara Subbasin generally produces groundwater of good quality that does not need treatment beyond disinfection (Valley Water 2021). In 2019, Valley Water collected groundwater samples and analyzed water quality from 254 wells, including 85 dedicated monitoring wells and domestic wells that are sampled each year, 144 domestic wells tested through a voluntary sampling program, and 25 wells located near recycled water irrigation sites (Valley Water 2020). Results showed that groundwater in the Santa Clara and Llagas Subbasins meets drinking water standards in most wells for all parameters tested, with the exception being nitrate, which was found above the MCL in 23 percent of South County water supply wells sampled (primarily in domestic wells) (Valley Water 2020).

Water retailers like Great Oaks Water Company and the City of Morgan Hill closely monitor groundwater quality at individual wells to ensure compliance with federal and State public health standards. Through comprehensive regional groundwater monitoring, Valley Water tracks groundwater conditions and trends, and coordinates with retailers, land use agencies, and regulatory agencies to protect groundwater. Elevated nitrate concentrations from low-density septic systems and agricultural activities is a key concern for groundwater in south Santa Clara County. Furthermore, since groundwater in the Coyote Valley area is largely unconfined and often shallow, the aquifer is extremely sensitive to potential groundwater contamination from human activities at land surface.

In the Santa Clara Plain, closer to the San Francisco Bay, seawater intrusion and elevated chloride concentrations in groundwater have been an issue (Valley Water 2021). Seawater intrusion (also called saltwater intrusion) refers to the temporary or permanent influx of seawater into coastal freshwater aquifers. This is a groundwater management concern, because it can degrade groundwater quality and, if severe enough, result in undesirable conditions that may include limiting groundwater as a water supply for municipal and industrial uses, agriculture, and domestic uses, or degrading groundwater dependent ecosystems (GDE) or infrastructure (Valley Water 2021). Saltwater intrusion in the shallow aquifer zone of the Santa Clara Plain is largely attributed to incursion of water from San Francisco Bay into the tidal reaches of creeks and subsequent transport to shallow groundwater through streambed percolation. **Figure 3.12-3** shows the extent of seawater intrusion in the Santa Clara Plain shallow aquifer zone.

Post-FOCP implementation, groundwater water quality conditions would be similar to those that have been monitored since the 2017 DSOD restriction. These conditions have been monitored on an annual basis in accordance with the Valley Water Groundwater Management Plan and have not varied substantially from historic record (Valley Water 2021).

Figure 3.12-3. Extent of Seawater Intrusion in the Santa Clara Plain Shallow Aquifer Zone



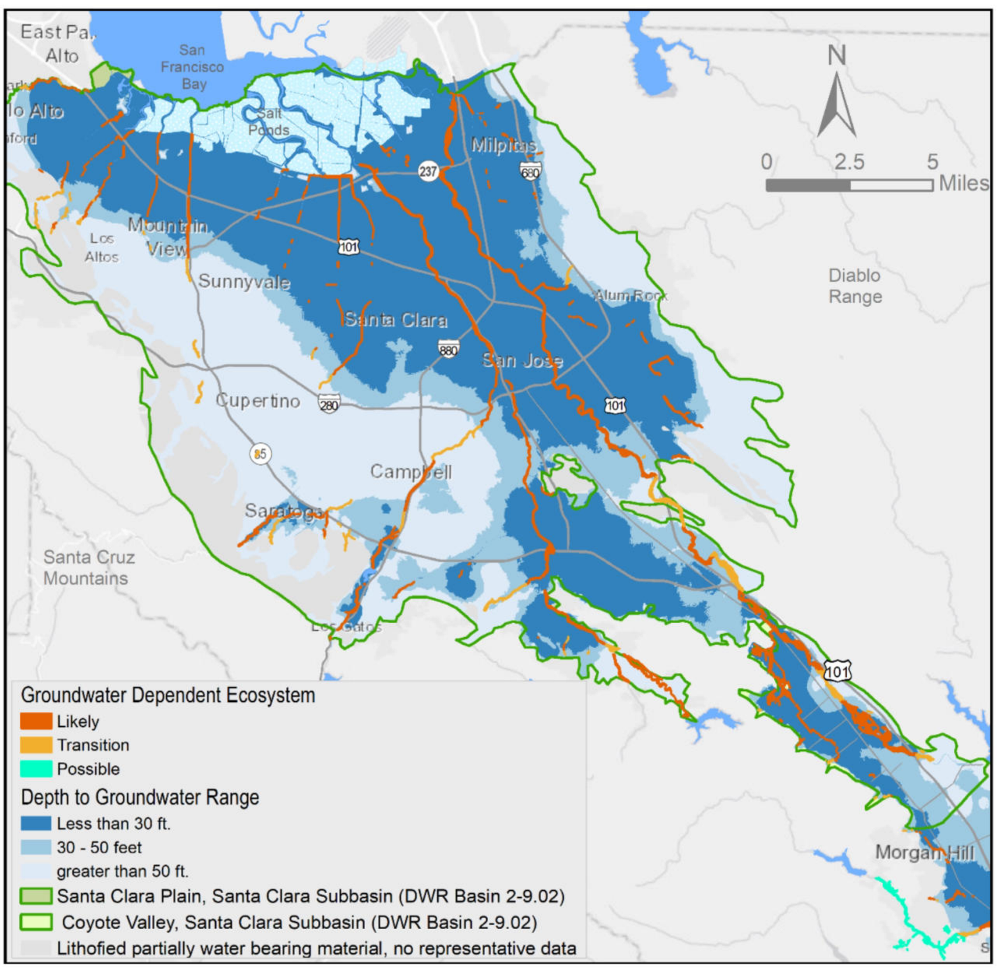
Source: Valley Water 2021

3.12.1.6 Groundwater Dependent Ecosystems

GDEs are defined under SGMA as "ecological communities of species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface" (23 CCR Section 351[m]). GDEs in California include a wide range of natural communities, including wetlands, rivers, streams, and estuaries, seeps and springs, and terrestrial vegetation, including deep-rooted plants or plant communities that obtain water from the water table (called phreatophytes) (Valley Water 2021).

Generally, the Santa Clara Subbasin has primarily losing stream reaches that are used in Valley Water's instream managed recharge program where stream water percolates downward through the stream channel and recharges the underlying aquifer (Valley Water 2021). Natural streamflow and operational releases from Valley Water's local reservoirs provide nearly perennial flows during most years in many of the losing stream reaches that were historically ephemeral streams prior to Valley Water's operations (Valley Water 2021). This would typically indicate that the losing stream reaches are disconnected from the regional groundwater table, and thus are not likely interconnected surface water or GDEs. However, based on depth-to-groundwater and other factors, there are a number of likely, transition, and possible GDEs in the Santa Clara Subbasin, as shown in **Figure 3.12-4**.

Figure 3.12-4. Groundwater Dependent Ecosystems in the Santa Clara Subbasin



Source: Valley Water 2021

1 Figure 3.12-5. Groundwater Basins – Anderson Dam Area
2

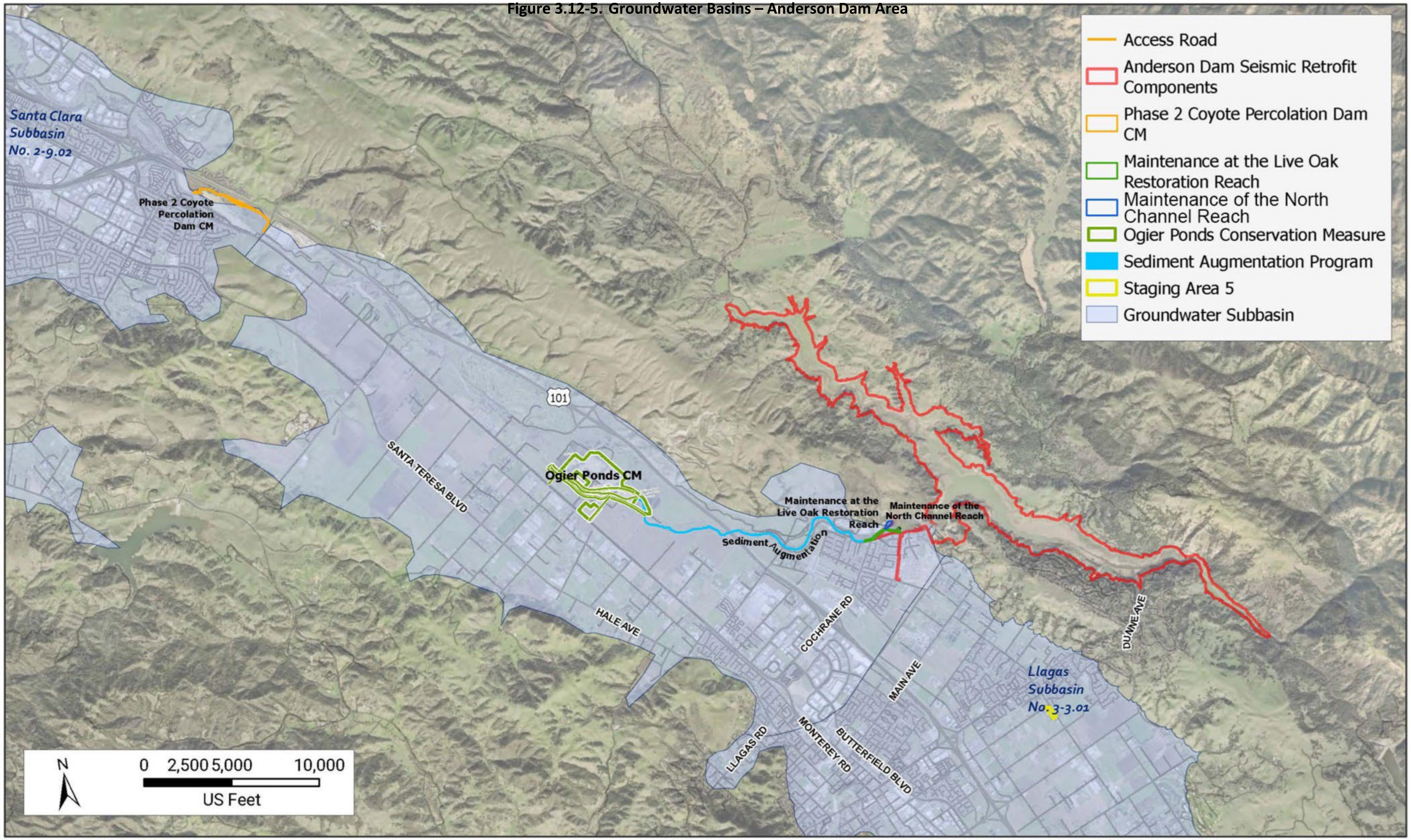


Figure 3.12-5 Groundwater Basins – Anderson Dam Area
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

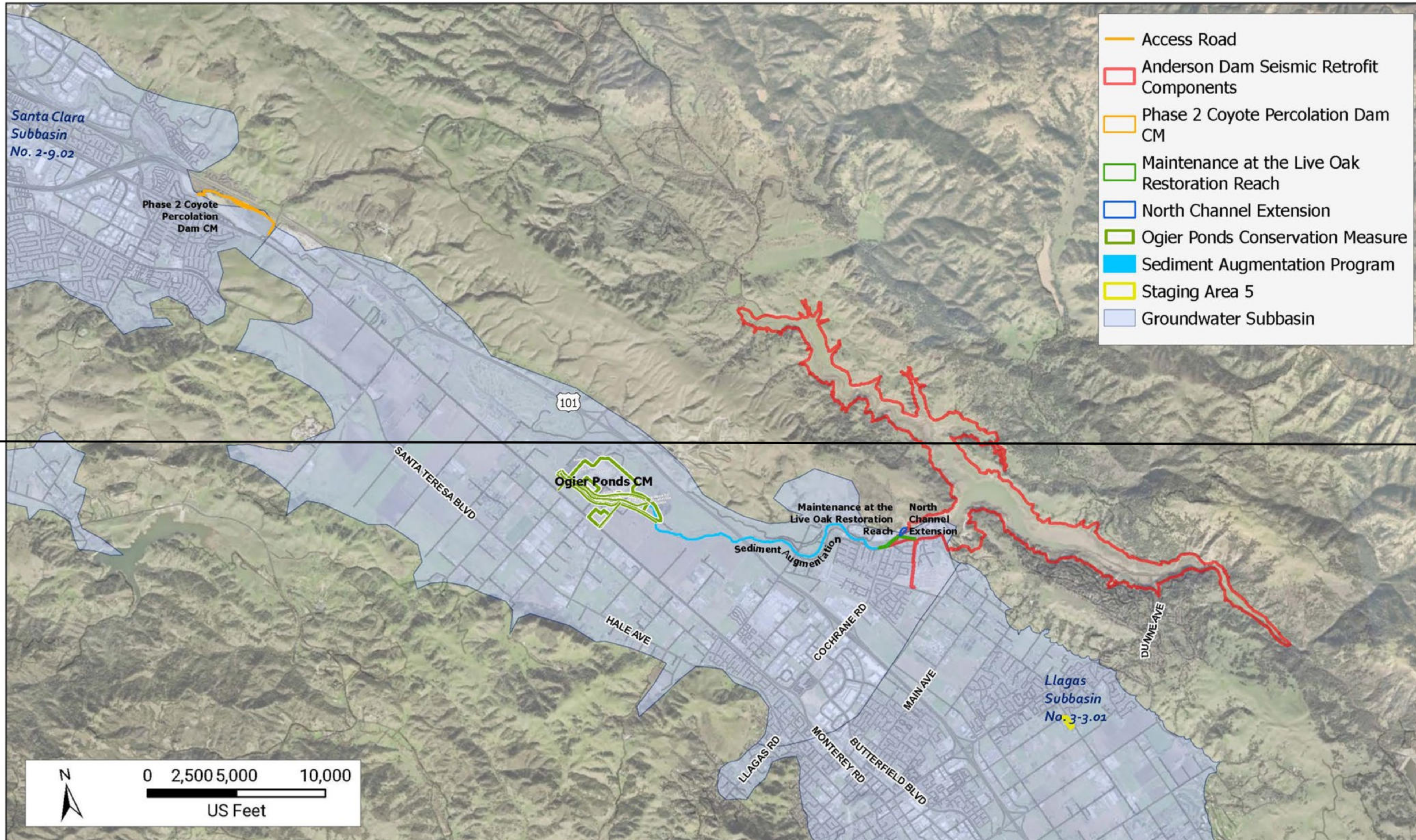


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Figure 3.12-5 Groundwater Basins – Anderson Dam Area

Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

3.12.2 Regulatory Setting

3.12.2.1 Federal Laws, Regulations, and Policies

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) is intended to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and groundwater wells that serve more than 25 individuals. The goal of the SDWA is to ensure that drinking water is safe for human consumption and will not have adverse health effects on the typical person who drinks water. Under the SDWA, the USEPA has set drinking water standards for chemical, microbiological, radiological, and physical contaminants in its National Primary Drinking Water Regulations (40 CFR Part 141).

3.12.2.2 State Laws, Regulations, and Policies

Porter-Cologne Water Quality Control Act

Refer to Section 3.14, *Water Quality*, for discussion of the Porter-Cologne Act. As described therein, the Porter-Cologne Act requires the RWQCBs to adopt Basin Plans for the protection of surface water and groundwater quality.

Water Quality Control Plan for the San Francisco Bay Basin

The study area is located within the jurisdiction of the San Francisco Bay RWQCB (Region 2). The Water Quality Control Plan for the San Francisco Bay Basin (San Francisco Bay Basin Plan) (San Francisco RWQCB 2019) identifies beneficial uses for surface waters and groundwater within the San Francisco Bay region and establishes narrative and numerical water quality objectives (WQO) to achieve the beneficial uses for those waters. Beneficial uses represent the services and qualities of a waterbody (i.e., the reasons that the waterbody is considered valuable). WQOs reflect the standards necessary to protect and support those beneficial uses. Basin Plan standards are primarily implemented by regulating waste discharges so that WQOs are met.

Table 3.12-2 shows designated beneficial uses of groundwater basins in the study area. Refer to Section 3.14, *Water Quality*, for designated beneficial uses of surface waters in the study area.

Table 3.12-2. Beneficial Uses of Groundwater Basins in the Study Area

Water Body	Beneficial Uses[1]																		
	AGR	MUN	FRSH	GWR	IND	PROC	COMM	SHELL	COLD	EST	MAR	MIGR	RARE	SPWN	WARM	WILD	REC-1	REC-2	NAV
Groundwater Basin (Sub-Basin)																			
Santa Clara Valley (Santa Clara Subbasin -BasinNo. 2-9.02)	E	E			E	E													

Source: San Francisco Bay RWQCB 2019

Notes:

[1] Beneficial Uses are defined as: Agricultural Supply (AGR), Municipal and Domestic Supply (MUN), Freshwater Replenishment (FRSH), Groundwater Recharge (GWR), Industrial Service Supply (IND), Industrial Process Supply (PROC), Ocean, Commercial, and Sport Fishing (COMM), Shellfish Harvesting (SHELL), Cold Freshwater Habitat (COLD), Estuarine Habitat (EST), Marine Habitat (MAR), Fish Migration (MIGR), Preservation of Rare and Endangered Species (RARE), Fish Spawning (SPWN), Warm Freshwater Habitat (WARM), and Wildlife Habitat (WILD), Water Contact Recreation (REC-1), Non-contact Water Recreation (REC-2), Navigation (NAV)

Key: E = existing beneficial use

State Drinking Water Standards

CCR, Title 22, Division 4, Chapter 15 establishes parameters for safe drinking water throughout the state. These drinking water standards are similar to, but in many cases more stringent than, federal standards. Title 22 contains both primary standards, and secondary standards related to aesthetics (taste and odor).

California Statewide Groundwater Elevation Monitoring Basin Prioritization

In 2009, the California State Legislature amended the California Water Code with SBx7-6, which mandates a statewide groundwater elevation monitoring program to track seasonal and long-term trends in groundwater elevations in California. Under this amendment, DWR established the California Statewide Groundwater Elevation Monitoring (CASGEM) program, which established the framework for regular, systematic, and locally managed monitoring in all of California's groundwater basins. The CASGEM program is essential to DWR's ranking all of California's basins by priority: high, medium, low, and very low. DWR's basin prioritization is based on the following factors:

1. Population overlying the basin or subbasin
2. Rate of current and projected growth of the population overlying the basin or subbasin
3. Number of public supply wells that draw from the basin or subbasin
4. Total number of wells that draw from the basin or subbasin
5. Irrigated acreage overlying the basin or subbasin
6. Degree to which persons overlying the basin or subbasin rely on groundwater as their primary source of water

7. Any documented impacts on the groundwater within the basin or subbasin, including overdraft, subsidence, saline intrusion, and other water quality degradation
8. Any other information determined to be relevant by DWR

The Santa Clara Subbasin (2-009.02) underlies the study area. This subbasin is designated as high priority, per CASGEM and DWR's basin prioritization (DWR 2021 ~~2021a~~).

Sustainable Groundwater Management Act

SGMA became law in January 1, 2015, and created a legal and policy framework to manage groundwater sustainably at a local level. SGMA allows local agencies to customize groundwater sustainability plans (GSP) to their regional economic and environmental conditions and needs and establish new governance structures, known as groundwater sustainability agencies (GSA). SGMA requires that GSAs develop GSPs or prescribed alternatives for groundwater basins designated as high and medium priority by DWR. GSPs are intended to facilitate the management of groundwater supply and use in a manner that avoids specific undesirable results. Undesirable results are defined as the following:

- Chronic lowering of groundwater levels (not including overdraft during a drought if a basin is otherwise managed)
- Significant and unreasonable reduction of groundwater storage
- Significant and unreasonable seawater intrusion
- Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies
- Significant and unreasonable land subsidence that substantially interferes with surface land uses
- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water

GSPs are required to include measurable objectives and minimum thresholds, as well as interim milestones in 5-year increments, to achieve the sustainability goal for the basin for the long-term beneficial uses of groundwater. Additionally, GSPs are required to include components related to groundwater quality monitoring, the monitoring and management of groundwater levels within the basin, mitigation of overdraft, and a description of surface water supply used or available for use for groundwater recharge or in-lieu use.

3.12.2.3 Local Laws, Regulations, and Policies

County of Santa Clara General Plan

The County of Santa Clara General Plan (County 1994 ~~1995~~) includes the following goals and policies related to groundwater and the Project:

Book A – Resource Conservation

Policy C-RC 5: An adequate, high quality water supply for Santa Clara County should be considered essential to the needs of households, business and industry.

Policy C-RC 6: A comprehensive strategy for meeting long term projected demand for water should at a minimum include the following:

a. Continued conservation and increased reclamation;

b. Securing additional sources as supplemental supply;

c. System and local storage capacity improvements; and

d. Drought contingency planning and groundwater basin management programs.

Policy C-RC 7: Countywide land use and growth management planning should be coordinated with overall water supply planning by the SCVWD in order to maximize dependability of long-term water supply resources.

Policy C-RC 17: Drought contingency plans and groundwater basin management programs should be reviewed and updated to prepare for the likelihood of future periods of short-term drought and to minimize:

a. The potential adverse impacts of drought upon households, business, and industry, and

b. The possibility of groundwater overdraft and land subsidence.

Book A – Safety and Noise

Policy C-HS 42: The long-term viability and safety of underground aquifers and groundwater systems countywide shall be protected to highest degree feasible.

Policy C-HS 47: Groundwater quality should be monitored to ensure the long-term integrity of countywide water resources.

Book B – Safety and Noise

Policy R-HS 47: The long-term viability and safety of surface and groundwater supplies countywide shall be protected from contamination to the highest degree feasible.

Policy R-HS 48: To enhance the effectiveness of each agency's efforts to protect local surface and groundwater quality, the County should encourage cooperation between the regional and local water agencies, sharing of information, and appropriate ongoing water quality monitoring efforts.

Book B – South County Joint Area Plan

Policy SC 8.13: In order to provide greater protection of the aquifers which supply drinking water to the South County, special consideration should be given to the management of contaminants (e.g., hazardous materials, sanitary effluents) in groundwater recharge areas where no protective aquitard layer exists.

City of Morgan Hill 2035 General Plan

The City of Morgan Hill 2035 General Plan (City of Morgan Hill 2017 ~~2016~~) contains the following goals and policies related to groundwater resources and the Project:

Natural Resources and Environment

Goal NRE-7: Conservation of water resources.

Goal NRE-8: Protection of water quality from contamination associated with urbanization.

Goal NRE-9: Cooperative efforts to ensure regional water quality.

Policy NRE-9.1: Interjurisdictional Coordination. Maintain close coordination with the following agencies and organizations which share jurisdiction and interest relative to South County's water supply and water quality: the Regional Water Quality Control Boards, Santa Clara Valley Water District, Santa Clara County, City of Gilroy Planning Department, and San Martin Planning Committee. (South County Joint Area Plan 10.02)

Safety, Services, and Infrastructure

Goal SSI-14: High quality water resources, managed effectively.

Policy SSI-14.1: Efficient Water Management. Manage the supply and use of water more efficiently through appropriate means, such as watershed protection, percolation, conservation, and reclamation. (South County Joint Area Plan 7.00)

Policy SSI-14.4: Drought Planning. Encourage water agencies to develop and maintain drought contingency plans, including emergency water connections and related measures to ensure adequate water during drought.

Policy SSI-14.6: Well Pumping. Support cooperation among all jurisdictions and agencies pumping water from wells in order to manage the aquifer to preserve the natural ecology of the region, secure the aquifer's utility as a water resource, and ensure the water's quality. (South County Joint Area Plan 7.04)

Policy SSI-14.7: Water District Programs. Encourage the Santa Clara Valley Water District to continue developing programs to assure effective management of water resources, such as well monitoring, percolation of imported water, reclamation, and conservation. (South County Joint Area Plan 7.07)

Policy SSI-14.8: Sufficient Supply. Ensure that new development does not exceed the water supply. (South County Joint Area Plan 7.08)

Policy SSI-14.9: Well Monitoring. Continue to monitor wells and provide the results to the Santa Clara Valley Water District which would coordinate the data and make it available to all jurisdictions and agencies. (South County Joint Area Plan 8.14)

Goal SSI-16: Minimized adverse effects on property, natural resources, and ground and surface water quality from stormwater runoff.

Envision San José 2040 General Plan

Envision San José 2040 General Plan (City of San José 2023 ~~2011~~) contains the following goals and policies relevant to groundwater resources and the Project:

Goal MS-17: Responsible Management of Water Supply. Demonstrate environmental leadership through responsible and fiscally and environmentally sustainable management of water to restore our environment, enhance our quality of life and provide an adequate water supply to meet the needs of our community now and in the future.

Goal MS-18: Water Conservation. Continuously improve water conservation efforts in order to achieve best in class performance. Double the City's annual water conservation savings by 2040 and achieve half of the Water District's goal for Santa Clara County on an annual basis.

Goal MS-20: Water Quality. Ensure that all water in San Jose is of the highest quality appropriate for its intended use.

Policy MS-20.3: Protect groundwater as a water supply source through flood protection measures and the use of stormwater infiltration practices that protect groundwater quality. In the event percolation facilities are modified for infrastructure projects, replacement percolation capacity will be provided.

Goal ER-8: Stormwater. Minimize the adverse effects on ground and surface water quality and protect property and natural resources from stormwater runoff generated in the City of San José.

Policy ER-8.4: Assess the potential for surface water and groundwater contamination and require appropriate preventative measures when new development is proposed in areas where storm runoff will be directed into creeks upstream from groundwater recharge facilities.

Goal ER-9: Water Resources. Protect water resources because they are vital to the ecological and economic health of the region and its residents.

Policy ER-9.3: Utilize water resources in a manner that does not deplete the supply of surface or groundwater or cause overdrafting of the underground water basin.

Policy ER-9.4: Work with the SCVWD to preserve water quality by establishing appropriate public access and recreational uses on land adjacent to rivers, creeks, wetlands, and other significant water courses.

Policy ER-9.5: Protect groundwater recharge areas, particularly creeks and riparian corridors.

Valley Water Groundwater Management Plan

Valley Water is the GSA for the Santa Clara Subbasin (2-009.02), which underlies the study area. As DWR has designated the Santa Clara Subbasin as a high priority basin (DWR 2021 ~~2021a~~), Valley Water was required to develop a GSP for the subbasin, or submit an Alternative for consideration. Valley Water submitted its 2016 Groundwater Management Plan (GWMP) for the Santa Clara and Llagas Subbasins as an Alternative to a GSP in December 2016. In July 2019, DWR approved the Alternative for both the Santa Clara and Llagas Subbasins, determining that it satisfies the objectives of SGMA (Valley Water 2023). Valley Water submitted its 2021 GWMP to DWR as the periodic evaluation required for the approved Alternative in December 2021 (Valley Water 2023).

Groundwater Management Plan for the Santa Clara and Llagas Subbasins

As noted above, Valley Water's 2016 GWMP was approved by DWR as an Alternative to a GSP, and Valley Water subsequently submitted the 2021 GWMP to DWR in accordance with the periodic evaluation for the approved Alternative. The 2021 GWMP supersedes all previous GWMPs and is the current version in effect. The GWMP describes Valley Water's comprehensive groundwater management framework, including existing and potential actions to achieve basin sustainability goals and ensure continued sustainable groundwater management. The GWMP includes the following sustainability goals related to groundwater supply reliability and protection (Valley Water 2021):

- Manage groundwater to ensure sustainable supplies and avoid land subsidence.
- Aggressively protect groundwater from the threat of contamination.

These goals describe the overall objectives of Valley Water's groundwater management programs. The GWMP then includes basin management strategies to meet the sustainability goals. Many of the strategies have overlapping benefits, acting to improve water supply reliability, minimize subsidence, and protect or improve groundwater quality, as follows (Valley Water 2021):

1. Manage groundwater in conjunction with surface water
2. Implement programs to protect and promote groundwater quality
3. Maintain and develop adequate groundwater models and monitoring networks
4. Work with regulatory and land use agencies to protect recharge areas, promote natural recharge, and prevent groundwater contamination

Finally, the GWMP includes sustainability indicators and outcome measures to gauge performance in meeting the basin sustainability goals, as shown in **Table 3.12-3** below.

Table 3.12-3. Groundwater Management Plan Outcome Measures and Outcome Measure – Lower Thresholds

Sustainability Indicator	Outcome Measure	Outcome Measure – Lower Threshold
Groundwater Storage	Projected end of year groundwater storage is greater than 278,000 AF in the Santa Clara Plain, 5,000 AF in the Coyote Valley, and 17,000 AF in the Llagas Subbasin.	Projected end of year countywide groundwater storage is greater than Stage 5 (150,000 AF) of the Water Shortage Contingency Plan.
Subsidence	Groundwater levels are above subsidence thresholds at the Santa Clara Plain subsidence index wells.	Groundwater levels are above the historical low water levels at the majority of the Santa Clara Subbasin subsidence index wells.
Groundwater Quality	For Santa Clara Subbasin water supply wells, at least 95% meet primary drinking water standards, and at least 90% have stable or decreasing trends for TDS.	At least 70% of water supply wells have stable or decreasing trends for nitrate and TDS.

Sustainability Indicator	Outcome Measure	Outcome Measure – Lower Threshold
Groundwater Quality	For Llagas Subbasin water supply wells, at least 95% meet primary drinking water standards, and at least 90% of wells have stable or decreasing trends for TDS.	At least 70% of water supply wells have stable or decreasing trends for nitrate and TDS.
Seawater Intrusion	In the Santa Clara Subbasin shallow aquifer, the 100 milligram per liter isocontour areas is less than the historical maximum extent area (57 square miles).	In the Santa Clara Subbasin shallow aquifer, the 100 milligram per liter chloride isocontour area is less than 81 square miles, which represents a 1-mile radial buffer of the historical maximum extent area.

Source: Valley Water 2021

Key: AF = acre-feet; TDS = total dissolved solids

Notes: As defined in Valley Water's 2021 Groundwater Management Plan, outcome measures are quantifiable goals to track performance of sustainable management and are functionally equivalent to measurable objectives under SGMA. Outcome measure-lower thresholds are quantifiable values used to define undesirable results and are functionally equivalent to minimum thresholds under SGMA. The outcome measure-lower thresholds account for a reasonable margin of operational flexibility below the outcome measure that accommodates drought, climate change, conjunctive use operations, and other groundwater management activities.

3.12.3 Methodology and Approach to Impact Analysis

The impact analysis considers the potential impacts on groundwater resources from the Project pursuant to the applicable significance criteria in Appendix G of the *CEQA Guidelines* (see Section 3.12.3.8). Specifically, the impacts analysis considers the effects of Seismic Retrofit construction (Section 3.12.3.1), Conservation Measure construction (Section 3.12.3.2), construction monitoring (Section 3.12.3.3), and post-construction Anderson Dam Facilities operations and maintenance, and post-construction Conservation Measure operations and maintenance, (Section 3.12.3.4).

To the extent possible, quantitative methods are used and effects are discussed quantitatively. However, in some cases, the potential effects cannot be quantified and are discussed in a qualitative manner. Generally, the potential effects of the Project are first discussed without implementation of applicable Valley Water BMPs and compliance with VHP conditions (see Section 3.12.3.7) and applicable regulations; then, the analysis considers how implementation of BMPs and compliance with VHP conditions and other regulations would reduce those potential adverse effects. If effects remain significant after implementation of BMPs and compliance with VHP conditions and other regulations, then mitigation measures are prescribed, if feasible, to reduce those effects to a level that is less than significant.

The Project would be regulated by the various laws, regulations, and policies summarized above in Section 3.12.2, *Regulatory Setting*. Compliance by the Project with applicable federal, state, and local laws and regulations is assumed in this analysis and local and state agencies would be expected to continue to enforce applicable requirements to the extent that they do so now. Note that compliance with many of the regulations would be a condition of permit approval.

As discussed further below, separate baselines are used due to the nature of the Project and the different types of effects. Generally, for analyzing construction-related effects except for reduced reservoir releases, the existing conditions baseline is used, which represents the existing conditions at the time of EIR preparation as modified by implementation of the FOCP. For analyzing flow-related construction and operation effects, the Pre-FERC Order Conditions Baseline and/or the future conditions baseline is used.

3.12.3.1 Seismic Retrofit Construction

Seismic Retrofit Construction of the Seismic Retrofit aspects of the Project is planned to occur over a 7-year duration, as described in Chapter 2, and the timing of specific activities with respect to the overall construction schedule is considered in the impact analysis. During the majority of the Seismic Retrofit construction period, the reservoir would be (almost) completely dewatered, which would limit dry season releases to Coyote Creek. The results of a quantitative Water Evaluation and Planning (WEAP) monthly model are used in the analysis as summarized in Appendix J, *Groundwater Technical Memorandum*. The analysis considers implementation of Conservation Measure components and applicable Valley Water BMPs, and compliance with applicable VHP conditions to reduce potential impacts from Seismic Retrofit construction. As noted above, the baseline for analysis of impacts from Seismic Retrofit construction is a Pre-FERC Order (2015) baseline for reduced reservoir releases and the existing conditions baseline for other groundwater impacts.

3.12.3.2 Conservation Measure Construction

The Conservation Measure components that would be included as part of the Project are described in Chapter 2, *Project Description*. Several of the Conservation Measure components would serve to minimize the potential effects of the Seismic Retrofit construction process on groundwater resources (e.g., imported water releases via the CDL and Cross Valley Pipeline Extension). These beneficial effects are considered in the Seismic Retrofit construction analysis. Additionally, the potential for conservation measures involving construction/ground-disturbance to result in adverse effects on groundwater resources is evaluated. These include the following:

- Ogier Ponds CM
- Maintenance of the North Channel Reach ~~Extension~~
- Maintenance Activities of Spawning Gravel and Rearing Habitat Improvements at Live Oak Restoration Reach
- Sediment Augmentation Program
- Phase 2 Coyote Percolation Dam Fish Passage Enhancements

3.12.3.3 Construction Monitoring

Valley Water would implement a wide range of construction monitoring activities during Project construction, including monitoring of stream flow and water quality; suspended sediment; sediment deposition; reptiles and terrestrial animals; and steelhead habitat quality, conditions, migration, migration flows, spawning, and juvenile rearing in Coyote Creek downstream from Anderson Dam. Generally, these measures would involve small numbers of people visiting locations throughout the study area, including potential installation of minor equipment within or adjacent to stream channels. The construction monitoring activities would have no potential to adversely affect groundwater supplies or groundwater recharge, as these activities would not directly use groundwater or involve construction processes (e.g., dewatering) or disturbance (e.g., access roads, staging) that could impact groundwater resources. These activities would be limited to individual field personnel visiting sites, taking samples, and potentially installing minor equipment within or adjacent to the stream channel that would have no potential to impact groundwater. Therefore, no impact would occur and this topic is not discussed further.

3.12.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

This analysis considers indirect and direct impacts to groundwater that could result from operational changes and proposed for non-emergency flow releases following the completion of the Seismic Retrofit construction, as described in Chapter 2, *Project Description*. The analysis considers the potential effects of activities during the post-construction phase of the Project for Anderson Dam facilities. This includes implementation of the updated FAHCE rule curves for operation of Anderson Reservoir, in accordance with the Coyote Creek FHRP pursuant to the FAHCE *Settlement Agreement*, as well as maintenance of Anderson Dam facilities (e.g., outlet works) Maintenance of Anderson Dam facilities would be conducted under the DMP. As part of the evaluation, the analysis considers the potential effects on groundwater resources and basins. The analysis addresses whether changes to reservoir flow releases could result in changes to groundwater. As described in Section 3.0, *Introduction*, the baseline for evaluating post-construction operations effects is the Pre-FERC Order.

3.12.3.5 Post-Construction Conservation Measure Operations and Maintenance

The Conservation Measures components focus on improving fish habitat (e.g., gravel augmentation, separation of Coyote Creek from Ogier Ponds) and fish passage enhancement. The Conservation Measures components would operate passively, without mechanical or human intervention, and have been planned in accordance with Anderson Dam Reservoir flow releases. Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Coyote Percolation Dam per Valley Water's existing DMP. Maintenance of Coyote Percolation Dam was previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). While data collection and assessment may indicate that individual Conservation Measures are not meeting success criteria specified for those measures, the modified Conservation Measure actions that would be undertaken to attain the prescribed success criteria would be similar to the original actions and would not result in additional impacts. In the event that modified Conservation Measures would result in additional environmental impacts that are outside of the scope of impacts analyzed in this EIR, additional CEQA review would be undertaken at that time.

Through the implementation of the operations and maintenance phase of the Conservation Measures components in accordance with existing Valley Water maintenance plans, including the SMP, no additional impacts are likely. Therefore, these topics are not discussed further in this section.

3.12.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because monitoring activities in and of themselves would have no impact on groundwater recharge and water quality.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts of these adaptive actions are not evaluated in the impact analysis because their groundwater impacts would likely be very minor. ~~e.~~

3.12.3.7 Applicable Best Management Practices and VHP ~~Valley Habitat Plan~~ Conditions

As noted in Chapter 2, *Project Description*, Valley Water would incorporate a range of BMPs, including conditions and AMMs from the VHP, to avoid and minimize adverse effects on the environment that could result from the Project. All relevant BMPs and AMMs for the Project are included in Appendix A, *Best Management Practices and Santa Clara Valley Habitat Conservation Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures* ~~*Incorporated in the Project*~~*.* BMPs relevant to groundwater include the following:

- **HM-1:** Comply with All Pesticide Application Restrictions and Policies
- **HM-2:** Minimize Use of Pesticides
- **HM-4:** Comply with All Pesticide Usage Requirements
- **HM-5:** Comply with Restrictions on Herbicide Use in Upland Areas
- **HM-6:** Comply with Restrictions on Herbicide Use in Aquatic Areas
- ~~**HM-7:** Restrict Vehicle and Equipment Cleaning to Appropriate Locations and equipment fluids~~
- **HM-8:** Ensure Proper Vehicle and Equipment Fueling and Maintenance
- **HM-9:** Ensure Proper Hazardous Materials Management

- **HM-10:** Utilize Spill Prevention Measures
- **SED**-1: Groundwater Management

Additionally, the following VHP conditions ~~AMMs~~ would serve to minimize impacts on groundwater resources from the Project ~~(refer to Appendix A for the full text of the VHP AMMs)~~:

- Condition 3: Maintain Hydrologic Conditions and Protect Water Quality
- Condition 4: Avoidance and Minimization for In-Stream Projects
- Condition 5: Avoidance and Minimization Measures for In-Stream Operations and Maintenance
- Condition 7: Rural Development Design and Construction Requirements
- Condition 11: Stream and Riparian Setbacks
- Condition 12: Wetland and Pond Avoidance and Minimization

Additionally, the following VHP conditions AMMs related to conditions 3, 4, and 5 would serve to minimize impacts on hydrology from the Project:

- VHP AMM 7: Rural Development Design and Construction Requirements OR Use appropriate erosion and sediment control avoidance and minimization measures to secure the staging and Project Area ~~project area~~ so that sediment runoff is avoided
- VHP AMM 8: Implement Avoidance and Minimization Measures for Rural Road Maintenance OR Protect storm drain inlets and watercourses using appropriate avoidance and minimization measures
- VHP AMM 9: Mulch or revegetate bare soil adjacent to stream channels, or other flow transport paths, to the break-in-slope near those areas
- VHP AMM 11: Stream and Riparian Setbacks
- VHP AMM 12: Wetland and Pond Avoidance and Minimization. OR Dewater active gullies to prevent their enlargement and to reduce their capacity for sediment transport
- VHP AMM 14: Prevent accelerated landsliding by avoiding, minimizing or eliminating future sidecasting on steep or streamside hillslopes
- VHP AMM 72: Equipment storage, fueling and staging areas will be sited on disturbed areas or non-sensitive habitat outside of a stream channel
- VHP AMM 87: Vehicles operated within and adjacent to streams will be checked and maintained daily to prevent leaks
- VHP AMM 88: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas
- VHP AMM 100: Potential contaminating materials must be stored in covered storage areas or secondary containment impervious to leaks and spills

3.12.3.8 Thresholds of Significance

In accordance with Appendix G of the *CEQA Guidelines*, the Project would have a significant effect related to groundwater resources[1] if it would:

GW-1: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin

GW-2: Violate groundwater water quality standards or substantially degrade groundwater quality

GW-3: Conflict with or obstruct implementation of the San Francisco Bay Basin Plan groundwater provisions or Valley Water's GWMP

3.12.4 Impact Analysis

***Impact GW-1: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin* (Less than Significant with Mitigation)**

Seismic Retrofit Construction

Reduced Reservoir Releases Affecting the Managed Groundwater Basin

As described in Chapter 2, *Project Description,* following implementation of the FOCP, the reservoir water level is currently at deadpool. During Seismic Retrofit construction, the reservoir water level would be further lowered ~~another 21 feet~~ to elev. 450 ~~467~~ feet during Year 1, ~~and then lowered another 17 feet to elev. 450 during Year 2~~. Following cofferdam and reservoir bypass pipe construction (occurring in Year 2), dewatering new flows entering the reservoir would continue to maintain the reservoir at elev. 450 feet during Years 2 and 3. The reservoir would be filled to elev. 556 feet in Year 4, elev. 556 feet in Year 5, and elev. 657 feet in Year 6 ~~453 during Years 3, 4, 5, and 6~~. This ongoing dewatering would occur through the Stage 2 Diversion System. A pool of water would generally be held behind the cofferdam (which would have a capacity of 500 AF), but the water level would fluctuate based on inflow and time of year. During Year 6 of Seismic Retrofit construction, with the approval of applicable dam safety regulatory agencies, the reservoir would be allowed to start filling to prepare for post-construction operations.

Generally, without implementation of the Conservation Measure components, dry season reservoir releases during the Seismic Retrofit construction period would be greatly reduced compared to historical conditions. Whereas historically (e.g., Pre-FERC Order) dry season releases would average roughly 55 cfs when water supplies were available, dry season releases during Seismic Retrofit construction would typically be much lower. During the dry season of Year 1 of construction, flows from the existing outlet structure would be between 1 to 65 ~~5~~ cfs, depending on the releases from Coyote Reservoir. Once the Stage 2 Diversion System is in place (to be installed during Year 2), flows from Anderson Reservoir would range from 1 to 65 cfs

[1] Note that thresholds from CEQA Guidelines Appendix G specifically related to hydrology are addressed in Section 3.11, *Hydrology*, while thresholds related to surface water quality are addressed in Section 3.14, *Water Quality*.

during the dry season, although typically this would be closer to the low end. As indicated above, only roughly 500 AF would be able to be stored behind the cofferdam; and, during the winter/spring, all flows would be bypassed through the diversion structure.

Altogether, this would greatly limit the amount of water that could be released from reservoir for the purpose of groundwater recharge along Coyote Creek. As described in Section 3.12.1, during historical conditions, Anderson Reservoir has played a critical role in supporting groundwater recharge in the Santa Clara Subbasin, in particular in the Coyote Valley management area. Valley Water's managed recharge program, of which Anderson Dam plays an important part, accounts for nearly 70 percent of the subbasin recharge, with approximately 60 percent occurring along stream channels above the aquifer's unconfined zone (Valley Water 2021). **Figure 3.12-1** shows that the Coyote Valley is particularly dependent on instream recharge along Coyote Creek, which is typically supported by releases from Anderson Dam, whereas the Santa Clara Plain management area has a number of other management recharge systems/facilities supporting recharge in this portion of the subbasin. For the period 2010 to 2019, managed recharge in the Coyote Valley averaged 13,500 AFY, whereas natural recharge only averaged 2,500 AFY (Valley Water 2021); refer to **Table 3.12-1**.

Thus, it is reasonable to assume that a prolonged period during which Anderson Dam would be essentially offline (e.g., 7 years throughout the Seismic Retrofit construction) could substantially reduce groundwater supplies and impede sustainable management of the basin. Without the recharge provided via dry season releases from Anderson Dam, groundwater pumping may exceed recharge rates leading to a decline in overall storage in the subbasin (particularly in the Coyote Valley) and potentially lower groundwater levels and increase the risk of subsidence. Depending on hydrologic conditions, a dry year or multiple dry years during the Seismic Retrofit construction period could compound these effects by reducing the amount of natural recharge and potentially increasing pumping demands. While the Seismic Retrofit construction would not actively inhibit natural groundwater recharge, it would disrupt the managed recharge that the region relies upon by keeping the reservoir in a dewatered state and limiting dry season reservoir releases.

As described in Chapter 2, *Project Description,* Valley Water would implement Conservation Measure components to avoid or reduce the potential impacts on groundwater resources during Seismic Retrofit construction. First, Valley Water would maintain normal operation of Coyote Reservoir during the construction period. As it is located approximately 1.5 miles upstream of Anderson Reservoir, releases from Coyote Reservoir are an important component of the overall inflow into Anderson Reservoir, particularly during the dry season. Valley Water aims to maintain a minimum streamflow of 3 to 5 cfs at Gage SF12 (downstream of Coyote Reservoir) through releases from Coyote Reservoir in the spring and summer (when supply is available) and manage storage consistent with the DSOD restriction established in 1992. Full capacity of the Coyote Reservoir outlet would be used when storage in Coyote Reservoir exceeds 11,843 AF, which corresponds to the DSOD restriction on water surface elevation of 758.0 feet in local datum or 760.9 feet in NAVD 88, to reduce storage in Coyote Reservoir to the DSOD-restricted level ~~in the winter to stay within DSOD restrictions (maximum storage is 11,843 AF)~~. The releases from Coyote Reservoir would provide a source of inflow to Anderson Reservoir during the dry summer/fall months, which could then be passed downstream to Coyote Creek where it could percolate through the streambed and/or help fill the Coyote Percolation Pond, where recharge could occur.

Additionally, Valley Water would implement imported water releases from the CDL and Cross Valley Pipeline Extension during the seismic retrofit construction period. Imported water would generally be obtained from San Luis Reservoir via the SCC and would be released into Coyote Creek just below Anderson Dam via the CDL, as well as downstream of Ogier Ponds via the Cross Valley Pipeline Extension. Valley Water would continue to release imported water via the Cross Valley Pipeline Extension, if stream flow from Anderson Dam does not reach the Cross Valley Pipeline Extension outfall and a dryback is present downstream. The amount of flow released from the CDL would depend on the time of year, the temperature, the amount of local water available for release from the reservoir to mix with the imported water, and actual hydrology at the time of the release, with the target of having a minimum flow of 2.5 cfs at the Edenvale streamflow gage (SF5058). Valley Water extended the Cross Valley Pipeline to allow for imported water releases downstream of Ogier Ponds as part of the FOCP; thus, it would be possible to release imported water at this location (approximately 4 miles downstream of Anderson Dam) during seismic retrofit construction. The Cross Valley Pipeline Extension is designed to a maximum flow of 67 cfs, hence it has the capacity of 50 cfs of imported water and up to this amount could potentially be released during the construction period to support groundwater recharge downstream of Ogier Ponds. Valley Water would cease Cross Valley Pipeline Extension releases when flows exceed 65 cfs at streamflow station 5082 and Coyote Creek at Madrone during the adult upstream migration season (December 1 to April 30), unless there is less than 2.5 cfs at streamflow station 5058, Coyote Creek Edenvale. Releasing imported water below Ogier Ponds would ensure that more reaches of Coyote Creek would stay wetted, and would support groundwater recharge of Coyote Valley and South San José areas throughout the construction period. Refer to Section 3.13, *Water Supply*, for discussion of the availability/reliability of imported water during Seismic Retrofit construction.

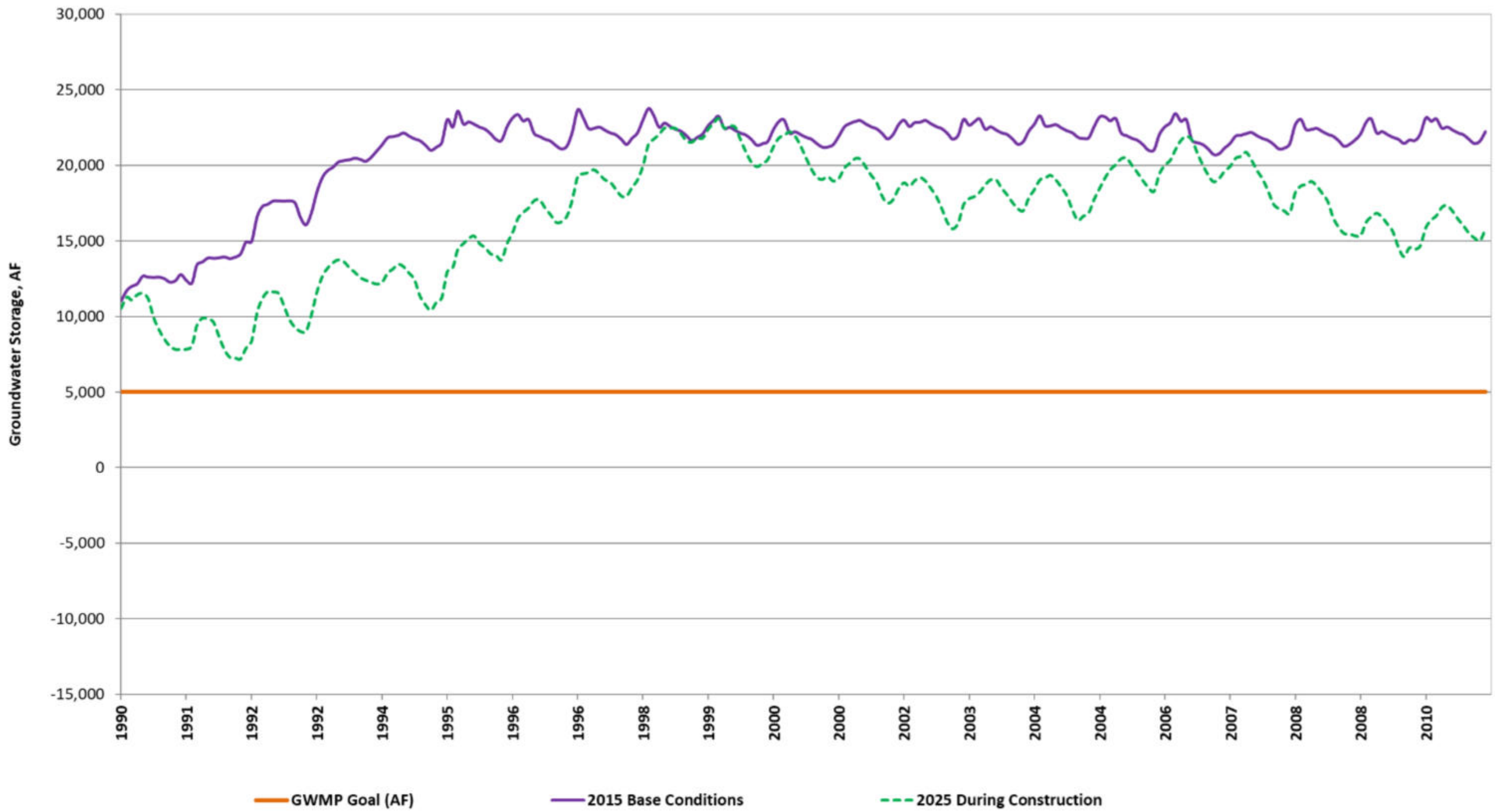
Furthermore, as described in Chapter 2, *Project Description,* Valley Water's Wetland and Riparian Habitat Dryback Monitoring Plan and Groundwater Management Plan would continue to be implemented during the Seismic Retrofit construction period (Valley Water 2020 ~~2020a~~; Valley Water 2021). This includes groundwater level monitoring, mapping of GDEs (e.g., riparian and wetland habitat), and monitoring of groundwater recharge. Groundwater level monitoring would provide real-time assessments for how the Project is impacting groundwater storage sustainability goals and include existing Valley Water programs to monitor groundwater levels, land subsidence, groundwater quality, and surface water. For this effort, Valley Water would utilize its existing network of water level and water quality monitoring wells, including wells installed by Valley Water, existing wells Valley Water has obtained, and privately-owned wells for which Valley Water has secured monitoring access, and supplemental data collected by water retailers to facilitate a comprehensive understanding of groundwater conditions. Based on the results of the monitoring, Valley Water would seek to adjust the imported water releases and/or pursue water use reduction measures to alleviate or correct any identified deficiencies or negative trends in groundwater storage.

Implementation of the Conservation Measure components and monitoring described above would substantially reduce potential impacts on groundwater supplies during Seismic Retrofit construction as a result of dewatering/reduced reservoir releases. Valley Water conducted a modeling exercise to analyze the potential effects of Seismic Retrofit construction on groundwater storage, utilizing the WEAP monthly model in order to be consistent with the FAHCE EIR. The WEAP modeling scenarios are based on 21 years (1990 to 2010) of historical hydrology and demand data provided by Valley Water's Water Supply Planning and Conservation Unit. This historical data includes times of both large rainfall events and drought conditions. The model assumes local supplies are supplemented with imported water during the construction period in accordance with the Conservation Measure components described above. The results of the modeling with respect to Seismic Retrofit construction are shown in **Figure 3.12-6**.

As can be seen in **Figure 3.12-6**, both the "2015 Base Conditions" and "2025 During Construction" scenarios result in total groundwater storage in Coyote Valley that remain above the 5,000 AF storage outcome measure (**Table 3.12-4**) during all years in the study period. The 2015 Base Conditions scenario represents a Pre-FERC Order Baseline, when ~~interim seismic~~ restrictions limited Anderson Reservoir capacity to 51,200 AF. However, the 2015 Base Conditions would logically have better groundwater supply conditions than what would occur under the existing conditions baseline, where reservoir capacity is limited to 3,159 AF (deadpool) following implementation of the FOCP. Using 2015 Base Conditions as a baseline therefore results in a more conservative analysis of Project groundwater impacts. The 2025 During Construction scenario represents conditions during the Seismic Retrofit construction process after the Stage 2 Diversion System has been constructed and put into operational use. As such, the cofferdam will be in place and only a small pool of roughly 500 AF or less may remain during the dry season and limited local supplies would be available for releases to support groundwater recharge; however, the model assumes that imported supplies would be used to augment local supplies in this scenario.

Figure 3.12-6 shows that groundwater supplies would be reduced under the 2025 During Construction scenario as compared to the 2015 Base Conditions scenario, in particular during certain years in the record. For example, one of the largest disparities is in late 1994, when storage under the 2025 During Construction scenario (roughly 10,500 AF) is roughly 10,500 AF lower than under the 2015 Base Conditions scenario (roughly 21,000 AF). The entire period from 1991 to 1998, as well as the periods from roughly 2000 to 2006 and 2007 to 2010, show groundwater storage being lower under the 2025 During Construction scenario relative to the 2015 Base Conditions. By contrast, for brief periods in 1998/1999 and 2006, groundwater storage in Coyote Valley is essentially equal under these two scenarios.

Figure 3.12-6. Coyote Valley Groundwater Storage During the Seismic Retrofit Construction Scenario



Source: Groundwater Technical Memorandum ~~Memo~~ – Appendix J

Groundwater resources along the downstream Santa Clara Plain would not be substantially affected by the seismic retrofit construction since this area of the subbasin (1) begins further downstream along Coyote Creek (approximately 10 miles downstream from Anderson Dam); (2) is much larger than the Coyote Valley management area in terms of area and storage capacity, and (3) has many additional sources of natural and artificial recharge (e.g., West Side Recharge System, Los Gatos Recharge System, Guadalupe Recharge System, and Penitencia Recharge System – refer to **Figure 3.12-1**), (4) and is also conjunctively managed with Valley Water's three water treatment plants. The Coyote Valley and Llagas Subbasin have only a limited hydraulic connection due to a groundwater divide near the boundary. Based on groundwater elevation data, the boundary and groundwater flow direction move slightly north or south depending on the recharge, pumping, and hydrologic conditions. Managed recharge in the northern Llagas Subbasin relies primarily on imported water supplies.

Thus, the Coyote Valley would be the principal groundwater management area that would be affected by the Seismic Retrofit construction process. Given that WEAP modeling shows that the 2025 During Construction scenario would maintain total storage in the Coyote Valley above the 5,000 AF outcome measure during the 21-year study period (1990-2010), the impacts would be less than significant. Although the 2025 During Construction scenario would result in reduced groundwater storage compared to historical conditions (i.e., 2015 Base Conditions scenario), the reduction would be less pronounced compared to the existing conditions baseline. Moreover, the modeling shows that the imported water releases would be sufficient to offset reductions in reservoir storage and releases during the Seismic Retrofit construction period, such as to avoid significant impacts. The study period for the WEAP modeling included a range of hydrologic conditions and water year types, including critically dry and wet periods; thus, the modeling of multiple subsequent dry years occurring during the seismic retrofit construction period shows that significant impacts would still be avoided with respect to sustainable management of the basin since Valley Water plans to have sufficient imported supplies to supplement Coyote Valley recharge. Because groundwater supplies and groundwater recharge would not be substantially decreased such that sustainable management of the basin would be impeded, this impact would be less than significant.

Reservoir Dewatering Affecting Nearby Groundwater Wells

While the reservoir dewatering during the Seismic Retrofit construction period would have potential to impact the managed recharge operations downstream along Coyote Creek (as discussed above), it would also have potential to impact groundwater wells located in close proximity to the reservoir rim. There are a number of water production wells in relatively close proximity to the normal inundation area of Anderson Reservoir, in particular in the Holiday Lake Estates Area and the area along East Dunne Avenue on the eastern shore of the southern portion of the reservoir. Given that Anderson Reservoir was constructed in 1950, all or most of these wells were likely constructed subsequent to the reservoir being in existence. Thus, the groundwater conditions under which the wells were completed may have been influenced by the presence of the reservoir.

Generally, reservoirs raise the groundwater level in the surrounding area, as some of the water stored in the reservoir seeps through the fractures in the surrounding bedrock, potentially affecting water levels in nearby wells that are also screened in the bedrock.

While the characteristics of the subsurface bedrock water-bearing units in the immediate vicinity of Anderson Reservoir are not fully known (this area is outside of the managed Coyote Valley area of the Santa Clara Subbasin), the influence of the reservoir on groundwater levels could extend to the nearby wells. If groundwater levels in the fractured bedrock were to decline at the location of the nearby wells, principally as a result of the dewatered state of the reservoir during the 7-year Seismic Retrofit construction period, this could adversely affect the productivity of these wells, potentially causing the wells to go dry. Groundwater levels from wells screened in bedrock fluctuate from year to year and within the year (typically higher in winter/spring relative to summer/fall) due to hydrologic conditions (e.g., precipitation, runoff, etc.), pumping in nearby wells, and the flowpaths of groundwater in the fractures that supply the wells. Nevertheless, the dewatered reservoir could exert a negative influence on groundwater levels relative to the existing conditions baseline, and in particular, with respect to historical conditions (Pre-FERC Order Conditions). The effects on existing wells in close proximity to the normal (Pre-FERC Order) inundation area of Anderson Reservoir would be significant because groundwater supplies from individual wells may be substantially decreased.

To reduce the potential adverse effects from dewatering during the Seismic Retrofit construction period, Valley Water will implement **Mitigation Measure GW-1**. This measure will require that, for any well(s) in proximity to Anderson Reservoir that go dry during the seismic retrofit construction period and for which Valley Water determines the cause of the well(s) going dry can be attributed to the reduced water level at the reservoir, Valley Water will provide alternative water supplies to the well owner(s) for the duration of the impacts. Implementation of **Mitigation Measure GW-1** will reduce the potential impacts on wells near the dewatered reservoir to a level that is less than significant.

Sediment Deposition in Percolation Ponds

The Seismic Retrofit construction could also impact groundwater due to deposition of fine sediment in the Coyote Percolation Pond along Coyote Creek, potentially resulting in reduced recharge rates of the percolation pond. As described in Section 3.11, *Hydrology*, modeling shows that up to 0.5 inches of sediment deposition could occur in Metcalf Ponds (i.e., the ponds upstream of the Coyote Percolation Dam and just north of Metcalf Road) following a 5-year storm event, while 0.3 inches could accumulate following a 2-year storm event. Most of the sediment that could be deposited in the pond would likely be fine-grained, since it would have been transported in the discharges from Anderson Reservoir.

The fine sediment that could be deposited in the Coyote Percolation Pond could potentially decrease the porosity of the pond bottom (e.g., by filling in interstitial spaces) and thus adversely affect groundwater recharge operations. While similar effects could occur in Ogier Ponds, the effects are not a concern because the Ogier Ponds are not percolation ponds and the site is not suitable for managed groundwater recharge (Valley Water 2018; see further discussion below under *Seismic Retrofit and Conservation Measures Post-Construction Operations, Maintenance, and Monitoring Impacts Analysis*). Continued implementation of Valley Water's existing maintenance program at the Coyote Percolation Pond, which includes discing or removal of accumulated sediment, as needed to maintain recharge/percolation rates, would assure these potential effects on groundwater supplies would be less than significant.

Construction Water Demand

Water needs during the Seismic Retrofit construction process would be met entirely through surface water sources. As described in Chapter 2, *Project Description,* up to 1 cfs of water from the Coyote Reservoir releases would be used for construction activities, including for dust control and wetting of stockpiled materials. This would translate to approximately 646,320 gallons per day or roughly 2 AF per day. Over the course of the entire Seismic Retrofit construction. Given that the water to be used during construction would be obtained from the Coyote Reservoir releases, this would primarily constitute surface water that would inflow to the reservoir either via Coyote Reservoir/Coyote Creek or the several other smaller creeks that feed into the reservoir. No groundwater would contribute to the pool of water retained in Anderson Reservoir during the Seismic Retrofit construction period. Since surface water would be used for construction water, impacts on groundwater supplies would be less than significant.

Other Mechanisms by Which Groundwater Supplies or Recharge Could be Affected During Seismic Retrofit Construction

Apart from the effects of reservoir dewatering and reduced reservoir releases, Seismic Retrofit construction could potentially affect groundwater recharge/supplies via compaction of surfaces (thereby limiting infiltration capacity) and dewatering of nuisance groundwater in work areas. Seismic Retrofit construction would require establishment and use of several temporary impact areas, which would have potential to result in soil compaction and thus limit the ability for infiltration/groundwater recharge in these immediate areas. This would include access roads, which would be located within the reservoir (connecting to stockpile, borrow, and disposal areas) as well as on the upstream and downstream slopes of the dam. Additionally, staging areas (six in total) would be established in upland areas. Preparation of access roads and staging areas would include vegetation removal and grading; staging areas may require placement of gravel or a separation fabric over the ground surface, depending on the type of usage.

Use of these areas during the Seismic Retrofit construction period, including movement of heavy equipment and trucks, would likely compact the soils/surface materials and thus limit the ability of water to pass through to the groundwater table below. In general, these effects would be minor and would not result in a substantial reduction in groundwater supplies and the localized impedance of groundwater recharge would not meaningfully affect overall recharge rates in the subbasin. Given that the temporary disturbance areas would be established within/adjacent to other undeveloped areas, water falling on the access roads or staging areas as precipitation would have the opportunity to run off the compacted areas and infiltrate into the soil at adjacent locations, as it does now.

There would also be some localized dewatering of nuisance groundwater in work/excavation areas that would be required during Seismic Retrofit construction. Particularly in the dam footprint, there would be potential to encounter groundwater in deeper excavations especially. As described in Chapter 2, groundwater that is pumped from the dam footprint throughout construction would be pumped from the site and routed through an ATS in order to remove sediment, reduce turbidity, and balance pH prior to release of the waters into Coyote Creek. The amount of groundwater that would be extracted from dam work areas would be relatively small, and this would not meaningfully affect the regional groundwater supplies or impede sustainable management of the basin. Additionally, any groundwater that is extracted from the dam footprint and then discharged to Coyote Creek (after treatment via the ATS) would have the opportunity to infiltrate back to the groundwater basin via the Coyote Creek streambed or percolation pond.

Significance Conclusion Summary

Therefore, impacts on groundwater supplies from the other mechanisms described above would be **less than significant.**

Conservation Measures Construction

Generally, the Conservation Measure components would have less effects on groundwater storage/supplies and recharge than the Seismic Retrofit construction. While several of the Conservation Measure components (Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, and Phase 2 Coyote Percolation Dam CM) would require dewatering during construction, this dewatering would be much more localized than that required for Anderson Reservoir and would not substantially affect groundwater recharge. ~~For example, the dewatering required for the North Channel Extension would be limited to the small backwater area at the downstream end of the historic North Channel of Coyote Creek; additionally, this phase of the North Channel Extension construction process would only last approximately 2 months~~.

Ogier Ponds

Construction of the Ogier Ponds Conservation Measure would require more extensive dewatering of the Coyote Creek channel and adjoining portions of Ogier Ponds where construction would occur (all or portions of Ponds 1, 2, 4, and 5 would be dewatered to separate the work areas from the remaining portions of the ponds). Nevertheless, as with each of the Conservation Measure components requiring dewatering during construction, a creek bypass system would be constructed/utilized to maintain flows in Coyote Creek around the work area(s). The Ogier Ponds site is not suitable for groundwater recharge due to limited storage capacity in the vadose zone (Valley Water 2018 – see further discussion below under *Seismic Retrofit and Conservation Measure Post-Construction Operations, Maintenance, and Monitoring Impacts Analysis*); as such, the temporary dewatering of the ponds during construction would not substantially affect groundwater recharge rates in the area (since the ponds do not play a substantial role in groundwater recharge under the existing conditions baseline).

Phase 2 Coyote Percolation Dam

The Phase 2 Coyote Percolation Dam Conservation Measure also would require dewatering during the construction period, as described in Chapter 2, *Project Description,* to isolate the work area and allow for the roughened fish ramp construction. This dewatering effort would also be fairly limited/isolated, as the new roughened channel would extend for a distance of approximately 500 feet. The construction process for this Conservation Measure component would begin in Year 1 ~~5~~, and a portion of the creek including the work area would be dewatered for approximately 6 months. The Coyote Percolation Pond does actively support managed groundwater recharge under the existing conditions baseline; thus, the extent to which construction of the Phase 2 Coyote Percolation Dam Conservation Measure could preclude full utilization of the percolation pond, this could reduce groundwater recharge in this area to some degree over the approximately 18-month construction period (or 6 months during which the work area would be dewatered). However, the effects would be minor and would not substantially affect regional groundwater supplies.

Live Oak Restoration Reach and the Sediment Augmentation Program

Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach and the Sediment Augmentation Program would have limited potential to adversely affect groundwater supplies or recharge, as these Conservation Measure components would not require dewatering during construction. For these Conservation Measure components, there would be some potential for establishment and use of access roads and staging areas to compact soils and thus limit infiltration capacity; however, these effects would be minor (more so than for the seismic retrofit components) and would not substantially affect regional groundwater supplies. Construction of the Phase 2 Coyote Percolation Dam Conservation Measure would utilize an existing 0.8-acres parking area for staging of equipment and materials and thus would have reduced impacts on groundwater recharge in this regard.

Dewatering

Each of the Conservation Measure components requiring dewatering during construction activities (i.e., Ogier Ponds Conservation Measure, Maintenance of the North Channel Reach ~~Extension~~, and Phase 2 Coyote Percolation Dam CM) would potentially require dewatering of nuisance groundwater that could emerge within the dewatered reaches where construction work activities would occur. This may include installation of pumps and temporary dewatering wells to control the groundwater seepage and nuisance waters throughout the construction process. The groundwater table is known to be shallow along Coyote Creek downstream of Anderson Dam, in particular in the area of Ogier Ponds and the Coyote Percolation Pond, as shown in **Figure 3.12-4**. Generally, the amount of nuisance groundwater that would be extracted during the Conservation Measure construction would be small and would not substantially affect supplies in the subbasin as a whole; thus, it would not impede sustainable management of the basin.

Significance Conclusion Summary

Based on the above analysis, impacts to groundwater supplies and groundwater recharge from Conservation Measures construction would not be substantial, and therefore would be less than significant.

Post-Construction Dam Facilities Operations and Maintenance

Revised Reservoir Operating Criteria

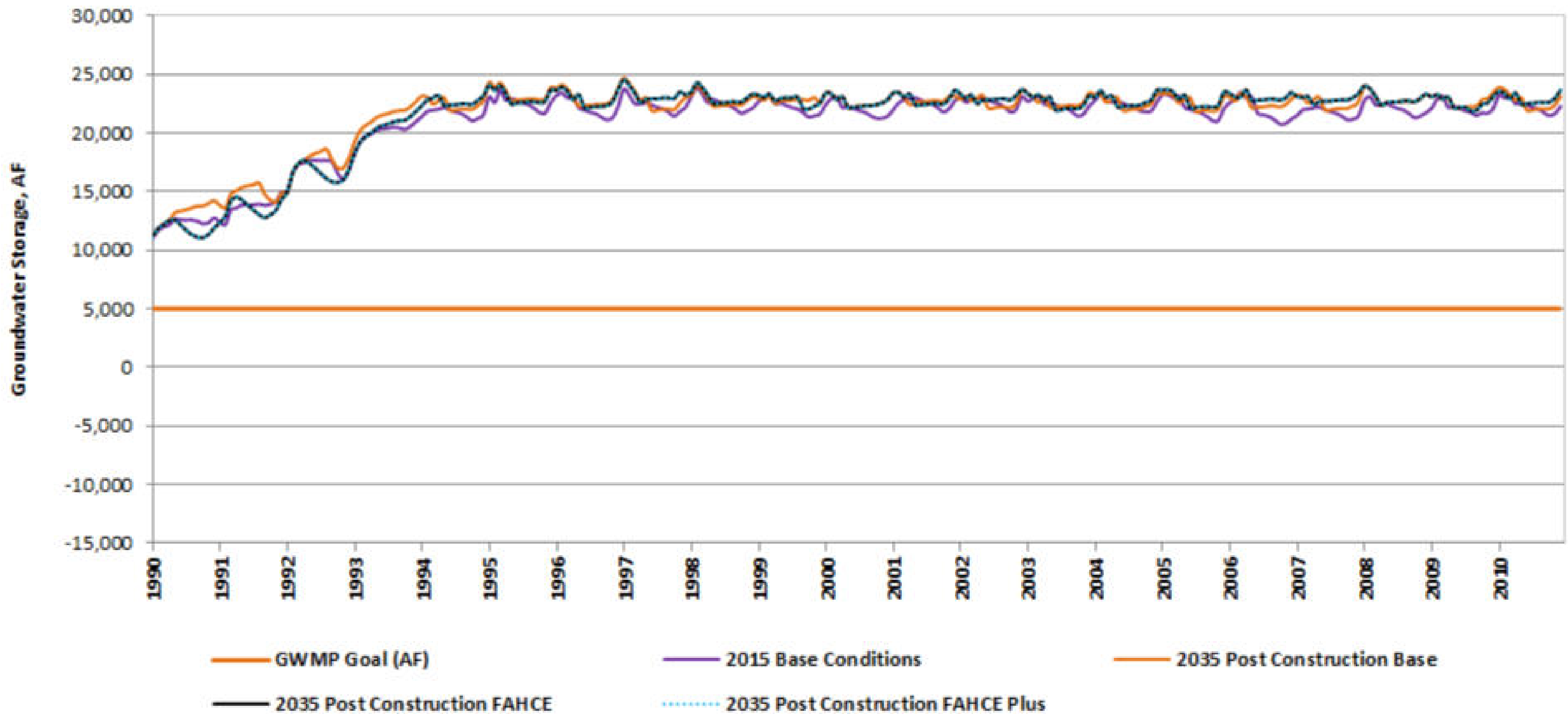
Following construction of the Seismic Retrofit components of the Project, Valley Water would have an improved ability to manage water resources for multiple benefits, including groundwater recharge. The seismic safety restriction that has been in effect (to more or less of a degree) since 2009 would be lifted, allowing Valley Water to utilize the full capacity (roughly 89,000 AF) of Anderson Reservoir. This would enable more water to be stored in the reservoir to support dry season releases for the purpose of groundwater recharge, which supports groundwater storage/supplies in the Santa Clara Subbasin (in particular, the Coyote Valley) and

Llagas Subbasin (to a lesser degree). In this respect, the post-construction operations of Anderson Dam/Reservoir would primarily be beneficial relative to the Pre-FERC Order Baseline.

As part of the Project, Valley Water would implement revised reservoir operating criteria, in accordance with FAHCE. The FAHCE operating tule curves would primarily increase releases from Anderson Reservoir for fish passage and habitat enhancement purposes, in particular with respect to “pulse” flows during the winter/spring, which would entail flows of 50 cfs for 5 days, occurring up to two times from February 1 through April 30. The winter base flows under FAHCE would be 26 cfs if storage is adequate, which would be similar to the Pre-FERC Order Conditions Baseline. In this regard, the FAHCE operational rule curves could potentially decrease the amount of water available for groundwater recharge, since greater amounts of water would be released for environmental or fish passage (i.e., non-groundwater recharge) purposes. Generally, the releases from Anderson Dam are most effective for groundwater recharge when conducted during the dry season, as natural sources of recharge (e.g., precipitation, natural streamflow) are limited during this period. Additionally, the demands on groundwater resources (e.g., pumping) are greater during the dry season. Thus, it is important to retain reservoir storage for use during the dry season. As described in Section 3.13, *Water Supply*, however, the pulse flow releases under FAHCE would be subject to storage criteria that would be protective of dry season storage. This would limit any adverse effects on water supply that could be created by releasing additional water for fish passage purposes.

Based on WEAP modeling conducted by Valley Water staff, the model indicates that groundwater storage would not be substantially affected by the FAHCE operating rules. **Figure 3.12-7** shows the results of the WEAP modeling for the post-construction period. As shown in the figure, the “2035 Post Construction FAHCE” scenario resulted in only slightly reduced groundwater storage in the Coyote Valley for many of the years modeled in relation to the “2035 Post Construction Base” scenario. The 2035 Post Construction FAHCE scenario represents post-construction conditions with Anderson Reservoir being operated in accordance with the FAHCE rules. By contrast, the 2035 Post Construction Base scenario is representative of the future conditions baseline.

Figure 3.12-7. Coyote Valley Groundwater Storage During Post-Construction Operations



Source: Groundwater Technical Memorandum ~~Memo~~ – Appendix J

Generally, as seen in **Figure 3.12-7**, groundwater storage under the 2035 Post Construction FAHCE scenario drops lower than under the 2035 Post Construction Base scenario in certain years (e.g., 1991-1994); however, there are periods (e.g., 1997, 2007) where storage is higher under the 2035 Post Construction FAHCE scenario. Both the 2035 Post Construction FAHCE and 2035 Post Construction Base scenarios generally result in greater groundwater storage in the Coyote Valley (with the exception of certain brief periods) compared to the 2015 Base Conditions scenario, which is not surprising considering the reservoir storage restriction was in place in 2015. The 2015 Base Conditions scenario is representative of the Pre-FERC Order Baseline.

Altogether, while there are slight differences between the modeled scenarios, throughout the study period the differences are minor. For much of the study period (e.g., 1995-2010), the model runs are essentially similar, with groundwater storage in Coyote Valley fluctuating between 20,000 AF and 25,000 AF. As noted above, the WEAP modeling covered a period of 21 years in total (1990-2010), which included both critically dry and wet periods. For all model runs/scenarios, groundwater storage remained well above the 5,000 AF outcome measure for Coyote Valley from Valley Water's GWMP. Therefore, the revised reservoir operating criteria under FAHCE would not result in a substantial reduction in Coyote Valley groundwater supplies or otherwise adversely affect Coyote Valley groundwater storage/recharge such as to impede sustainable management of the basin. The impacts to Coyote Valley groundwater would be less than significant.

Reduced Recharge Due to New or Expanded Impervious Surface

As described in Chapter 2, *Project Description,* the Seismic Retrofit components of the Project would include permanent roadway modifications, including widening of several existing roadways in the dam area and creating a new permanent access road from Cochrane Road to the toe of Anderson Dam. Altogether, new or expanded impervious surface (e.g., asphalt) as a result of the Project would total approximately 2.14 acres (i.e., additional impervious surface relative to existing conditions). The new/expanded impervious surface would generally decrease groundwater recharge relative to the Pre-FERC Order Conditions Baseline, since water falling on these areas as precipitation or running on from adjacent areas would not have the ability to infiltrate into the soil and groundwater below. However, the amount of additional impervious surface would be modest and would be in the context of surrounding pervious lands. As described in Section 3.11, *Hydrology*, stormwater from the roads and other impervious areas in the area of the dam would flow to surrounding areas, where it would have an opportunity to infiltrate to the soil or discharge to Coyote Creek (where it could subsequently percolate to groundwater via the streambed). As such, the additional impervious surface area that would be created by the Project would not substantially affect groundwater recharge rates or otherwise impede sustainable management of the basin.

Post Construction Conservation Measure Operations and Maintenance

Other activities during the post-construction period would have little potential to adversely affect groundwater supplies or recharge. The Conservation Measure components would not use substantial amounts of water during operation and would not create impervious surface. The Ogier Ponds CM would disconnect the existing Ogier Ponds from the flow of Coyote Creek. Valley Water found that the Ogier Ponds site is not suitable for managed groundwater recharge due to limited storage capacity in the vadose zone[2] (Valley Water 2018). In other words, the groundwater table is already very high in the Ogier Ponds area and there is direct hydraulic communication between the shallow groundwater and the ponds, thereby limiting the potential for recharge effectiveness.

Although there is seepage from Ogier Ponds to the shallow groundwater under the Pre-FERC Order Conditions Baseline, there is also inflow to the ponds from the shallow aquifer (Valley Water 2018). The analysis found that disconnection of Ogier Ponds from Coyote Creek would not result in the ponds drying up; but rather that the entire pond-aquifer system is sustained by creek flow through or past the site. Pond levels and surface areas are not strongly affected by whether the creek flows through or around the ponds, but rather by the amount of water flowing in the creek (Valley Water 2018). Pond dry-up would only commence if stream flow dropped for a sustained period below the threshold at which recharge no longer kept up with evaporation and downward leakage (Valley Water 2018). From this, it can be concluded that the Ogier Ponds CM, which would disconnect the ponds from Coyote Creek but create a new segment of Coyote Creek channel adjacent to the ponds, would not substantially reduce groundwater recharge occurring in this area.

Other Conservation Measure components would not substantially change rates of recharge relative to the Pre-FERC Order Conditions Baseline. Following construction of the Phase 2 Coyote Percolation Dam CM, the Coyote Percolation Pond would return to full operation/utilization, and the roughened fish ramp would not affect groundwater recharge that may occur along this reach. The North Channel Extension (completed as part of FOCP) would reconnect the historic Coyote Creek Channel in addition to the constructed South Channel that would remain in place. Flows would be divided between the channels; however, the overall capacity would not change. ~~Therefore, the restored~~ Maintenance of the North Channel Reach would not result in changes to groundwater recharge. The coarse gravel and other materials placed in Coyote Creek associated with the Sediment Augmentation Program and the Maintenance Activities at Live Oak Reach would not substantially affect groundwater recharge/seepage along the streambed; if anything, replacement of fine sediment deposited in the creek would likely improve percolation rates.

Routine maintenance and repair activities (e.g., pursuant to the DMP) during the post-construction period would not affect groundwater supplies or recharge. Likewise, continued monitoring would not impact groundwater resources. As such, overall, impacts would be less than significant.

Significance Conclusion Summary

In summary, Seismic Retrofit construction would not substantially affect groundwater storage/supplies or recharge, as WEAP modeling has shown that groundwater storage in the Coyote Valley would remain above the 5,000 GWMP outcome measure, given implementation of imported water releases in Coyote Creek. The dewatering of Anderson Reservoir during the 7-year Seismic Retrofit construction period could impact nearby wells outside of the groundwater basin/managed aquifer; however, this impact will be reduced to less than significant with implementation of **Mitigation Measure GW-1**. Construction of the Conservation Measure

[2] The vadose zone is the Earth's terrestrial subsurface that extends from the ground surface to the regional groundwater table. The vadose zone includes surface soil, unsaturated subsurface materials, and a transiently inundated capillary fringe.

components will not substantially affect groundwater recharge or impede sustainable management of the basin. Conservation Measure components, maintenance and monitoring) during the post-construction period would improve, or otherwise not substantially adversely affect, groundwater management and conditions. As such, this impact would be **less than significant with mitigation**.

Mitigation Measures

GW-1 Provide Alternative Water Supplies

During the Seismic Retrofit construction period, while Anderson Reservoir is dewatered, Valley Water will provide alternative water supplies to any well owner(s) in proximity to the reservoir (within 0.5-miles) whose well(s) have gone dry or whose water quality has become unacceptable, as a result of the reservoir being maintained in a dewatered state. With the reservoir being dewatered, this could reduce percolation through the reservoir bottom and reduce groundwater levels in the immediately surrounding area. Alternative water supplies will ~~would~~ include water to be supplied by water truck, or via another method, that is treated to an appropriate level for the required use (e.g., drinking water standards, if to be used for domestic purposes).

At the start of construction, Valley Water will establish a contact person and method of contact (phone, email) for members of the public to submit requests for accommodation under this mitigation measure. Valley Water will also establish a system whereby it will evaluate the requests and whether the well(s) have been adversely affected by the reservoir dewatering, or unacceptable water quality. This may include visiting the well owner's property to observe the well(s), comparing groundwater levels and water quality in and around the affected area based on monitoring data, or other methods. Valley Water will make a determination of whether the well(s) has/have gone dry or have unacceptable water quality, as a result of the dewatering—if no other cause can be determined, Valley Water will assume that the reservoir being dewatered will have played a role and alternative water supplies will be provided.

Any alternative water supplies under this mitigation measure will be provided in a quantity and at a frequency to meet the needs of the individual or entity consistent with the existing beneficial uses of the water, and commensurate with the lost production from the well(s). As indicated above, the water will be treated to a level that is appropriate for the intended use. The alternative water supplies will be provided for as long as the well(s) are rendered incapable of production.

Impact GW-2: Violate groundwater water quality standards or substantially degrade groundwater quality **(Less than Significant with Mitigation)**

Seismic Retrofit Construction

Hazardous Materials Releases

As described in Section 3.10, *Hazards and Hazardous Materials*, and Section 3.14, *Water Quality*, much of the construction equipment to be used during Seismic Retrofit construction would contain hazardous materials, such as fuel, oil, lubricants, etc. Trucks used for transport of materials around the site and for disposal at offsite locations would contain similar materials. While the materials would primarily be contained within the equipment, hazardous materials may need to be stored onsite at staging areas and the equipment may need to be serviced/re-fueled in the field or at the staging areas. All of these activities would create potential for hazardous materials to leak from equipment, spill, or otherwise be accidentally released into the environment during Seismic Retrofit construction. If such releases were to occur, the materials could infiltrate into the soil and potentially make its way down to the underlying groundwater aquifer. Hazardous materials spills/releases at staging areas, or other areas within the Seismic Retrofit construction area, could also be washed offsite during subsequent rainstorms where it would then have the opportunity to contaminate groundwater.

As described in Section 3.12.2, the Coyote Valley management area of the Santa Clara Subbasin is entirely unconfined and thus is very vulnerable to groundwater contamination. Since the Coyote Valley is immediately downstream of Anderson Dam, it is of most concern (rather than the Santa Clara Plain, which is further downstream along Coyote Creek) with respect to possible hazardous materials releases during seismic retrofit construction.

Given the susceptibility of the Coyote Valley to contamination, without implementation of preventative measures, the potential hazardous materials releases associated with the seismic retrofit construction activities would be a major concern ~~considered significant.~~ Once groundwater contamination occurs, even isolated substances or plumes, it can be very difficult to fully remove or remediate, and this can compromise the beneficial uses of groundwater, which are dependent on the quality of the water. Designated beneficial uses in the Santa Clara Subbasin from the San Francisco Bay Basin Plan include agricultural supply (AGR), municipal and domestic supply (MUN), industrial service supply (IND), and industrial process supply (PROC) (see **Table 3.12-1**) (San Francisco Bay RWQCB 2019 ~~2017~~).

However, as described in Section 3.14, *Water Quality*, Valley Water would implement a SWPPP for out-of-reservoir construction activities, in accordance with the Construction General Permit, as well as applicable BMPs from its own handbook and VHP conditions and AMMs. The SWPPP for construction activities outside the reservoir would include good housekeeping measures for: construction materials, waste management, vehicle storage and maintenance, landscape materials, and potential pollutant sources (SWRCB 2009). Examples include conducting an inventory of products used, implementing proper storage and containment, and properly cleaning all leaks from equipment and vehicles (SWRCB 2009). Additionally, the following Valley Water BMPs would reduce potential impacts associated with hazardous materials releases: ~~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). These BMPs would include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites, and providing training spill cleanup materials for field personnel, among other measures. Furthermore, compliance with VHP measures, including AMMs 7, 8, 9, 11, 12, 72, 75, 76, 87, 88, and 100, whether implemented independently or incorporated as part of the SWPPP, would reduce potential impacts from hazardous materials.

Implementation of the measures included either as part of the SWPPP for out-of-reservoir construction activities and applicable Valley Water BMPs or VHP conditions and AMMs, would reduce the potential for Seismic Retrofit construction activities to result in releases of hazardous materials and subsequent groundwater contamination. As a result, groundwater quality standards would not be violated, and groundwater quality would not be substantially degraded. Impacts would therefore be less than significant.

Pollutants from Blasting Activities

Blasting at the BHBA could involve a range of pollutants including perchlorates and various water-soluble nitrogen-compounds can be released during the use of explosives (California Department of Toxic Substances Control 2005). As described in Chapter 2, *Project Description*, blasting would only be utilized during the excavation of the BHBA. Excavation of BHBA would require drilling and blasting in benches to break up the rock for efficient excavation. Blasting procedures would be developed by a qualified blaster to control noise, air-overpressure, ground vibration, flyrock, and dust. Water would be used before, during, and after the blasting to minimize dust emissions, but not to the point of creating runoff. The risk from perchlorates and other water-soluble nitrogen-compounds is primarily in relation to groundwater. Perchlorate salts are highly soluble in water and sorbs poorly to mineral surfaces and organic material; therefore, it is typically very mobile in groundwater. It is persistent in the environment and at high enough concentrations can affect thyroid gland functions. The release of substantial amounts of perchlorate to the environment where it can dissolve into surrounding surface or groundwater would be significant impact.

Mitigation Measure GW-2 will require that perchlorate-containing explosives are properly handled, cleaned up after use, and properly disposed of such that impacts related to perchlorates entering groundwater, Anderson Reservoir, or Coyote Creek would be minimized.

Reduced Groundwater Levels

As discussed in detail in Impact GW-1, Seismic Retrofit construction would require (nearly) complete dewatering of the reservoir, and that the reservoir remain in such a dewatered state during the majority of the 7-year construction period. This would result in reduced storage in the reservoir compared to the existing conditions baseline, and, in particular, compared to the Pre-FERC Order Conditions. In general, Valley Water would follow an approach of passing through virtually all inflow to the reservoir to Coyote Creek downstream via the Stage 1 Diversion System or Stage 2 Diversion System. This would likely result in higher flows in the creek during the winter/spring, as there would be no flood pool to catch storm runoff flows, but releases from the dam would be substantially reduced during the summer/fall. Anderson Dam releases to Coyote Creek are an important part of Valley Water's managed recharge program, and the creek is the only managed (artificial) recharge facility in the Coyote Valley.

If the dewatering and reduced reservoir releases during Seismic Retrofit construction were to result in substantially lower groundwater levels, this could lead to adverse groundwater quality impacts. One of the consequences of a reduction in groundwater storage (and relatedly, groundwater levels) can be a deterioration of water quality (USGS 2023 ~~2023b~~). One of the principal concerns when groundwater levels decline is the potential for seawater intrusion – and although this has been an issue in the Santa Clara Plain near the San Francisco Bay (refer to **Figure 3.12-3**), it is not a concern in the Coyote Valley due to this area's distance from the Bay. Additionally, groundwater overdraft (potentially brought on by reduced recharge with continued pumping, such as for the seismic retrofit construction) can create new water quality problems or make existing groundwater pollution worse (Moran et al. 2014). As aquifer levels decline, natural and human-made pollutants (e.g., naturally occurring salts and minerals, and human-made pollutants such as nitrate, petroleum products, and synthetic chemicals) can concentrate in the remaining groundwater (Moran et al. 2014).

As described in Impact GW-1, however, Valley Water would increase imported water releases during the Seismic Retrofit construction period to supplement the reduced local supplies. Imported water would be released from the CDL immediately downstream of Anderson Dam, as well as from the Cross Valley Pipeline Extension, which would release water downstream of Ogier Ponds. WEAP modeling conducted by Valley Water shows that increase of the imported water releases should maintain groundwater storage in the Coyote Valley comfortably above the 5,000 AF GWMP outcome measure during the seismic retrofit construction period. This would indicate that substantial reductions in groundwater storage would not occur, meaning that groundwater levels/elevations should also not be substantially affected – thus, groundwater quality impacts caused by reservoir dewatering would not be significant in the Coyote Valley.

The reduction in groundwater levels in the area immediately surrounding Anderson Reservoir (i.e., outside of the mapped aquifer) could adversely affect groundwater quality in this area; however, these effects would be temporary, lasting the duration for which groundwater levels are affected by the dewatered reservoir. Additionally, the impacts on well owners will be reduced through implementation of **Mitigation Measure GW-1**. Therefore, impacts would be less than significant with mitigation.

Other Potential Impacts

No other elements of the Seismic Retrofit construction process would result in substantial impacts on groundwater quality. The release of sediment following storms (e.g., 2-year and 5-year events) associated with the reservoir dewatering would not adversely affect groundwater quality. Although substantial quantities of fine sediment could be released during the Seismic Retrofit construction period, some of which could be deposited within Ogier Ponds and Metcalf Ponds in particular (refer to Section 3.11, *Hydrology*, for detailed discussion), this sediment would not pollute or otherwise adversely affect the groundwater. The sediment suspended in the water column and/or that deposits in the ponds would adsorb to soil particles or otherwise be filtered out as the water percolates to the groundwater aquifer. As such, impacts on groundwater quality for sedimentation would be less than significant.

Conservation Measures Construction

Construction of Conservation Measure components would utilize the same types of hazardous materials contained in construction equipment as the Seismic Retrofit construction. Thus, there would be potential for the same types of impacts (i.e., accidental releases of hazardous materials and subsequent groundwater contamination) as described above the seismic retrofit construction impacts analysis, albeit to a lesser extent.

Given that several of the Conservation Measure components s would be located in areas directly overlying the Coyote Valley management area (whereas the Seismic Retrofit components would largely be just upstream of the mapped groundwater basin), there could be increased potential for contamination from construction activities. For example, the Phase 2 Coyote Percolation Dam CM would be constructed at the existing Coyote Percolation Pond, where managed groundwater recharge operations occur; thus, any releases of hazardous materials at this location could have a direct path to the groundwater aquifer below. Similarly, construction activities within the Coyote Creek channel associated with the Ogier Ponds CM could have elevated potential for groundwater contamination (associated with hazardous materials releases), since water readily percolates through the Coyote Creek streambed to the groundwater table. Construction activities associated with the Sedimentation Augmentation Program, Maintenance of the North Channel Reach ~~Extension~~, and Maintenance at Live Oak Restoration Reach would consist of grading, placement of clean materials in the creek for habitat restoration purposes, and/or maintenance activities. The construction activities associated with these conservation measures would not have elevated potential for groundwater contamination (associated with hazardous materials releases).

As discussed above, compliance with the Construction General Permit, including preparation and implementation of a SWPPP, as well as implementation of Valley Water BMPs and VHP conditions and AMMs, would minimize potential impacts due to hazardous materials releases. This includes BMPs ~~HM-7~~, HM-8, HM-9, and HM-10, which would include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites, and providing training and spill cleanup materials for field personnel, among other measures. Additionally, VHP AMMs 7, 8, 9, 11, 12, 72, 75, 76, 87, and 88 would include a number of measures that would help to protect groundwater quality, such as requiring that spill prevention kits be kept onsite and equipment servicing be performed outside of the stream channel or floodplain, unless the equipment cannot be readily relocated (i.e., pumps, generators). Given implementation of these measures, the impacts on groundwater quality from Conservation Measure components construction would be less than significant.

Post-Construction Anderson Dam Facilities Operations and Maintenance

Over the long term, the Seismic Retrofit components of the Project would be beneficial (or at least not adverse) with respect to groundwater quality. As discussed under Impact GW-1, following the completion of construction, the seismic safety restriction that has been in effect since 2009 would be lifted, allowing Valley Water to utilize the full capacity (roughly 89,000 AF) of Anderson Reservoir. This would enable more water to be stored in the reservoir to support dry season releases for the purpose of groundwater recharge; thus, potentially resulting in better maintenance of groundwater storage/levels in Coyote Valley. As shown in **Figure 3.12-7**, however, these benefits would be modest and could be partially offset by the release of greater quantities of water for fish passage purposes pursuant to FAHCE. The WEAP modeling shows that storage in the Coyote Valley under the 2035 Post Construction FAHCE scenario would be virtually unchanged relative to the future conditions baseline (2035 Post Construction Base) and/or Pre-FERC Order Conditions Baseline (2015 Base Conditions). Thus, reductions in groundwater levels would not cause significant groundwater quality impacts.

Post-Construction Conservation Measures Operations and Maintenance

Post-construction operations of the Conservation Measure components similarly would not significantly impact groundwater quality. Generally, the improvements would operate unattended and the in-stream components would not include any substances or materials that could contaminate groundwater. Routine maintenance of both the Seismic Retrofit components (pursuant to the DMP) and CMs could involve small quantities of hazardous materials (e.g., fuel, oil, pesticides, etc.), which may be utilized in areas where a direct pathway to the groundwater exists, such as within or adjacent to Coyote Creek. Thus, there would be some potential for impacts to groundwater quality to occur, if hazardous materials were to be released or used improperly. However, implementation of Valley Water BMPs, as well as VHP conditions and AMMs, would avoid or reduce these potential impacts to a level that is less than significant. Ongoing monitoring activities would not substantially adversely affect groundwater quality. Therefore, overall, during the post-construction period, groundwater quality impacts would be less than significant.

Significance Conclusion Summary

During Seismic Retrofit construction, implementation of the SWPPP for out-of-reservoir construction activities and applicable Valley Water BMPs and VHP conditions and AMMs would avoid or substantially reduce potential impacts on groundwater quality from accidental releases of hazardous materials, resulting in a **less than significant i**mpact. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Similarly, implementation of imported water releases (via the CDL and Cross Valley Pipeline Extension) would maintain groundwater levels in the managed aquifer (Coyote Valley) at acceptable levels during Seismic Retrofit construction, thus limiting potential associated impacts on groundwater quality in this area. Reduced groundwater levels in the area immediately surrounding Anderson Reservoir associated with reservoir dewatering could temporarily impact groundwater quality; however, the quality would rebound following reservoir refilling and impacts on specific well owners would be reduced through **Mitigation Measure GW-1**.

Blasting at BHBA could release perchlorates and other water-soluble nitrogen-compounds. With the implementation of **Mitigation Measure GW-2**, and compliance with the General Construction Permit, which requires controls for pollutants from blasting, the impact from blasting activities during Seismic Retrofit component construction would not degrade groundwater quality. The impact would be reduced**.**

Implementation of the SWPPP for out-of-reservoir construction activities and applicable Valley Water BMPs and VHP conditions and AMMs would similarly avoid or reduce impacts due to hazardous materials releases during the Conservation Measure components construction, as well as during routine maintenance activities in the post-construction period for the Conservation Measure components and the Seismic Retrofit components. Monitoring activities (during construction and in the post-construction period) would not substantially affect groundwater quality. Therefore, the Project would not violate groundwater quality standards or substantially degrade groundwater quality, and groundwater quality impacts would be **less than significant with mitigation**.

Mitigation Measures

GW-1 Provide Alternative Water Supplies

GW-2 Perchlorate Best Management Practices

To minimize the risk of perchlorates from explosives Valley Water and/or the contractor will do the following:

- Conduct a thorough assessment of the explosives to be used, identifying perchlorate content and potential alternatives with lower perchlorate levels.
- If more than 500 pounds of solid perchlorate material or 55 gallons of liquid perchlorate material is on-site at any one time, submit to DTSC a one-time notification about their perchlorate materials and related activities.
- Train personnel in proper handling techniques to minimize perchlorate release during explosive loading, assembly, and transportation.
- Store explosives in secure and properly designed magazines to prevent leaks or spills that could lead to perchlorate contamination of the surrounding environment.
- Dispose of perchlorate-containing solid material to either a hazardous waste landfill or a composite-lined portion of a non-hazardous waste landfill.
- Collect and properly dispose any spills of perchlorate products.
- Collected and properly manage any un-ignited explosive material found during the inspection of the site after blasting work.

Impact GW-3: Conflict with or obstruct implementation of the San Francisco Bay Basin Plan groundwater provisions or the District's GWMP **(Less than Significant with Mitigation)**

Seismic Retrofit Construction

As described in Section 3.12.1.2, the San Francisco Bay Basin Plan identifies beneficial uses for surface waters and groundwater within the San Francisco Bay region and establishes narrative and numerical WQOs to achieve the beneficial uses for those waters. **Figure 3.12-2** shows that the following beneficial uses are designated as existing for the Santa Clara Subbasin: AGR, MUN, IND, and PROC (San Francisco Bay RWQCB 2019). Generally, all of these beneficial uses are dependent upon high quality water and the maintenance of existing high quality of groundwater is the primary groundwater objective in the San Francisco Bay Basin Plan (San Francisco Bay RWQCB 2019). Thus, to the extent an aspect of the Project could substantially affect the existing groundwater quality, this would be considered a conflict with the implementation of the San Francisco Bay Basin Plan. It should be noted that the San Francisco Bay Basin Plan applies to all subsurface waters, whether or not those waters meet the classic definition of an aquifer[3] or occur within identified groundwater basins.[4]

[3] Where groundwater occurs in a saturated geologic unit that contains sufficient permeable thickness to yield significant quantities of water to wells and springs, it can be defined as an aquifer.
[4] A groundwater basin is defined as a hydrogeologic unit containing one large aquifer or several connected and interrelated aquifers.

Valley Water's GWMP for the Santa Clara and Llagas Subbasins (Valley Water 2021) describes a comprehensive groundwater management framework, including existing and potential actions to achieve basin sustainability goals and ensure continued sustainable groundwater management. In addition to goals and objectives for protection of groundwater quality, the GWMP includes the goal to "manage groundwater to ensure sustainable supplies and avoid land subsidence" (Valley Water 2021). Specific sustainability indicators and outcome measures from the GWMP are shown in **Table 3.12-3** ~~**Figure 3.12-3.**~~ As discussed above under Impact GW-1, of particular relevance to the Project, the outcome measure with respect to groundwater storage in the Coyote Valley (immediately downstream of Anderson Dam) is projected end of year groundwater storage of greater than 5,000 AF. For the groundwater quality sustainability indicator, the outcome measure for the Santa Clara Subbasin water supply wells is that "at least 95 percent meet primary drinking water standards, and at least 90 percent have stable or decreasing trends for [TDS]" (Valley Water 2021).

As discussed in Impact GW-1 and GW-2, implementation of imported water releases during the seismic retrofit construction process would limit potential impacts on the mapped Coyote Valley basin (i.e., reductions in groundwater storage, potentially also leading to groundwater quality impacts) – refer to **Figure 3.12-6**. In particular, the imported water releases would maintain groundwater storage in the Coyote Valley above the 5,000 AF GWMP outcome measure, based on modeling that accounts for dry years that could occur during the seismic retrofit construction period. This would also avoid substantial impacts on GDEs, such as those located along Coyote Creek near Ogier Ponds and the Coyote Percolation Pond (refer to **Figure 3.12-4**), since groundwater levels would not drop substantially. Maintaining the reservoir in a dewatered state during the construction period would have potential to impact groundwater levels (e.g., due to reduced percolation and hydraulic head) in the area immediately surrounding the reservoir. Although this area is outside of the mapped basin/aquifer, there are several water production wells located there that could be adversely affected, including reductions in water quality or going dry. However, implementation of **Mitigation Measure GW-1** will reduce these potential adverse effects on well owners by providing alternative supplies to individuals or entities whose well(s) are affected.

Additionally, while use of hazardous materials (e.g., contained in construction equipment) during Seismic Retrofit construction could potentially result in impacts on groundwater quality (e.g., if such materials were to leak from the equipment or otherwise be released to the environment); implementation of the SWPPP for out-of-reservoir construction activities and applicable Valley Water BMPs and VHP conditions and AMMs would assure these potential impacts would be less than significant.

Therefore, the seismic retrofit construction process would not conflict with or impair the existing beneficial uses of groundwater in the Santa Clara Subbasin, nor would it conflict with the goals and objectives in the GWMP for protection of groundwater from contamination. Drinking water standards are met for most public supply wells throughout the subbasin without the need for treatment beyond disinfection (Valley Water 2021), and the Seismic Retrofit construction process would not affect the ability for the subbasin to continue to meet these standards, in accordance with GWMP outcome measure.

Overall, given that Seismic Retrofit construction will not (1) substantially affect groundwater storage in the Coyote Valley; (2) adversely affect groundwater well owners in areas immediately surrounding Anderson Reservoir given implementation of **Mitigation Measure GW-1**, or (3) adversely affect groundwater quality with implementation of the SWPPP for out-of-reservoir construction activities and applicable measures – it will not conflict with or obstruct implementation of either the San Francisco Bay Basin Plan or Valley Water's GWMP. As such, impacts would be less than significant with mitigation.

Conservation Measures Construction

Construction of Conservation Measures would have potential to result in similar types of impacts as the seismic retrofit construction, albeit to a lesser extent. Several of the Conservation Measures (i.e., Ogier Ponds Conservation Measure, Maintenance of the North Channel Reach ~~Extension~~, and Phase 2 Coyote Percolation Dam CM) would require localized dewatering during construction; however, this would not substantially adversely affect groundwater supplies, levels, or quality in the subbasin. Likewise, implementation of the SWPPP, Valley Water BMPs, and VHP conditions and AMMs would avoid or reduce potential effects on groundwater quality from use of hazardous materials (e.g., fuel, oil, etc.) during construction. Therefore, given implementation of the applicable measures, Conservation Measures construction would not conflict with or obstruct implementation of the San Francisco Bay Basin Plan or the GWMP. Impacts would be less than significant.

Post-Construction Anderson Dam Facilities Operations and Maintenance

Once the Seismic Retrofit components are constructed, they would provide Valley Water with improved operational flexibility to manage the reservoir for multiple benefits, including groundwater recharge. The ~~seismic~~ restriction in place at Anderson Dam since 2009 will be lifted, allowing Valley Water to utilize the full reservoir capacity (roughly 89,000 AF). Generally, this would have a positive effect on groundwater storage/supplies in the post-construction period and would improve Valley Water's ability to implement its GWMP. However, this may be somewhat counteracted by the need to release more water for fish passage purposes pursuant to FAHCE. WEAP modeling shows that groundwater storage in the Coyote Valley would not change substantially relative to baseline (both the future conditions baseline and Pre-FERC Order Conditions Baseline) with implementation of the Project, including the FAHCE operating rules. Nevertheless, groundwater storage would remain well above the 5,000 AF GWMP outcome measure for the Coyote Valley in the 2035 Post Construction FAHCE scenario; thus, operation of the Project would not conflict with or obstruct implementation of the GWMP.

As operation of the Seismic Retrofit components of the Project (including the FAHCE operating rules) would not result in substantial reductions in groundwater supplies or levels, it would not substantially affect groundwater quality. No other aspects of the Seismic Retrofit operation would substantially affect groundwater quality.

During routine maintenance activities in the post-construction period, use of hazardous materials (e.g., fuel, oil, pesticides, etc.) could create the opportunity for accidental releases of such materials (or improper use) and subsequent impacts on groundwater quality. This would include maintenance of the seismic retrofit components, pursuant to the DMP, as well as maintenance of the Conservation Measures. However, continued implementation of applicable Valley Water BMPs and VHP conditions and AMMs would reduce the potential impacts to a level that is less than significant, such that there would be no impairment of existing groundwater beneficial uses. Monitoring activities during the post-construction period would not adversely affect groundwater.

Therefore, Seismic Retrofit components and Conservation Measures components post-construction operations, maintenance, and monitoring would not conflict with or obstruct implementation of the San Francisco Bay Basin Plan or Valley Water's GWMP. Impacts would be less than significant.

Significance Conclusion Summary

Given implementation of imported water releases (via the CDL and CVP Extension), Seismic Retrofit construction (including reservoir dewatering) would not substantially reduce groundwater supplies in downstream aquifers, including the Coyote Valley. Additionally, with implementation of **Mitigation Measure GW-1**, Seismic Retrofit construction would not substantially affect groundwater well owners in the area immediately surrounding Anderson Reservoir. Use of hazardous materials (e.g., fuel, oil, etc.) during Seismic Retrofit and Conservation Measure construction could potentially impact groundwater quality; however, implementation of the SWPPP for out-of-reservoir construction activities, and applicable Valley Water BMPs and VHP conditions and AMMs would assure these potential impacts would be **less than significant**. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

During the post-construction period, WEAP modeling shows that implementation of FAHCE operating rules would not substantially change groundwater storage in the Coyote Valley, while implementation of applicable measures would avoid or reduce any potential impacts on groundwater quality from use of hazardous materials during routine maintenance of Seismic Retrofit components and Conservation Measure components. Monitoring activities would not adversely affect groundwater. Therefore, overall, with implementation of **Mitigation Measure GW-1**, the Project will not conflict with or obstruct implementation of the San Francisco Bay Basin Plan or Valley Water's GWMP. Therefore, impacts would be **less than significant with mitigation**.

Mitigation Measures

GW-1 Provide Alternative Water Supplies

3.12.5 Cumulative Impacts

The geographic study area for the cumulative impact analysis for Groundwater is the parts of Santa Clara County over the Santa Clara and Llagas Subbasins managed by Valley Water.

This section describes the Project's contribution to cumulative groundwater impacts, as summarized in **Table 3.12-4**.

1 **Table 3.12-4. Summary of Project Impact Contribution to Cumulative Groundwater Impacts**

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact GW-1: Substantially decrease groundwater supplies or interfere substantially with ground-water recharge such that the project may impede sustainable groundwater management of the basin	Yes	No	CC	MM GW-1	No
Cumulative Impact GW-2: Substantially degrade groundwater quality	Yes	No	CC	MM GW-1 MM GW-2	No
Cumulative Impact GW-3: Conflict with or obstruct implementation of the San Francisco Bay Basin Plan groundwater provisions or the District's GWMP	Yes	No	CC	MM GW-1	No

2 *Key: CC = cumulatively considerable; MM = Mitigation Measure*

Cumulative Impact GW-1: Substantially decrease groundwater supplies or interfere substantially with ground-water recharge such that the project may impede sustainable groundwater management of the basin **(Not Cumulatively Considerable)**

The loss of storage in Anderson Reservoir would greatly limit the amount of water that could be released from the reservoir for the purpose of groundwater recharge along Coyote Creek. As described in Section 3.12.1, Anderson Reservoir plays a critical role in supporting groundwater recharge in the Santa Clara Subbasin. In particular, the Coyote Valley management area is totally groundwater dependent. The dewatering of Anderson Reservoir during the 7-year Seismic Retrofit construction period could impact nearby wells outside of the groundwater basin/managed aquifer.

Seismic Retrofit construction could impact groundwater due to deposition of fine sediment in Coyote Percolation Pond and within Coyote Creek, potentially resulting in reduced recharge rates. As described in Section 3.11, *Hydrology*, modeling shows that up to 0.5 inches of sediment deposition could occur in Metcalf Ponds (i.e., the ponds upstream of the Coyote Percolation Dam) following a 5-year storm event, while 0.3 inches could accumulate following a 2-year storm event. Most of the sediment that could be deposited in the pond would likely be fine-grained, since it would have been transported in the discharges from Anderson Reservoir.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction, restoration, or operation would decrease groundwater supplies or interfere with groundwater recharge in the Santa Clara or LLagas Subbasins such that the sustainable groundwater management of the basin would be impeded.

Cumulative Effects of Project with the FOCP

The FOCP lowered the storage behind Anderson Reservoir to deadpool which reduces available local supplies to be released by the reservoir for groundwater recharge in Coyote Creek and the Coyote Percolation Pond. However, the FOCP also includes the Cross Valley Pipeline Extension and chillers at Anderson Reservoir that increase the flexibility in using imported water for groundwater recharge.

The Project would not substantially affect groundwater storage or recharge. WEAP modeling shows that groundwater storage in the Coyote Valley would remain above the 5,000 GWMP outcome measure, given implementation of imported water releases in Coyote Creek. Groundwater resources along the downstream Santa Clara Plain would not be substantially affected by the seismic retrofit construction since this area of the subbasin (1) begins further downstream along Coyote Creek (approximately 10 miles downstream from Anderson Dam); (2) is much larger than the Coyote Valley management area in terms of area and storage capacity, and (3) has many additional sources of natural and artificial recharge (e.g., West Side Recharge System, Los Gatos Recharge System, Guadalupe Recharge System, and Penitencia Recharge System). Continued implementation of Valley Water's existing maintenance program at the Coyote Percolation Pond, which includes discing or removal of accumulated sediment, as needed to maintain recharge/percolation rates, would assure effects on groundwater supplies are minimized. The impacts of the Project when added to the FOCP's impacts to groundwater supplies within the Valley Water managed groundwater basins are not cumulatively significant, and the Project's contribution is not cumulatively considerable.

The dewatering of Anderson Reservoir during FOCP could impact nearby wells outside of the groundwater basin/managed aquifer, which would be extended by the Project. The Project's impact when added to the FOCP's impact to wells to Anderson Reservoir is cumulatively significant and the Project's contribution is cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Other projects that could impact groundwater supplies in Santa Clara County include development projects throughout the County that use groundwater as a source for water supply. New development in the County typically increases the demand for groundwater, although new development is subject to building code requirements that minimize water demand with water efficient water fixtures and landscaping. These projects could also increase impervious surfaces that can reduce natural groundwater recharge that occurs in the confined regions of the Santa Clara and Llagas Groundwater Basins. Other projects would be required to comply with applicable Municipal Stormwater NPDES permits that minimize the impact of expanded impervious surfaces.

The Project would not substantially affect groundwater storage or recharge. WEAP modeling shows that groundwater storage in the Coyote Valley would remain above the 5,000 GWMP outcome measure and groundwater resources in the Santa Clara Plain have many additional sources of natural and artificial recharge. The impact of the Project when added to the impacts of other probable future projects to groundwater supplies within the Valley Water managed groundwater basins is not cumulatively significant, and the Project's contribution is not cumulatively considerable.

There are no known probable future projects in the area around Anderson Reservoir that would rely on groundwater that are not part of the managed groundwater basin. Although the Project would have a significant impact on wells outside of the groundwater basin/managed aquifer adjacent to Anderson Reservoir, this impact would not be cumulatively significant with other probable future projects, and the Project's impacts would not be cumulatively considerable.

Significance Conclusion Summary

The Project's activities would not substantially affect groundwater storage/supplies or recharge, and the increase in population and jobs resulting from new development is accounted for in Valley Water's UWMP. Impacts to groundwater supplies within the Valley Water managed groundwater basins are not cumulatively significant, and the Project's contribution is not cumulatively considerable.

However, the dewatering of Anderson Reservoir during the 7-year Seismic Retrofit construction period, in addition to the four years of FOCP construction, could impact nearby wells outside of the groundwater basin/managed aquifer which would be cumulatively significant, and the Project's contribution would be cumulatively considerable. However, implementing **Mitigation Measure GW-1** (Provide Alternative Water Supplies) would ensure that those with wells impacted by the Project would have an adequate water supply. With mitigation, the Project's contribution to a substantial decrease in groundwater supplies or substantial interference with ground-water recharge such that the project may impede sustainable groundwater management of the basin is **not cumulatively considerable.**

Mitigation Measures

GW-1 Provide Alternative Water Supplies

Cumulative Impact GW-2: Substantially degrade groundwater quality **(Not Cumulatively Considerable)**

Construction equipment to be used during construction and maintenance activities would contain hazardous materials, such as fuel, oil, lubricants, etc. that can degrade groundwater quality if spilled or improperly handled. If the dewatering and reduced reservoir releases construction were to result in substantially lower groundwater levels, this could lead to adverse groundwater quality impacts. One of the consequences of a reduction in groundwater storage can be a deterioration of water quality (USGS 2023 ~~2023b~~). **Mitigation Measure GW-1** (Provide Alternative Water Supplies) would reduce this impact to less than significant levels.

The Project could impact groundwater quality using explosives that contain perchlorate and other nitrogen-based chemicals which could cause groundwater pollution at the Project level. This impact would be significant, but **Mitigation Measure GW-2** (Perchlorate Best Management Practices) would reduce the impact to less-than-significant levels.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction, restoration, or operation could degrade groundwater quality in the Santa Clara or LLagas Subbasins.

Cumulative Effects of Project with the FOCP

The FOCP would have similar impacts from the use of heavy equipment and the use of hazardous materials to groundwater quality. The FOCP lowered the storage behind Anderson Reservoir to deadpool, which reduces available local supplies to be released by the reservoir for groundwater recharge in Coyote Creek and the Coyote Percolation Pond. However, the FOCP also includes the Cross Valley Pipeline Extension and chillers at Anderson Reservoir that increase the flexibility in using imported water for groundwater recharge.

Both projects would comply with the Construction General Permit, including preparation and implementation of a SWPPP, as well as implementation of Valley Water BMPs to minimize potential impacts due to hazardous materials releases. These include BMPs ~~HM-7,~~ HM-8, HM-9, and HM-10, which would include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites and providing training and spill cleanup materials for field personnel, among other measures. With implementation of a SWPPP and BMPs, the impacts of the Project and the FOCP to the degradation of groundwater quality through the release of hazardous materials is not cumulatively significant, and the Project's contribution is not cumulatively considerable.

The Project could impact groundwater quality using explosives that contain perchlorate and other nitrogen-based chemicals which could cause groundwater pollution at the Project level. The FOCP would not ~~could also potentially~~ use explosives in constructing the outlet tunnel that may contain perchlorate or other nitrogen-based chemicals. ~~The cumulative risk to groundwater pollution is significant and the Project's contribution is cumulatively considerable~~.

The dewatering of Anderson Reservoir during FOCP could impact nearby wells outside of the groundwater basin/managed aquifer, which would be extended by the Project. Potentially reducing groundwater levels in wells near Anderson Reservoir could concentrate pollutants that are present and degrade groundwater quality. The impact to the degradation of groundwater quality through a reduction in available groundwater supplies outside of the managed groundwater basin is cumulatively significant with the FOCP and the Project's contribution is cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most projects listed in **Table 3.0-1** involve the use of equipment that use hazardous materials similar to those used by the Project in construction and maintenance activities. All projects would comply with the Construction General Permit, including preparation and implementation of a SWPPP.

Other projects that could impact groundwater supplies in Santa Clara County include development projects throughout the County that use groundwater as a source for water supply. New development in the County typically increases the demand for groundwater, although new development is subject to building code requirements that minimize water demand with water efficient water fixtures and landscaping. These projects could also increase impervious surfaces that can reduce natural groundwater recharge that occurs in the confined regions of the Santa Clara and Llagas Groundwater Basins. Other projects would be required to comply with applicable Municipal Stormwater NPDES permits that minimize the impact of expanded impervious surfaces.

The Project could impact groundwater quality using explosives that contain perchlorate and other nitrogen-based chemicals which could cause groundwater pollution at the Project level. There are no other probable future projects that would have a similar, cumulative impact.

Given the implementation of a SWPPP and BMPs as discussed above with the FOCP, the cumulative impact to groundwater quality within the Valley Water managed groundwater basins is not cumulatively significant with impacts from other probable future projects, and the Project's contribution is not cumulatively considerable.

There are no known probable future projects in the area around Anderson Reservoir that would rely on groundwater that is not part of the managed groundwater basin. The cumulative impact to wells near Anderson Reservoir outside of the groundwater basin/managed aquifer is not cumulatively considerable with other projects.

Significance Conclusion Summary

The Project's activities contribution to the degradation of groundwater quality through the release of hazardous materials with the implementation of a SWPPP <u>for out-of-reservoir construction activities</u> and <u>applicable</u> Valley Water BMPs is not cumulatively significant with impacts from other probable future projects, and the Project's contribution is not cumulatively considerable. <u>While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements</u>.

The Project ~~and FOCP~~ could both pollute groundwater resources through the introduction of perchlorates or other nitrogen-based chemicals by blasting activities. ~~The cumulative impact with FOCP would be significant, and the Project's contribution would be cumulatively considerable~~. Implementation of **Mitigation Measure GW-2** (Perchlorate Best Management Practices) would ensure that risks to groundwater pollution are minimized and the Project's contribution is not **cumulatively considerable**.

The dewatering of Anderson Reservoir during the 7-year Seismic Retrofit construction period in addition to the four years of FOCP construction could impact nearby wells outside of the groundwater basin/managed aquifer. The cumulative impact with FOCP would be significant, and the Project's contribution would be cumulatively considerable. Implementing **Mitigation Measure GW-1** (Provide Alternative Water Supplies) would ensure that those with wells impacted by the Project would have an adequate water supply, preventing degraded groundwater quality from affecting local groundwater supplies. The Project's contribution to impacts that substantially degrade groundwater quality is **not cumulatively considerable.**

Mitigation Measures

GW-1 Provide Alternative Water Supplies

GW-2 Perchlorate Best Management Practices

Cumulative Impact GW-3: Conflict with or obstruct implementation of the San Francisco Bay Basin Plan groundwater provisions or the District's GWMP (Not Cumulatively Considerable)

As described in Section 3.12.2.2, the San Francisco Bay Basin Plan identifies beneficial uses for surface waters and groundwater within the San Francisco Bay region and establishes narrative and numerical WQOs to achieve the beneficial uses for those waters. Valley Water's GWMP for the Santa Clara and Llagas Subbasins (Valley Water 2021) describes a comprehensive groundwater management framework, including existing and potential actions to achieve basin sustainability goals and ensure continued sustainable groundwater management.

As discussed in Impacts GW-1 and GW-2, the reduction in available supplies for groundwater recharge and the use of hazardous material during construction and maintenance could interfere with the beneficial uses identified for groundwater resources in Santa Clara County and achieving the goals of the GWMP.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction, restoration, or operational would interfere with groundwater availability and quality in the Santa Clara or LLagas Subbasins.

Cumulative Effects of Project with the FOCP

The FOCP lowered the storage behind Anderson Reservoir to deadpool, which reduces available local supplies to be released by the reservoir for groundwater recharge in Coyote Creek and the Coyote Percolation Pond. However, the FOCP also includes the Cross Valley Pipeline Extension and chillers at Anderson Reservoir that increase the flexibility in using imported water for groundwater recharge. The FOCP would also have similar impacts from the use of heavy equipment and the use of hazardous materials to groundwater quality.

The Project would not substantially affect groundwater storage or recharge. WEAP modeling shows that groundwater storage in the Coyote Valley would remain above the 5,000 GWMP outcome measure, given implementation of imported water releases in Coyote Creek. Groundwater resources along the downstream Santa Clara Plain would not be substantially affected by the seismic retrofit construction. The impacts of the Project and FOCP together are not cumulatively significant. The cumulative impact of the Project to achieving Basin Plan and GWMP goals is not cumulatively considerable.

The dewatering of Anderson Reservoir during FOCP could impact nearby wells outside of the groundwater basin/managed aquifer, which would be extended by the Project. This is a cumulatively significant impact and the Project's contribution to achieving Basin Plan and GWMP goals is cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Other projects that could impact groundwater supplies and quality in Santa Clara County include development projects throughout the County that use groundwater as a source for water supply. New development in the County typically increases the demand for groundwater, although new development is subject to building code requirements that minimize water demand with water efficient water fixtures and landscaping. These projects could also increase impervious surfaces that can reduce natural groundwater recharge that occurs in the confined regions of the Santa Clara and Llagas Groundwater Basins. Other projects would be required to comply with applicable Municipal Stormwater NPDES permits that minimize the impact of expanded impervious surfaces. These other projects also involve the use of equipment that use hazardous materials similar to those used by the Project in construction and maintenance activities. All projects are required to comply with the Construction General Permit, including preparation and implementation of a SWPPP.

The Project would not substantially affect groundwater storage or recharge. WEAP modeling shows that groundwater storage in the Coyote Valley would remain above the 5,000 GWMP outcome measure and groundwater resources in the Santa Clara Plain have many additional sources of natural and artificial recharge. The impacts to groundwater supplies within the Valley Water managed groundwater basins of the Project when added to other probably future projects is not cumulatively significant, and the Project's impacts to groundwater supplies within the Valley Water managed groundwater basins is not cumulatively considerable.

There are no known probable projects in the area around Anderson Reservoir that would rely on groundwater that is not part of the managed groundwater basin. The Project's impact to nearby wells outside of the groundwater basin/managed aquifer is not cumulative with other projects.

Significance Conclusion Summary

Given implementation of imported water releases, Seismic Retrofit construction (including reservoir dewatering) would not substantially reduce groundwater supplies in downstream aquifers, including the Coyote Valley. Additionally, with implementation of **Mitigation Measure GW-1** (Provide Alternative Water Supplies), Seismic Retrofit construction would not substantially affect groundwater well owners in the area immediately surrounding Anderson Reservoir. Use of hazardous materials (e.g., fuel, oil, etc.) construction and maintenance could potentially impact groundwater quality; however, implementation of the SWPPP <u>for out-of-reservoir construction activities</u>, and applicable Valley Water BMPs assure these potential cumulative impacts to achieving Bay Plan and GWMP goals would be not be cumulatively significant with impacts from other probable future projects, and the Project's impacts are **not cumulatively considerable.** While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Mitigation Measures

GW-1 Provide Alternative Water Supplies

3.12.6 References

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3.13 Water Supply

This section summarizes the environmental and regulatory setting related to water supply in the context of the Project. The study area for this analysis includes Valley Water's water supply system, with a focus on Anderson Reservoir and Coyote Creek. Since Valley Water receives imported water from San Luis Reservoir, the analysis considers these supplies and the water conveyance facilities that transfer imported water to the county. This section also presents the impact analysis methodology and evaluates the impacts to water supply that may occur as a result of the construction and operation of the Project.

3.13.1 Environmental Setting

3.13.1.1 Water Supplies and Demands

Supplies

About half of the county's water supply currently comes from local sources, and the other half comes from imported water sources. Imported water includes Valley Water's State Water Project and CVP contract supplies, and supplies delivered by the San Francisco Public Utilities Commission (SFPUC) to cities in the northern county. Valley Water currently has 20 appropriative water rights licenses and one filed water right permit with the SWRCB totaling over 227,000 AF of water per year (AFY) (Valley Water 2021a ~~2021~~). However, currently all surface water supplies for Valley Water are constrained by an average of 44,000 AFY because of operating restrictions on local reservoirs for seismic safety (Valley Water 2021b). Water rights are shown in **Figure 3.13-1.**

Valley Water has a contract with the DWR for 100,000 AFY of State Water Project water and a contract with the Bureau of Reclamation for 152,500 AFY of CVP water; however, the actual amount of water allocated under these contracts each year is typically less than these contractual amounts and depends on hydrological and regulatory restrictions. **Table 3.13-1** shows an estimate of future water supplies to Valley Water from each source. Valley Water's basic water supply strategy to compensate for supply variability is to store excess wet year supplies in the groundwater subbasins, local reservoirs, San Luis Reservoir, and the Semitropic Groundwater Storage Bank,[1] and then draw from these stored supplies during dry years to help meet demands. Based on projected demands, and existing and planned sources of supply, Valley Water estimates that it would be able to meet countywide demands through 2045 under normal, a single dry, and 5 consecutive dry year conditions (Valley Water 2021b).

[1] The Semitropic Groundwater Storage Bank is a groundwater banking facility in Kern County that Valley Water invests in. Water is delivered to the bank when surplus supplies are available and withdrawn when supplies are limited.

Table 3.13-1. Valley Water Projected Average Water Supplies (Acre-Feet)

Water Supply[1]	2025	2030[2]	2035	2040	2045
Surface Water	30,000	70,000	185,000	185,000	185,000
Imported Water	130,000	134,000	136,000	139,000	142,000
SFPUC Supply	55,000	56,000	59,000	61,000	63,000
Local Groundwater Storage	140,000	164,000	163,000	162,000	162,000
Out-of-County Storage	75,000	75,000	75,000	70,000	70,000
Recycled Water (non-potable)	16,000	19,000	22,000	26,000	28,000
Total	446,000	518,000	640,000	643,000	650,000

Source: Valley Water 2021b

Notes:

[1] Recycled water, SFPUC supply, and groundwater storage are rounded to the nearest 1,000 AF. All other supplies are rounded to the nearest 5,000 AF. Supplies shown are based on modeled estimates of available supplies. Actual availability during any given year depends on hydrology, groundwater recharge operations and conditions, regulatory requirements, and other factors. Groundwater storage shown assumes groundwater can be drawn down to the severe stage of the WSCP. This does not represent ~~a~~ sustainable long-term groundwater conditions, but these supplies represent water that may be needed to get through a prolonged drought. Imported water allocations are provided by DWR in their Delivery Capability Report 2019, which does not include any projected changes to future regulations nor the hydrologic sequence for the 2012-2016 drought. For comparison, the lowest total annual imported delivery during the 1987-1992 drought in the Delivery Capability Report 2019 dataset is 83,200 AF, while the actual lowest imported delivery during the 2012-2016 drought was 60,320 AF. However, through Valley Water's Monitoring and Assessment Program, Valley Water is conservatively planning for investments by considering severe droughts, such as the 2012-2016 drought, will occur in the future. Projects included in the supply projections include transfer Bethany pipeline (2025); Project and potable reuse (2030; see note 2 below); Guadalupe, Calero, and Almaden Dam seismic retrofits and Pacheco Reservoir Expansion (2035); and an additional 35,000 AF of conservation (to reach Valley Water's goal of 109,000 AF by 2040 with a 1992 baseline).

[2] The surface water supplies jump of 40,000 AF reflects the completion of Project and available runoff to fill Anderson Reservoir; though Project completion is not anticipated until sometime after 2030. ~~However, since the UWMP was prepared, the estimated completion date for Project has been revised to 2032~~.

As shown in **Table 3.13-1**, imported water and local groundwater storage account for the bulk of Valley Water's supplies in the near term; however, surface water supplies increase from 70,000 AFY to 185,000 AFY in 2035. This partly reflects the completion of various Valley Water projects, including the ADSRP, such that Anderson Dam can be brought back online and the reservoir filled to capacity.

Demands

Water use in the county includes domestic, municipal, industrial, and agricultural use. The countywide average 10-year water use for 2001-2019 is 315,532 AFY. However, actual water used changes from year to year and is influenced by a number of factors that include population growth, hydrology, water conservation, drought, and economic conditions. The countywide water use figure represents total use of Valley Water supply, SFPUC supply, and San José Water Company and Stanford University water rights. Largely due to Valley Water's conservation efforts and changing use patterns by the public, overall water use in the county has decreased over the past 15 years despite a 25 percent increase in population (Valley Water 2021b). Actual use of Valley Water's supply in 2020 was estimated at approximately 308,600 AFY (Valley Water 2023a).

Generally, due to increasing retailer demand associated with population growth over time, water demands within the county are projected to increase in the future. However, the projected increase is fairly modest, even out to 2045. The projected countywide demands are shown in **Table 3.13-2**.

Table 3.13-2. Projected Countywide Demand

Land Use	Projected Water Use (Acre-Feet)[1]				
	2025	**2030**	**2035**	**2040**	**2045**
Retailer Demand	288,000	280,000	285,000	290,000	299,000
Agricultural Irrigation	25,000	25,000	25,000	25,000	25,000
Independent Groundwater Pumping	14,000	14,000	14,000	14,000	14,000
Untreated Surface Water	2,000	2,000	2,000	2,000	2,000
Losses	3,000	3,000	3,000	3,000	3,000
Total	330,000	325,000	330,000	335,000	345,000

Notes:

[1] Total numbers are rounded to the nearest 5,000 AF. All other numbers are rounded to the nearest 1,000 AF. The numbers represent countywide demands, which are partially served by the SFPUC, recycled water, and surface water rights held by San José Water Company and Stanford University.

Source: Valley Water 2021b

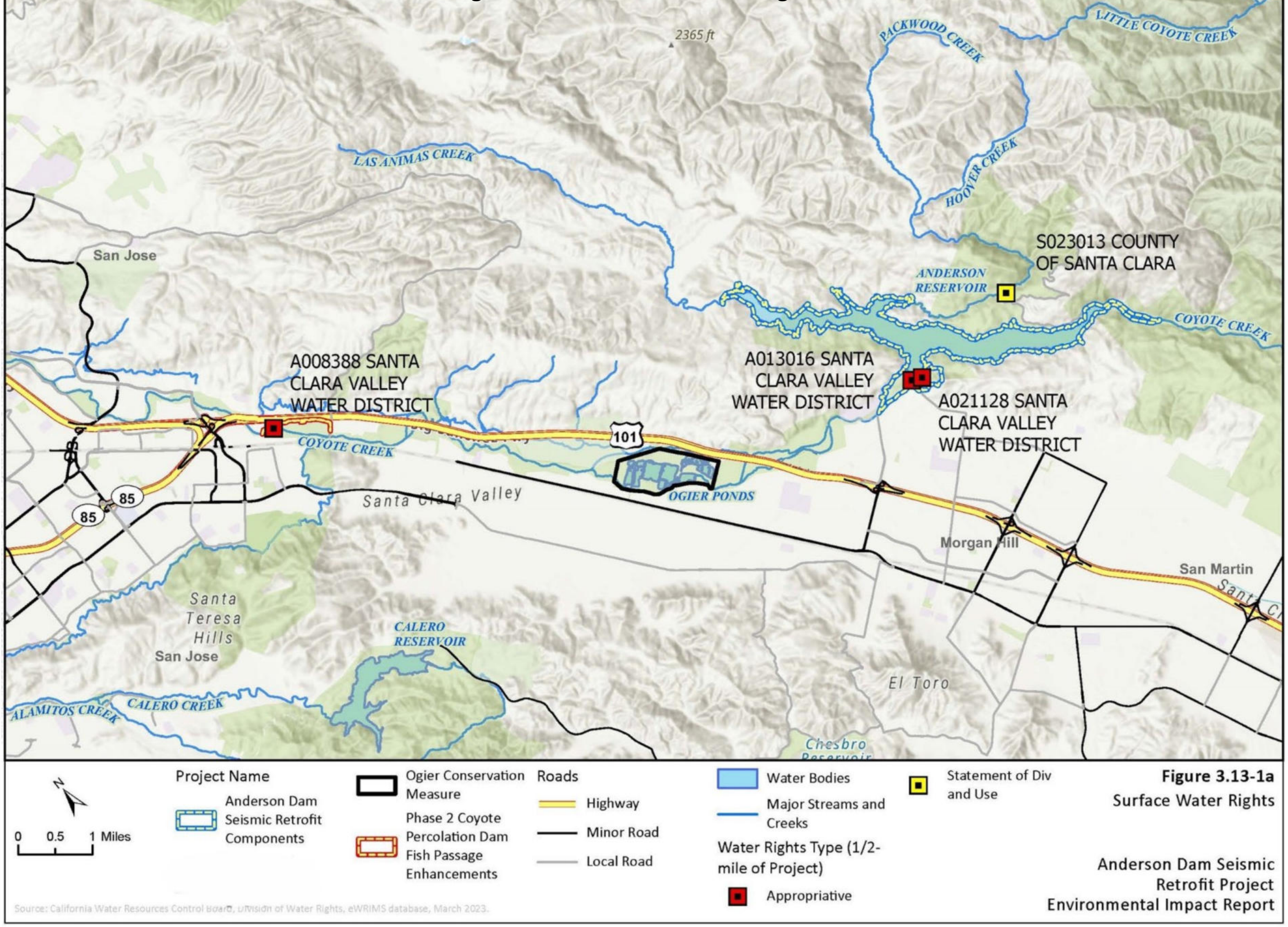
3.13.1.2 Water Supply Infrastructure

To meet countywide needs, Valley Water's water supply and distribution system relies on the following major facilities (Valley Water 2019):

- Ten surface raw water reservoirs, totaling approximately 166,000 AF of reservoir storage capacity
- Five in-stream water supply diversion dams
- 279 miles of natural channels and 44 miles of concrete-lined channels
- 17 miles of raw surface water canals and ditches
- 25 groundwater recharge pond facilities
- 98 miles of controlled in-stream recharge
- 134 miles of raw and treated pipelines
- Three raw water pumping stations
- Three drinking water treatment plants
- One advanced water purification plant

Valley Water's water supply facilities are shown in **Figure 3.13-2** ~~**Figure 3.13-1**~~.

Figure 3.13-1. Surface Water Rights



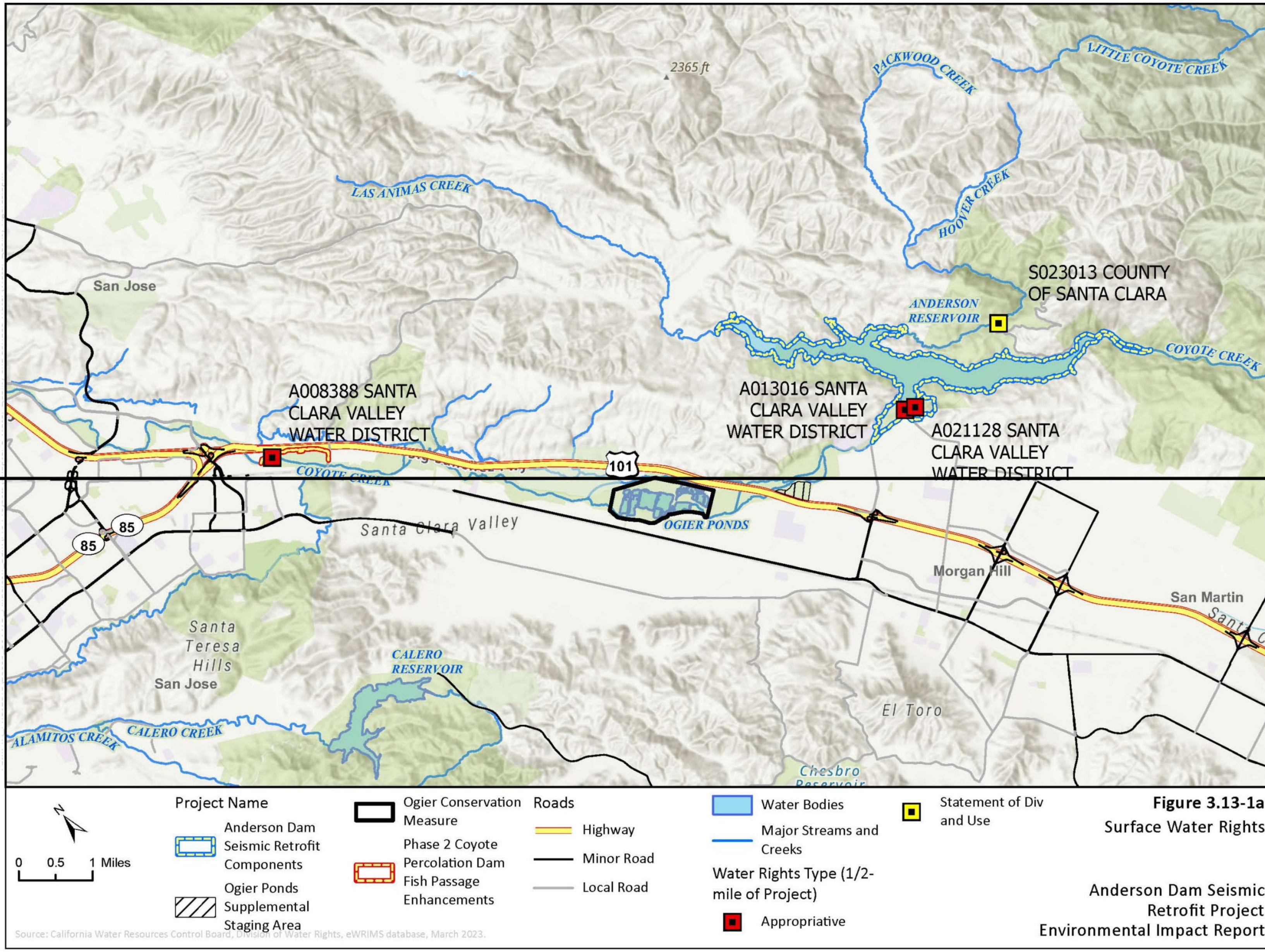
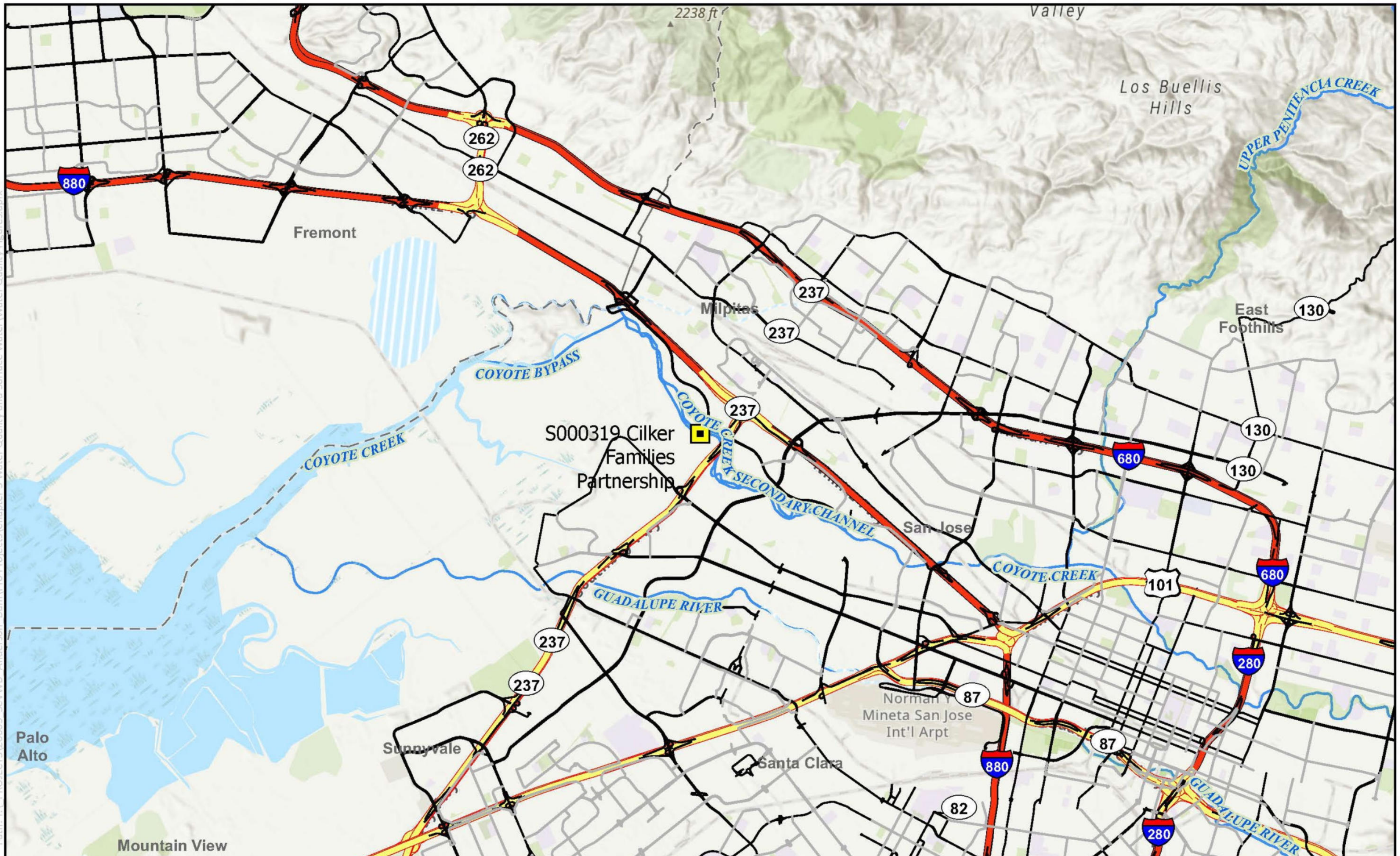


Figure 3.13-1a
Surface Water Rights



N

0 0.5 1 Miles

Roads

Freeway or Other Major Road

Highway

Minor Road

Local Road

Water Bodies

Major Streams and Creeks

Water Rights Type (1/2-mile of Project)

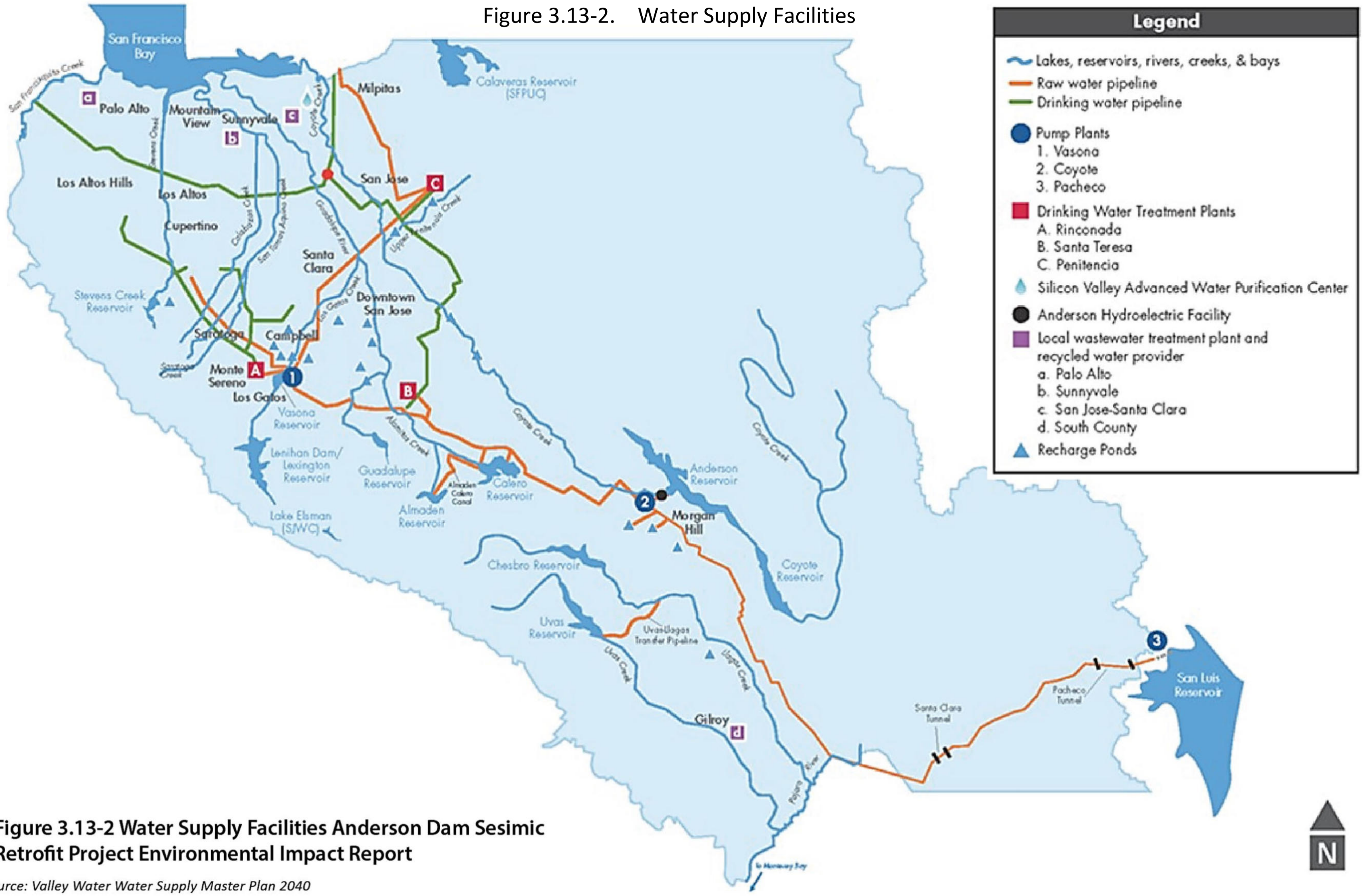
Statement of Div and Use

Source: California Water Resources Control Board, Division of Water Rights, eWRIMS data, March 2023.

Figure 3.13-1b
Surface Water Rights

Anderson Dam Seismic Retrofit Project Environmental Impact Report

Figure 3.13-2. Water Supply Facilities



Raw water conveyance relies on streams and constructed infrastructure to distribute local and imported supplies to Valley Water's drinking water treatment plants and groundwater recharge facilities. Valley Water manages these systems to meet multiple objectives, including water supply, flood protection, and stream stewardship. As indicated above, five of Valley Water's dams/reservoirs are under storage restrictions for seismic safety purposes; thus, the full capacity of these facilities is not currently available to Valley Water.

Water supply facilities that are included as part of, or would potentially be affected by, the Project, or are otherwise relevant to the environmental analysis, include Anderson Dam/Reservoir, Coyote Creek, Coyote Percolation Dam/Pond, Cross Valley Pipeline, CDL, SCC, and Anderson Force Main. These facilities are described throughout this EIR, but brief descriptions of the facilities have been provided below. Also, refer to **Figure 3.13-1**.

- **Anderson Dam and Reservoir.** As described in Chapter 2, *Project Description,* Anderson Reservoir is created by Anderson Dam, a 240-foot-high earthen dam constructed in 1950 that measures 1,430-feet long by 900-feet wide. The reservoir can hold over 89,000 AF of water when full, with a surface area of 1,253 acres. This storage capacity is more than all of the other Valley Water surface water reservoirs combined. Storage at Anderson Reservoir is currently restricted to deadpool, or roughly 3,159 AF. Prior to the FERC Order (and even more so, prior to 2009 when seismic storage restrictions limiting storage to 68 percent of capacity first went into effect), Anderson Reservoir was managed to meet regional water supply goals and maximize groundwater recharge. Water from Anderson Reservoir can be released directly to Coyote Creek or used to supply water directly to the raw water distribution system, including deliveries to the water treatment facilities for drinking water supply via the bidirectional Anderson Force Main and Cross Valley Pipeline (see discussion below) (Valley Water 2020a ~~2020~~). Depending on the hydrologic conditions and time of year, a full groundwater recharge program requires 20 to 60 cfs to be released below Anderson Dam in order to meet groundwater supply needs.
- **Coyote Creek.** Coyote Creek is a natural stream that is impounded by Anderson Dam. Upstream of Anderson Reservoir, Coyote Reservoir is also located along Coyote Creek and controls releases/flows along the stretch of Coyote Creek between the two reservoirs. Downstream of Anderson Dam, Coyote Creek flows approximately 37.5 miles north-northwest through many densely urbanized areas in the county, before ultimately reaching San Francisco Bay. Water flowing in Coyote Creek provides in-stream recharge of the Coyote Valley and Santa Clara Plain, which are the two groundwater management areas of the Santa Clara Subbasin.
- **Coyote Percolation Dam and Pond**. The Coyote Percolation Dam is located approximately 10 miles downstream of Anderson Dam and is used by Valley Water to impound water along Coyote Creek for the purposes of managed groundwater recharge. The channel-spanning facility has historically consisted of a flashboard dam (composed of removable steel plates atop a reinforced concrete foundation), rock slope protection, fish ladder, two radial gates, and approximately 40 acres of impoundment. However, as part of the FOCP, Phase 1 improvements offered designs to replace the existing flashboard dam with an inflatable bladder dam and the existing stationary fish ladder panels with adjustable panels to improve fish passage. The improvements to the facility are scheduled for construction in summer 2023. The impoundment behind the Coyote

Percolation Dam is the largest of several ponds also referred to collectively as the Metcalf Ponds.

- **Cross Valley Pipeline.** The Cross Valley Pipeline is a pipeline that transfers water from either Anderson Reservoir, when in operation, or water conveyed from San Luis Reservoir, through pipelines of the San Felipe Division of the federal CVP, to Valley Water's water supply system. The Cross Valley Pipeline begins at the Coyote Pumping Plant in the City of Morgan Hill, runs northwest through the City of Morgan Hill and unincorporated areas of the county, and continues northwest through the Coyote Valley Open Space Preserve and near Cinnabar Hills Golf Club, where the Cross Valley Pipeline ends and the Calero Pipeline begins. The Cross Valley Pipeline and Calero Pipeline together consist of 10.8 miles of 78-inch and 72-inch prestressed concrete cylinder pipes. As part of the FOCP, Valley Water extended the Cross Valley Pipeline to allow for water releases to Coyote Creek downstream of Ogier Ponds.
- **Coyote Discharge Line**. The CDL is used to release imported water from San Luis Reservoir via the SCC (see below) to Coyote Creek approximately 1,200 feet downstream of Anderson Dam. Releases from the CDL are used to augment surface water, primarily to recharge the groundwater supply in the Santa Clara Subbasin (including both the Coyote Valley and Santa Clara Plain groundwater management areas) via infiltration in Coyote Creek and Coyote Percolation Pond.
- **Santa Clara Conduit**. As noted above, the SCC connects to the Cross Valley Pipeline and CDL and is used to transfer water from San Luis Reservoir. The SCC, combined with the Pacheco Conduit, extends many miles from the San Luis Reservoir all the way to the Coyote Pump Station, which is located just southwest of Anderson Reservoir.
- **Anderson Force Main**. The Anderson Force Main is a 54-inch-diameter bi-directional pipeline that enables the release of water to Coyote Creek, transfers raw water to the water treatment plants, and allows the storage of imported water in Anderson Reservoir.

3.13.2 Regulatory Setting

3.13.2.1 Federal

Safe Drinking Water Act

The federal SDWA [42 USC 300(f) et seq.] applies to water supply. See Section 3.12, *Groundwater Resources*, for a full description relevant to the Project.

3.13.2.2 State

Water Rights Permitting Process

Appropriative water rights (Water Code 1200 et seq.) are required for water users who divert water from surface or subterranean streams for use on non-riparian land or use water that would not be there under natural conditions (storing water) on riparian land. The SWRCB issues water rights permits and licenses for these types of diversions.

In May 2015, Valley Water submitted proposed water rights amendments ~~The Project includes several specific proposed water rights changes~~ to the SWRCB to update Valley Water's Coyote Creek water rights ~~permits~~. See Chapter 2, *Project Description*.

California Safe Drinking Water Act

The California SDWA (Health and Safety Code 116270 et seq.) regulates drinking water more rigorously than the federal SDWA. Like the federal SDWA, California requires that primary and secondary MCLs be established for pollutants in drinking water; however, some California MCLs are more protective of health. The SDWA also requires the SWRCB to issue domestic water supply permits to public water systems.

3.13.2.3 Local

Santa Clara Valley Water District Urban Water Management Plan

In accordance with Water Code Sections 10610 to 10656, Valley Water has developed and regularly updated its UWMP to ensure that adequate water supplies are available to meet existing and future water demands during normal, dry, and multiple dry years within its service area. The UWMP is updated every five years as required by DWR. Valley Water's most recently adopted plan, the 2020 UWMP, provides an overall picture of current and future water conditions and management over the next 25 years. The plan documents Valley Water's system, current and projected water supplies, and demands over the next 25 years during normal and drought years. It also includes a water reliability analysis and describes conservation efforts in the county. (Valley Water 2021b).

Santa Clara Valley Water District Water Shortage Contingency Plan

Valley Water's Water Shortage Contingency Plan (WSCP) defines specific triggers that indicate a water supply shortage and allow Valley Water to request the public to implement water use reductions. These shortage contingencies are staged across five levels, where Stage 1 represents no water use restrictions, and Stage 5 equates to greater than 40 percent reductions. The triggers are based on projected end-of-year groundwater storage levels because this reflects the general health of the water supply system.

The WSCP recognizes that Anderson Dam is currently undergoing a seismic retrofit and is not able to provide water storage; and assumed that Anderson Dam's retrofit would be complete in 2030 (construction is now estimated to be complete later than 2030 ~~in 2032~~). As part of WSCP requirements, starting in 2022, Valley Water began preparing and submitting an Annual Water Supply and Demand Assessment to DWR each year. This Annual Assessment provides projected demands through the current year, quantification of available water supplies, and existing infrastructure capabilities and plausible constraints. The Annual Assessment also includes a forecast of water supply conditions assuming the following year has dry conditions, along with recommendations if any water shortage actions are needed (Valley Water 2021a).

Santa Clara Valley Water District Water Supply Master Plan 2040

In November 2019, Valley Water completed its Water Supply Master Plan (WSMP) 2040 (Valley Water 2019), which presents Valley Water's strategy for meeting the county's water supply needs through 2040. As part of the WSMP, the Valley Water Board established the Level of

Service (LOS) goal "to develop water supplies to meet 100 percent of annual water demand during non-drought years and at least 80 percent demand in drought years." To achieve the LOS goal, the WSMP recommends a three-pronged strategy to meet future county-wide demand:

1. Secure existing supplies and infrastructure
2. Increase water conservation and water reuse
3. Optimize the use of existing supplies and infrastructure

Santa Clara Valley Water District Act

The Santa Clara Valley Water District Act (Chapter 1405 of the Statutes of 1951, as amended in 2018) created Valley Water. The act has been amended several times with the latest in 2018. The purposes of this act are to authorize Valley Water to provide comprehensive water management for all beneficial uses and protection from flooding within the county. This Act states that one of the purposes of Valley Water is "to do any and every lawful act necessary to be done that sufficient water may be available for any present or future beneficial use or uses of the lands or inhabitants within the District." To further implement the Santa Clara Valley Water District Act, the Board has developed a mission statement for Valley Water: "The mission of the Santa Clara Valley Water District is to provide Silicon Valley safe, clean water for a healthy life, environment, and economy."

3.13.3 Methodology and Approach to Impact Analysis

The impacts of the Project are described and evaluated according to significance criteria described below. The impact analysis describes impacts on water supply/water rights associated with implementation of the Project. The analysis considers impacts from construction of the Seismic Retrofit components of the Project, as well as construction of Conservation Measures and implementation of Construction Monitoring activities. The analysis also considers longer-term impacts during the post-construction period from operation of the reservoir and Conservation Measures, and ongoing maintenance and monitoring efforts. The analysis considers the extent to which Conservation Measures incorporated into the Project would reduce the adverse effects of the Seismic Retrofit components, as well as how implementation of applicable Valley Water BMPs, VHP conditions, and AMMs would reduce impacts.

The analysis focuses on the effects of the Project as compared with baseline conditions. Separate baselines are used due to the nature of the Project and the different types of effects. For construction of the Seismic Retrofit and Conservation Measures, the baseline conditions are the existing conditions at the time of EIR preparation as modified by implementation of the FOCP (existing conditions baseline). For post-construction operations and maintenance, two baselines are used: the future conditions baseline and Pre-FERC Order Conditions Baseline.

3.13.3.1 Seismic Retrofit Project Construction

Construction-related water supply effects of the Seismic Retrofit component were evaluated by looking at the water needs during construction and comparing that to available water sources for this type of use. Additionally, the analysis considers the extent to which construction activities (e.g., maintaining the reservoir in a dewatered state) could impact Valley Water's overall supplies and ability to meet demands, as well as adversely affect other water right holders in the vicinity.

As part of the Project, Valley Water would augment Anderson Dam releases using other water supply sources so that Coyote Creek would not be dewatered during the construction period. The sources include: 1) winter flows that would typically be collected for storage in Anderson Reservoir would be bypassed, 2) imported water via the CDL, and 3) imported water via the Cross Valley Pipeline Extension. Therefore, impacts to water users downstream of Anderson Dam were evaluated by looking at the availability and reliability of these water sources, as well as analyzing whether the quantity would sufficiently recharge the groundwater supplies in Coyote Valley. Water quality concerns, which could impact water supply, especially for municipal or domestic purposes, are primarily evaluated in Section 3.14, *Water Quality*.

3.13.3.2 Conservation Measures Project Construction

As part of the Project, the Conservation Measures component would include the Ogier Ponds CM, Phase 2 Coyote Percolation Dam CM, Maintenance of the North Channel Reach ~~Extension~~, Maintenance of the Spawning Gravel and Rearing Habitat at Live Oak Reach Restoration Reach, and the Sediment Augmentation Program. While the Conservation Measures are intended to benefit fish habitat, water quality, groundwater recharge, and water supply, their construction could have short-term impacts on water supplies. This analysis considered impacts from disruption of percolation pond operations during construction of measures, using imported water to supplement stream flows during dam construction, construction of the Ogier Ponds CM, and impacts of adding cobble, gravel, and sediment to reaches downstream of the dam.

3.13.3.3 Construction Monitoring

The construction monitoring component of the Project includes a number of measures to monitor the effects of the Project on the environment and reduce those effects through avoidance and minimization of certain impacts. Construction monitoring includes monitoring of stream flow and water quality; suspended sediment; sediment deposition; and steelhead habitat quality, conditions, migration, migration flows, spawning, and juvenile rearing in Coyote Creek downstream from Anderson Dam. These measures would involve small numbers of people visiting locations throughout the Project Area and would be unlikely to result in negative impacts to water supply. However, any adverse effects from construction monitoring activities are evaluated in this section.

3.13.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

The post-construction operational water supply effects of the Project were evaluated with regards to the new flow regimes that would be in place due to the FAHCE rule curves. Impacts related to new flow regimes were evaluated by analyzing whether the required reservoir releases would adequately supply downstream water users and sufficiently recharge the groundwater supplies in Coyote Valley, and/or whether there would be any adverse effects on Valley Water's water supplies. Impacts were analyzed by comparisons to the Pre-FERC Order Conditions Baseline and/or future conditions baseline. Maintenance of Anderson Dam facilities would be conducted in accordance with existing Valley Water maintenance programs (e.g., DMP, SMP). BMPs and avoidance and minimization measures associated with these programs would be implemented to minimize potential impacts to water quality (and, by extension, water supply) during maintenance activities.

3.13.3.5 Post-Construction Conservation Measures Operation and Maintenance

The effects related to the operation of Conservation Measures and ongoing maintenance and monitoring activities during the post-construction period were evaluated with respect to water supply. The analysis considered whether the five Conservation Measures described above (Ogier Ponds CM, Phase 2 Coyote Percolation Dam CM, Maintenance of the North Channel Reach ~~Extension~~, Maintenance of the Spawning Gravel and Rearing Habitat at Live Oak Reach Restoration Reach, and the Sediment Augmentation Program) would result in impacts on water supply during the post-construction period. The post-construction impacts analysis used the Pre-FERC Order Conditions Baseline.

3.13.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCEAMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Water supply impacts of these monitoring activities are not evaluated in the impact analyses below.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original flow measures and Conservation Measure construction. Impacts of these adaptive actions are evaluated in the impact analyses below. These impacts are considered here at a programmatic level, because the detailed characteristics, timing, and/or locations of the proposed adaptive measures are not known at the time of EIR preparation. Project-specific CEQA review would be undertaken in the future, as necessary, when specific projects are proposed and project-specific details are available.

3.13.3.7 Applicable Best Management Practices and VHP Conditions

The BMPs and VHP Conditions and AMMs that would help reduce impacts related to water supply are the same ones that would serve to protect water quality. Therefore, refer to the list of applicable BMPs and VHP Conditions and AMMs provided in Section 3.14, *Water Quality*.

3.13.3.8 Thresholds of Significance

For purposes of this EIR, and consistent with certain thresholds in Appendix G of the *CEQA Guidelines*, the Project would have a significant effect related to water supply if it would:

a) Substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years

b) Require or result in the relocation or construction of new or expanded water facilities, the construction of which could cause significant environmental effects

3.13.4 Impact Analysis

***Impact WS-1: Substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years* (Less than Significant)**

Seismic Retrofit Construction

Reduced Water Supplies and Groundwater Recharge Due to Reservoir Dewatering

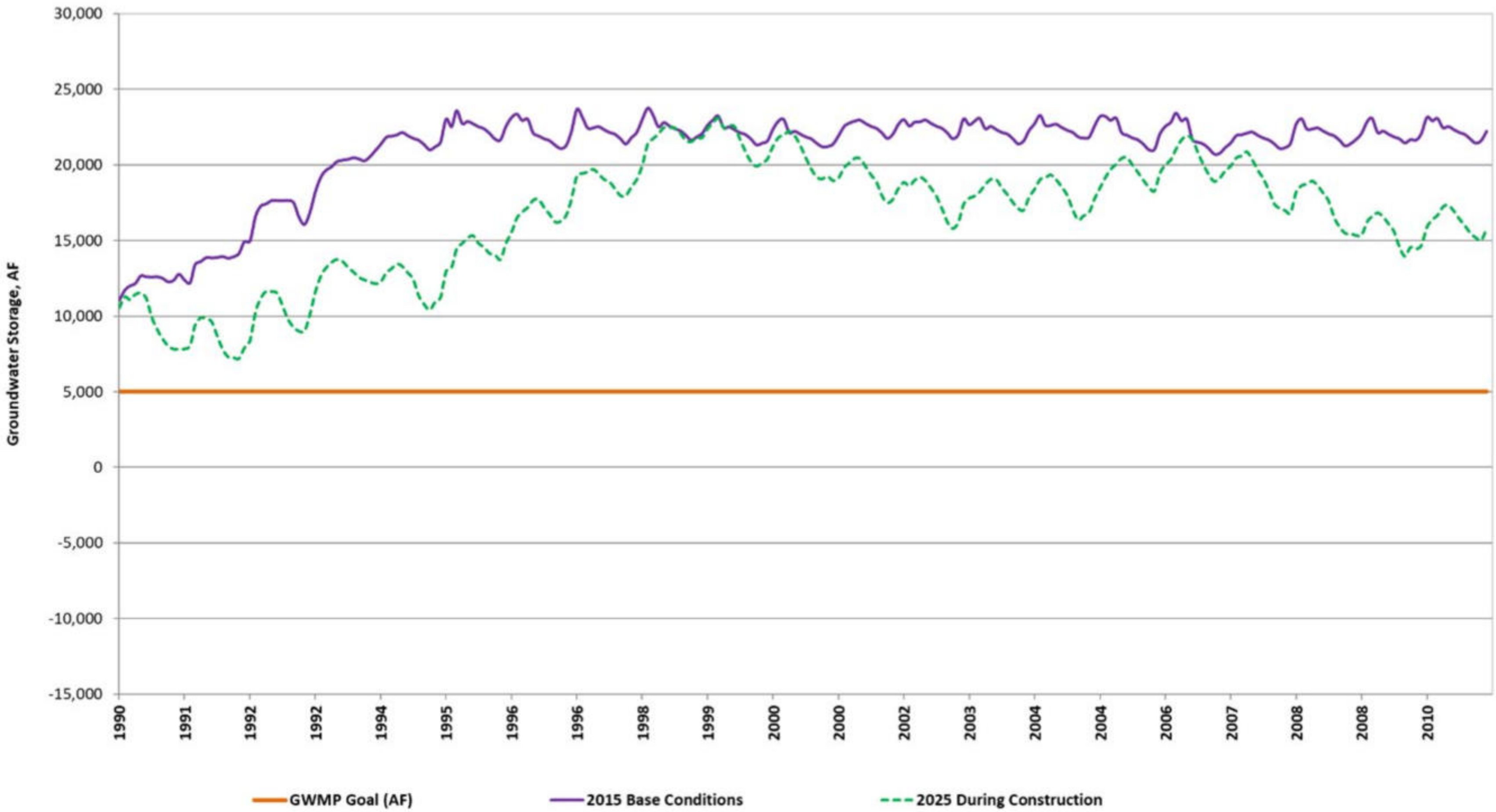
As discussed above, during the Seismic Retrofit component construction, Anderson Reservoir would be almost completely dewatered with refilling of the reservoir likely beginning in Year 6 of construction, but possibly taking multiple years to be completed, depending on hydrologic conditions. As such, the water that is typically stored in the reservoir (over 89,000 AF at full capacity, but just 3,159 AF under baseline, and 52,553 during the Pre-FERC Order period) would be completely unavailable during the Seismic Retrofit component construction period. Normally, prior to the FERC Order taking effect, water in Anderson Reservoir was managed to meet regional water supply goals and maximize recharge. Water from the reservoir could be released directly to Coyote Creek (for recharge purposes, among others) or can be used to supply water directly to the raw water distribution system via the Anderson Force Main and Cross Valley Pipeline.

With respect to Valley Water's overall supplies, the 2020 UWMP accounts for Anderson Reservoir being out of commission until sometime between 2030 and 2035. Therefore, the UWMP, which includes an analysis of the sufficiency of supplies during single-year and multi-year dry periods, accurately reflects the timeline of the Project. As described in Chapter 2, *Project Description,* the Seismic Retrofit component of the Project is estimated to require a 7-year construction duration ~~; thus, assuming a 2025 start date~~, and the reconstructed Anderson Dam would be back online before 2035 ~~in 2032~~. The UWMP projects that Valley Water's supplies would be sufficient in the near term future to meet demands in a short and/or prolonged drought scenario. Again, this accounts for Anderson Reservoir being (almost) completely dewatered and offline for at least the next 9-10 years.

Valley Water would support flows in Coyote Creek throughout the Seismic Retrofit component construction via releases of imported water from the CDL and Cross Valley Pipeline Extension. The CDL discharges immediately downstream of Anderson Dam, while the Cross Valley Pipeline Extension discharges downstream of Ogier Ponds, which are located approximately 4 miles downstream of the dam. Valley Water would continue to release imported water via the Cross Valley Pipeline Extension, if stream flow from Anderson Dam does not reach the Cross Valley Pipeline Extension outfall and a dryback is present downstream. Although the amount of water released from the CDL would depend on a number of factors, the imported water releases, combined with other water sources influencing Coyote Creek flows, would be managed with a target of having a minimum flow of 2.5 cfs at the Edenvale streamflow gage when Coyote Percolation Pond is in operation. The Cross Valley Pipeline Extension is designed to have the capacity to carry 67 ~~50~~ cfs of imported water. Valley Water would cease Cross Valley Pipeline Extension releases when flows exceed 65 cfs at streamflow station 5082 and Coyote Creek at Madrone during the adult upstream migration season (December 1 to April 30), unless there is less than 2.5 cfs at streamflow station 5058, Coyote Creek Edenvale. ~~On average, the facility would deliver about 30 cfs during the dry season and 20 cfs during the wet season to ensure managed recharge in Coyote Creek and the Coyote Percolation Pond~~. Releasing imported water below Ogier Ponds would ensure that more reaches of Coyote Creek would stay wetted, and would support groundwater recharge of Coyote Valley and South San José areas throughout the construction period.

As described in detail in Section 3.12, *Groundwater Resources*, with implementation of the increased imported water releases, WEAP modeling conducted by Valley Water has indicated that no significant impacts would occur to groundwater conditions during the Seismic Retrofit construction period. The During Construction scenario modeled in WEAP shows that some adverse impacts to groundwater (i.e., reduced recharge relative to demands) would occur as a result of the reservoir dewatering and reduced releases during the construction period. However, based on the analysis, which considered hydrologic conditions over a period of 20 years (1990 to 2010), groundwater storage in the Coyote Valley area would remain above 5,000 AF for the entirety of the modeling run (including dry and wet years). **Figure 3.13-3** ~~**Figure 3.13-2**~~ below shows the model results. According to Valley Water's Groundwater Management Plan, the projected end of year groundwater storage outcome measure for the Coyote Valley is 5,000 AF; this outcome measure is the quantifiable goal to track the performance of sustainable groundwater management and is functionally equivalent to a measurable objective under the SGMA. Given that the increased imported water releases that would be implemented during Seismic Retrofit construction would help maintain the Coyote Valley groundwater storage level above the 5,000 AF outcome measure, no significant impacts to groundwater supplies would occur.

Figure 3.13-3 ~~3.13-2~~. Coyote Valley Groundwater Storage During the Seismic Retrofit Construction Scenario



Source: Valley Water 2023b

With respect to the availability of imported water during construction, as indicated in Section 3.13.2, actual allocations of State Water Project and CVP water are based on hydrologic conditions, availability of water supplies after meeting regulations to protect the environment, water quality, and other factors and in dry years can be much lower than contracted values of 100,000 and 152,500 AFY, respectively. In accordance with historical acquisition and use of imported water, adequate imported water would be available to Valley Water during the Seismic Retrofit component construction period to support the increased imported water releases in Coyote Creek. However, if Valley Water's imported water contract supplies are insufficient, Valley Water could attempt to purchase and import water transfer supplies, depending on availability, from other California water rights holders or potentially bring in water stored within Valley Water's share of the Semitropic Groundwater Bank located in Kern County (Valley Water 2023b).

In the unlikely event that Valley Water's regional water supplies run low relative to demands during the Seismic Retrofit component construction period, potentially exacerbated by the unavailability of Anderson Reservoir (Valley Water's largest surface water storage facility), Valley Water would have the ability to issue water use restrictions in accordance with the WSCP. Under Stage 5 (Emergency) water shortage conditions, as indicated by projected end-of-year groundwater storage, Valley Water would request the public and retailers reduce water use by greater than 40 percent (Valley Water 2021a). During less severe water shortage conditions, the requested water reductions would be more limited. Implementation of the WSCP would reduce potential for severe water supply shortages during Seismic Retrofit component construction that could be exacerbated by Anderson Reservoir being offline.

Based on the above analysis, the reduced water supplies during the Seismic Retrofit component construction period due to the reservoir dewatering would not result in substantial water supply impacts. Specifically, the reservoir dewatering effects would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years. Therefore, impacts would be less than significant.

Water Needs During Construction

As described in Chapter 2, *Project Description,* up to 1 cfs of water from the Anderson Reservoir deadpool would be used for construction activities during Year 1, including for dust control and wetting of stockpiled materials. For most of the construction period, this water would be obtained by pumping from upstream of the cofferdam. Water during Year 7, and a backup sources of water for Years 1 through 6 would be obtained from the CDL and Main Avenue Pipeline. This translates to approximately 646,320 gallons per day or roughly up to 2 AF per day. Given that Anderson Reservoir would continue to receive inflow from tributaries and Coyote Creek, regulated by releases from Coyote Reservoir, during the construction period, the water that would accumulate behind the cofferdam (up to approximately 500 AF) would be sufficient to supply construction water demands. As described in Chapter 2 (refer to **Table 2-1**), Valley Water would maintain normal operation of Coyote Reservoir throughout the Seismic Retrofit component construction period. This would include the goal of maintaining a minimum streamflow of 3 to 5 cfs at Gage SF12 ~~SF5012~~/USGS station 11169860 (downstream of Coyote Reservoir) through releases from Coyote Reservoir in the spring and summer (when supply is available).

As such, Anderson Reservoir would receive sufficient inflow during the Seismic Retrofit component construction period that would meet the construction water demands. In the event that water is not available from within the reservoir's deadpool, imported water via the CDL could supply the construction effort. As a result, water supply impacts would be less than significant.

Water Quality-Related Effects

As discussed in detail in Section 3.14, *Water Quality* (also refer to Section 3.11, *Hydrology*) construction activities would adversely impact water quality, both within the reservoir and in Coyote Creek. This could include discharge of substantial volumes of sediment from the reservoir, in particular following storms, since the exposed lake sediments would be susceptible to erosion and the runoff water high in suspended sediments would then be discharged to Coyote Creek. This impact is significant and unavoidable from a water quality perspective, since there is no feasible mitigation (short of substantial dredging of accumulated sediments prior to construction, which is considered as an alternative; refer to Chapter 5, *Alternatives*) available to reduce the erosion potential.

Moreover, discharges of sediment and other pollutants could occur during Seismic Retrofit component construction activities due to ground disturbance with heavy construction equipment, runoff from disturbed construction work areas (that are susceptible to erosion), and accidental releases of hazardous materials (e.g., fuel, oil, lubricant, etc. contained in construction equipment). However, implementation of the SWPPP <u>for construction activities outside the reservoir</u> in accordance with the Construction General Permit, as well as applicable Valley Water BMPs and VHP conditions and AMMs, would reduce these water quality impacts to a level that is less than significant. Valley Water BMPs WQ-1, WQ-4, WQ-5, WQ-9, WQ-11, WQ-15, WQ-16, GEN-1, GEN-20, GEN-21, GEN-26, GEN-30, GEN-31, GEN-32, GEN-35, VEG-1, HM-1, HM-2, HM-4, HM-5, HM-6, ~~HM-7~~, HM-8, HM-9, and HM-10, as well as VHP Conditions 3, 4, 5, 7, 11, and 12, and VHP AMMs 2, 7, 8, 9, 11, 12, 66, 67, 68, 72, 75, 76, 84, 87, 88, 97, and 100, would help to limit impacts. Refer to Section 3.14, *Water Quality*, for detailed discussion of these effects.

The adverse water quality effects during the Seismic Retrofit component construction period, in particular those effects that cannot be mitigated (sediment discharges to Coyote Creek associated with reservoir releases), could theoretically impact water supply. For example, the elevated suspended sediment concentrations can make some water unsuitable for various water supply applications (e.g., municipal, domestic, irrigation, etc.). With respect to indirect water supply impacts (e.g., groundwater recharge and subsequent pumping/use), the elevated suspended sediments caused by the Seismic Retrofit component construction would not adversely impact groundwater quality. The suspended sediment would settle out or otherwise adhere to the existing soils and would not percolate to the groundwater aquifer. The measures and BMPs listed above would prevent other pollutants from contaminating the groundwater supply as a result of discharges from the reservoir or construction work areas during the Seismic Retrofit component construction period.

A portion of the sediment suspended and washed out of the reservoir during construction would settle in the Coyote Percolation Pond, which is used to recharge groundwater. As discussed in Section 3.11, *Hydrology*, modeling indicates that up to 0.5 inches of sediment could be deposited in Metcalf Ponds (which include the Coyote Percolation Pond) following a single storm event (5-year event). This is considerably less than is projected to be deposited in Ogier Ponds (which would be disconnected from Coyote Creek as part of the Project and is not considered a recharge facility), but nevertheless, the deposition of fine sediment in the Coyote Percolation Pond could inhibit groundwater recharge if no corrective actions are taken. Monitoring and adaptive management would prevent water supply from being impacted by sediment settling in the percolation pond. This recharge pond already undergoes maintenance including surface discing, vegetation management, and limited sediment removal when necessary as part of an existing Valley Water maintenance program.

Based on the above analysis, water quality-related effects would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years. Therefore, impacts would be less than significant.

Significance Conclusion Summary

In summary, Valley Water's overall water supplies would be sufficient to meet demands during the Seismic Retrofit component construction period. Seismic Retrofit construction would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources, and this impact would be less than significant.

Conservation Measures Construction

For the reasons discussed above, Valley Water's overall water supplies would be sufficient to meet demands, even accounting for Anderson Reservoir being offline during the Seismic Retrofit component construction period. Construction of the Conservation Measures component would generally not exacerbate any of the effects discussed above with respect to the Seismic Retrofit construction. Several of the Conservation Measures would require localized dewatering of Coyote Creek. Flows would be routed around the work areas, and effects on flows would not be substantial. For example, construction of the Ogier Ponds CM would involve dewatering of a portion of the existing ponds and construction of a creek bypass system to facilitate maintenance of flows throughout construction activities for the new realigned creek channel segment. However, Ogier Ponds do not provide water supply and, therefore, no adverse effects to water supply would occur. Construction of the Phase 2 Coyote Percolation Dam CM may temporarily reduce the use of the percolation pond for recharge purposes, and thus limit the amount of groundwater recharge during the construction period for this Conservation Measure (the measure would be constructed during Years 1 ~~4~~ and 2 ~~5~~). However, these effects would be minor and would not substantially impact Valley Water's ability to meet water demands.

Implementation of the same measures (SWPPP, Valley Water BMPs, and VHP conditions and AMMs) listed above for the Seismic Retrofit component construction would limit the adverse water quality effects from Conservation Measure construction. As such, the construction process would not cause pollution of surface water or groundwater that could thereby limit its suitability for water supply. Therefore, construction of Conservation Measures would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years. The water supply impact would be less than significant.

Construction Monitoring

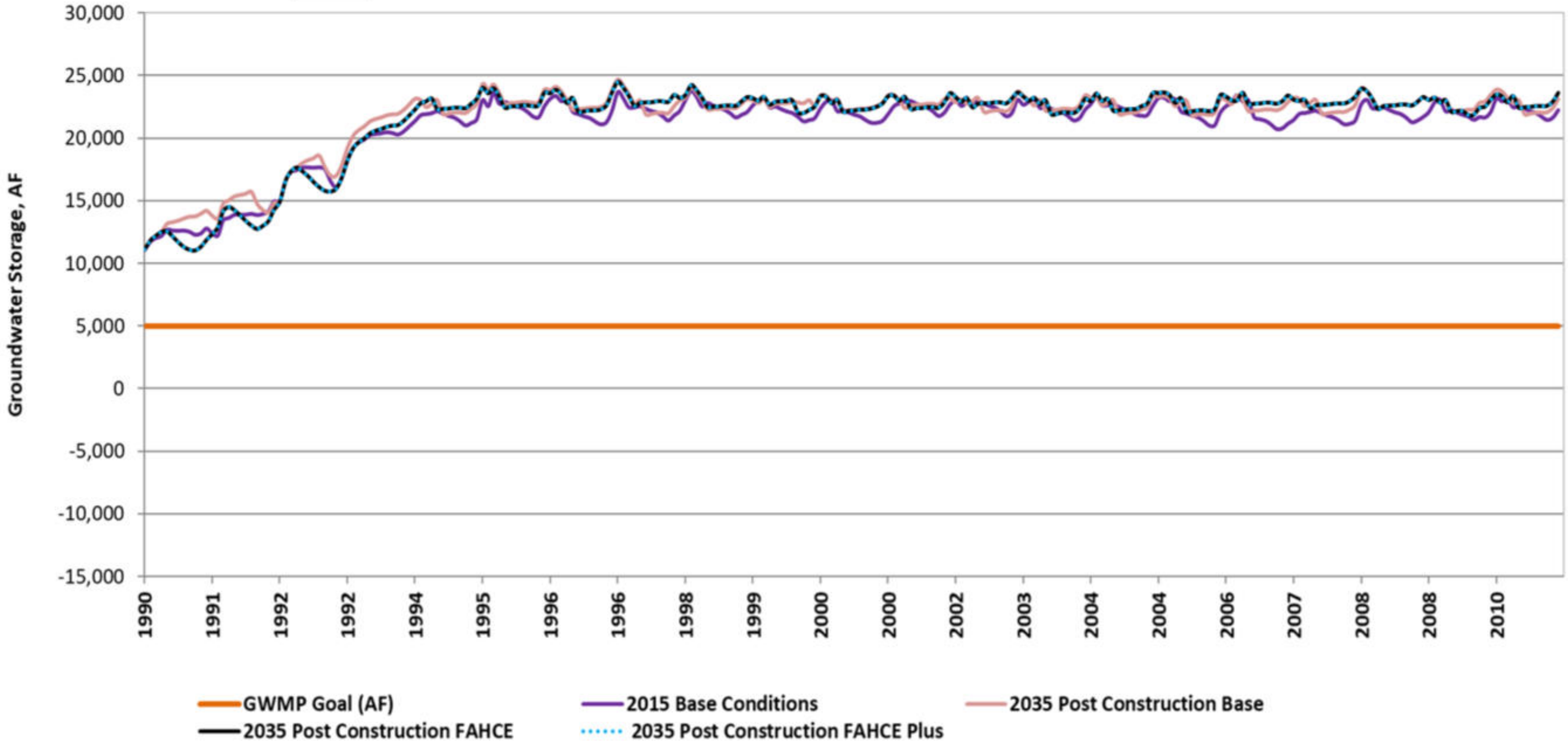
Construction monitoring for water quality, fisheries monitoring and fish rescue, aquatic species rescue and relocation, invasive species monitoring and control, and other monitoring efforts would have little impact on water supplies. Construction monitoring activities would be limited to field personnel traveling to monitoring sites, taking samples, and installing minor equipment within or adjacent to the Coyote Creek channel. Therefore, these activities would not involve substantial water use or activities that could result in substantial contamination of surface water or groundwater. As a result, the construction monitoring activities would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years. Impacts would be less than significant.

Post-Construction Anderson Dam Facilities Operations and Maintenance

Once Project construction has been completed, releases from the dam would be made in accordance with the FAHCE operating rule curves. As discussed above, Valley Water's projections in the UWMP indicate that supplies would be sufficient to meet demands into the future, even in single and multiple year dry periods. Starting in 2035, the projections assume that Anderson Reservoir would be back online, which greatly boosts the total available supplies. Although the FAHCE operating rules would allow for greater releases for fish passage and habitat enhancement, the pulse flows are subject to storage criteria which would be protective of dry season storage. This would limit any adverse effects on water supply that could be created by releasing additional water for fish passage purposes.

With respect to groundwater, the post-construction WEAP model run conducted by Valley Water includes scenarios for the 2035 Post Construction Base and 2035 Post Construction FAHCE rule curves. Based on the WEAP monthly model results, no adverse groundwater impacts would occur in the post-construction scenarios. The FAHCE scenario remains consistent with the 2015 Base Condition and 2035 Post Construction Base scenarios. In other words, groundwater recharge and storage in the post-construction period with implementation of FAHCE would not differ substantially from the Pre-FERC Order Conditions Baseline. Likewise, it would not differ markedly from the future conditions baseline. **Figure 3.13-4** ~~**Figure 3.13-3**~~below shows the model results. These model results also show the post-construction scenarios to be above the 5,000 AF outcome measure for Coyote Valley, which is an indicator of sustainability as identified in the Groundwater Management Plan.

Figure 3.13-4 ~~3.13-3~~. Coyote Valley Groundwater Storage During Post-Construction Operations



Source: Valley Water 2023b

Anderson Dam facilities maintenance would include a wide range of activities (e.g., repair or replacement of component parts), as described in Chapter 2, *Project Description.* Generally, none of these activities would use or require large quantities of water. While some localized dewatering could be required to conduct certain maintenance activities, the dewatering would not affect the entirety of Anderson Reservoir for multiple years (as would be required for Seismic Retrofit component construction); thus, any effects on water supply would be much more limited. Certain maintenance activities would involve use of hazardous materials and thus could impact water quality (and consequently, water supply); however, as described in Section 3.13.3.4, Anderson Dam facilities maintenance would be conducted in accordance with the existing DMP and SMP. These programs include BMPs and avoidance and minimization measures that would minimize impacts to water quality and water supply. Thus, post-construction Anderson Dam facilities operations and maintenance would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years. Therefore, impacts on waters supplies would be less than significant.

Post-Construction Conservation Measures Operation and Maintenance

Operation and maintenance of the Conservation Measures would not negatively impact water supplies. The Ogier Ponds site is not suitable for groundwater recharge due to limited storage capacity in the vadose zone (Valley Water 2018), so separating Coyote Creek flows from the ponds would not be likely to substantially decrease groundwater infiltration in the area. Operation of the Ogier Ponds CM also would not require substantial water use and would not otherwise adversely affect water supplies. Maintenance activities, such as vegetation management, repair of components (e.g., berms, spillways, fish screens, in-channel bio-engineered habitat enhancements, rock slope protection, and stormwater outfalls), trash removal, inspection and graffiti abatement at floodwalls, access road inspections, and road maintenance, would be conducted in accordance with the Valley Water SMP. This would require implementation of BMPs and avoidance and minimization measures that would be protective of water quality (and thus, water supply).

~~The~~ Maintenance of the North Channel Reach ~~Extension~~ would require minimal operations; like the rest of the Conservation Measures, it would operate unattended and would not consume water in its operation. As described in Chapter 2, *Project Description,* during the post-construction period, Valley Water would maintain ~~monitor~~ the North Channel, including maintaining the constructed wetland bench, maintaining design flow capacity through the North Channel, and replacing restoration plantings, as needed ~~to verify that the channel is maintaining a positive draining channel, and that debris was not accumulating within the channel~~. ~~Maintenance activities that may be required based on inspections/monitoring would include debris and/or vegetation removal, regrading, and localized dewatering (to allow for the regrading).~~ These activities would not substantially affect water supply and would be implemented in accordance with the SMP. Thus, implementation of BMPs and avoidance and minimization measures would prevent substantial effects on water quality from occurring (thus, protecting water supply).

With respect to spawning gravel and the Sediment Augmentation Program, Valley Water would inspect sediment augmentation sites following large flow events to determine if maintenance is required. Maintenance may include placing spawning gravels or sediments within Coyote Creek between Anderson Dam and Ogier Ponds, as well as potentially excavating sediments that have filled or blocked culverts using hand tools or heavy equipment, as determined based on the inspections. Additionally, sediment that has collected in the Coyote Percolation Pond may be excavated using an excavator when the water is drawn down or dewatered. These activities would not substantially affect water supply, as they would not require substantial quantities of water. Since the activities would be conducted in accordance with Valley Water's SMP, it would require implementation of BMPs and avoidance and minimization measures that would minimize impacts on water quality (and thus, water supply). As noted above, the excavation of fine sediment from the Coyote Percolation Pond would improve groundwater recharge operations. In terms of the long-term effects of sediment augmentation activities in other areas of Coyote Creek, given the size, porosity, and permeability of the materials, the addition of supplemental gravel and cobble to creek reaches below the dam would not decrease groundwater infiltration in those reaches. Thus, adverse impacts on water supply would not occur.

Following construction of the Phase 2 Coyote Percolation Dam CM, operation of the Coyote Percolation Pond would not change, and would provide conditions for similar levels of groundwater recharge. Maintenance activities would include the periodic removal of sediment deposited in the roughened channel when it could compromise the channel's conveyance capacity, result in geomorphic instability, or be detrimental to the quality of aquatic habitat (refer to Chapter 2, *Project Description*). This work would be done using hand tools or heavy equipment. Vegetation management would also be required, as well as repair or replacement of roughness elements and in-channel bio-engineered habitat enhancements. These activities would not substantially affect water supply. As explained above for other Conservation Measures, the maintenance activities would be performed in accordance with Valley Water's SMP, which includes BMPs and avoidance and minimization measures to reduce water quality effects (and consequent impacts on water supply).

Altogether, post-construction Conservation Measures operations and maintenance would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years. Therefore, water supply impacts would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

Adaptive management measures may refine Anderson Dam flow releases, and augment Conservation Measures when they are not functioning as intended or not meeting measurable objectives. Refinements would likely have impacts similar to those discussed for Conservation Measure construction and post-construction operations of Anderson Dam. The AMP activities would not reasonably include substantial dewatering of Anderson Reservoir or actions that would substantially inhibit or adversely affect groundwater recharge operations. Additionally, the F AMP activities would not require substantial quantities or water. While it is possible that AMP activities could involve heavy equipment operation and use of hazardous materials, which could create an opportunity for water contamination (e.g., accidental releases of such materials) (thus affecting water supply), these impacts could likely be avoided or minimized through implementation of BMPs.

The post-construction adaptive management measures would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years. At this programmatic level of analysis, impacts are considered to be less than significant.

Significance Conclusion Summary

Implementation of the Project would allow Valley Water to bring a restricted water storage facility back to its historic capacity. Prior to 2009, when restricted capacities were implemented, Anderson Reservoir had been managed to meet regional water supply goals and maximize groundwater recharge utilizing its full capacity. The primary purpose of this Project ~~project~~ is to seismically retrofit, maintain, and operate Anderson Dam and Reservoir to meet FERC and DSOD safety requirements, thereby allowing Valley Water to maximize water supply and related incidental benefits.

Modeling results indicate that there may be a reduction in groundwater recharge/storage downstream of the dam during construction, but that simulated groundwater storage would remain above the 5,000 AF outcome measure for Coyote Valley. With the increased imported water releases, WEAP modeling has indicated that no significant impacts would occur to groundwater conditions during the Seismic Retrofit construction period. The UWMP, which accounts for Anderson Dam being offline during the Seismic Retrofit component construction period, found that Valley Water's supplies would be sufficient to meet demands in single and multiple dry year scenarios. Project components other than Seismic Retrofit construction would not have substantial impacts on water supplies. Therefore, the Project would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources, and this impact would be **less than significant**.

With adherence to the SWPPP for out-of-reservoir construction activities and applicable Valley Water BMPs and VHP conditions and AMMs, water quality-related effects would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years. Therefore, impacts would be **less than significant**. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce water quality impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Mitigation Measures

No mitigation is required.

Impact WS-2: Require or result in the relocation or construction of new or expanded water facilities, the construction of which could cause significant environmental effects (Less than Significant with Mitigation)

Seismic Retrofit Construction

As discussed above and in Chapter 2, *Project Description*, in efforts to make Anderson Dam seismically safe, compliant with safety standards, and restore historic capacities, implementation of the Project includes the construction of various water facilities, such as connections to the Anderson Force Main and Main Avenue Pipelines, as well as a temporary cofferdam above Anderson Reservoir. Specifically, the following water supply facilities would be relocated, newly constructed, or expanded as part of the Seismic Retrofit component:

- Anderson Dam embankment, crest, spillway, and outlet works (LLOW and HLOW)
- Stage 2 Diversion System (including cofferdam, extension pipe, and screened intake structure)
- Connections to the existing Anderson Force Main and Main Avenue Pipelines, involving construction of a combined total of 575 feet of new pipeline

The existing hydroelectric facility at Anderson Dam would also be decommissioned, but this would not be considered an expansion or new construction. Although the Stage 2 Diversion System would be constructed as part of the Seismic Retrofit construction process, and would be utilized to facilitate the dam reconstruction activities, it would be decommissioned during Year 6 of construction. As discussed in Chapter 2, *Project Description*, the Project would not expand the capacity of Anderson Reservoir, although the dam would be constructed slightly higher to allow for additional freeboard. The LLOW and HLOW could be considered new, although they are an addition to an existing water supply facility (i.e., Anderson Dam). These new or expanded water facilities are part of the Project, and the impacts related to the construction of each facility are evaluated throughout this DEIR.

As discussed in Impact WS-1 above, in order to construct the Project, up to 1 cfs of water would be necessary. This water would be obtained from the reservoir deadpool. Water would be used for dust control and wetting of stockpiled materials. The construction water demands for the Seismic Retrofit component construction process would be met using existing sources and, thus, no new or expanded water facilities would be needed to supply the construction effort.

With respect to the groundwater impacts of Seismic Retrofit construction (e.g., reduced flows from the dewatered reservoir to support groundwater recharge in Coyote Creek), the modeling conducted by Valley Water (see discussion in Impact WS-1) indicates that no substantial impacts to the groundwater basin would occur during the construction period. With implementation of the increased imported water releases via the CDL and Cross Valley Pipeline Extension, storage in the Coyote Valley area would not drop below the 5,000 AF end-of-year outcome measure. Thus, its groundwater levels (i.e., elevations) would not drop below the normal range. As such, existing wells along Coyote Creek (including those owned and operated by the City of Morgan Hill) would largely not be affected, and there would be no need to construct new or expanded groundwater facilities as a result of the Seismic Retrofit component construction impacts.

The City of Morgan Hill operates 16 municipal groundwater wells throughout the city, including three along Coyote Creek immediately downstream of Anderson Dam at the William F. James Boys Ranch (City of Morgan Hill 2021). The City of Morgan Hill's wells draw water from the Coyote Valley groundwater management area and/or the Llagas Subbasin (City of Morgan Hill 2021); thus, based on the model results shown in **Figure 3.13-3** ~~Figure 3.13-2~~ and the more detailed analysis provided in Section 3.12, *Groundwater Resources*, these wells should not be substantially adversely affected. The groundwater levels for the Coyote Valley would remain above the 5,000 AF outcome measure, while Llagas Subbasin would not be substantially affected by the Seismic Retrofit construction process. Thus, there would be no need for the City of Morgan Hill to construct new or expanded groundwater wells as a result of the Seismic Retrofit component construction.

As discussed in Section 3.12, *Groundwater Resources*, there is potential for small private wells located along the rim of Anderson Reservoir (outside of the managed Coyote Valley aquifer boundary) to be significantly adversely affected by the prolonged dewatering of the reservoir, as this could affect the lateral movement of groundwater and the hydraulic head in the area (potentially affecting the productivity of the wells). However, with implementation of **Mitigation Measure GW-1** (Provide Alternative Water Supplies), which will require provision of alternative water supplies to any individual(s) whose well(s) have run dry or been rendered unproductive as a result of the reservoir dewatering, these effects will not be significant and no new or expanded wells will be constructed as a result of Seismic Retrofit component construction. Given that such alternative water supplies would be provided, as needed, small private well owners would not need to drill new wells or deepen existing wells to address the reduced productivity of their existing wells that could occur due to the reservoir dewatering effects.

Additionally, as detailed in Section 3.12, *Groundwater Resources*, **Mitigation Measure GW-2** (Perchlorate Best Management Practices) will be implemented to avoid or minimize impacts on groundwater wells in the vicinity of Anderson Dam from blasting activities. Blasting would be utilized during Seismic Retrofit component construction at the BHBA, as excavation of the BHBA would require drilling and blasting in benches to break up the rock for efficient excavation. The BHBA is located adjacent to the Anderson Lake County Park boat ramp parking lot; ~~comparing this location to **Figure 3.12-6** shows that~~ there are several water supply wells in relative proximity (the closest being approximately 1,500 feet away) to the BHBA, primarily to the south along Cochrane Road and Barnard Road. There is some potential for blasting activities to result in contamination of groundwater, such as through incomplete combustion of detonators and explosives (New Hampshire Department of Environmental Services 2010); refer to Section 3.12, *Groundwater Resources*, for detailed discussion. If such contamination were to occur as a result of Seismic Retrofit component construction activities, it could result in the need to construct new or expanded water facilities (i.e., wells), which could then result in environmental impacts. However, given implementation of **Mitigation Measure GW-2**, which will require implementation of BMPs for blasting to prevent contamination of groundwater, these effects will not be significant and no new or expanded wells/water facilities will be needed.

Apart from the blasting impacts (which would be minimized via **Mitigation Measure GW-2**), no other Seismic Retrofit component construction activities will result in nitrate contamination (e.g., exacerbation of any existing nitrate problems) or other types of groundwater contamination. Nitrates can get into groundwater from many sources, including fertilizers, manure on the land, and liquid waste discharged from septic tanks (Washington State Department of Ecology 2023). Natural bacteria in soil converts various forms of nitrogen into nitrate, and rain and irrigation can carry nitrate down through the soil into groundwater (Washington State Department of Ecology 2023). As described in Section 3.12, *Groundwater Resources*, groundwater in the Santa Clara Subbasin is generally of very good quality, with infrequent detections of water quality parameters above health-based MCLs (Valley Water 2021c ~~2021~~). Groundwater in the Llagas Subbasin is also generally of good quality. However, nitrate has been found above the MCL in a number of South County water supply wells (23 percent of wells sampled during a 2019 study) (Valley Water 2020b ~~2020~~). The Seismic Retrofit construction process would not involve the use of fertilizers, application of manure, installation of septic tanks, or other activities that could contribute to nitrate contamination of groundwater. Therefore, no other water quality impacts on any existing nearby wells that might require new or expanded wells/water facilities would occur.

With respect to impacts on irrigation water availability during Seismic Retrofit construction, the water sources available to residents in the vicinity of the dam would not be adversely affected. As discussed in Impact WS-1, given increased imported water releases, Seismic Retrofit component construction would not substantially affect the Coyote Valley groundwater management area of the Santa Clara Subbasin. Thus, the water supplies of entities reliant upon groundwater wells in the area (e.g., City of Morgan Hill) should not be substantially affected. For individuals along Coyote Road that may obtain water from private wells, implementation of **Mitigation Measure GW-1** will require that water supplies for such individuals are not disrupted, even if their wells may experience reduced productivity during the construction period. Refer to Section 3.12, *Groundwater Resources*, for more detailed discussion of this issue. As such, water facility impacts related to Cochrane Road vicinity private wells would be less than significant with mitigation.

As such, no new or expanded water facilities would need to be constructed as a result of the Seismic Retrofit construction, apart from the facilities that are part of the Project; impacts of constructing Project water facilities are evaluated throughout the remainder of this EIR. With respect to the impacts related to non-Project water facilities, for the reasons discussed above, the water facility impact is less than significant with mitigation because there would be no construction of new or expanded non-Project water facilities that could cause significant impacts.

Conservation Measures Construction ~~Impacts Analysis~~

Similar to the Seismic Retrofit component, none of the Conservation Measures would require or result in the relocation or construction of new or expanded water facilities, the construction of which could cause significant environmental effects. None of the Conservation Measures would include new habitable development, which may require water supplies; rather, the Conservation Measures would be limited to improvements to portions of Coyote Creek, which generally would not be considered water facilities.

The Ogier Ponds CM would include various infrastructure to manage flows between ponds and to separate flows from the floodplain (e.g., spillways, culverts, berms, weirs, etc.); however, since Ogier Ponds do not provide water supply and are not suitable for groundwater recharge, this infrastructure would not serve any purpose related to water supply. Maintenance of the North Channel Reach ~~Extension~~, Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach, Sediment Augmentation Program, and Phase 2 Coyote Percolation Dam CM would be limited to modifications and improvements to the Coyote Creek channel itself (e.g., grading of the channel to remove existing deep pools, augmenting gravel/sediment at key locations, creating roughened channel characteristics with bio-engineered elements, etc.), and would not include any new or expanded water supply facilities.

Water demands for construction of the Conservation Measures would be relatively minimal and could be obtained through existing sources/facilities. Therefore, the construction water demands for Conservation Measures would not require or result in the need for new or expanded water facilities.

Several of the Conservation Measures (i.e., Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Phase 2 Coyote Percolation Dam CM) would involve localized dewatering; however, as described in Section 3.12, *Groundwater Resources*, this dewatering would not substantially affect regional groundwater supplies (e.g., by reducing recharge) and would not require or result in the construction of new or expanded water facilities, such as groundwater wells. Temporary dewatering wells may be installed during construction of these Conservation Measures (i.e., Ogier Ponds CM, ~~North Channel Extension~~, and Phase 2 Coyote Percolation Dam CM) to manage nuisance groundwater within the dewatered reaches where construction activities would occur; the environmental impacts of these temporary dewatering wells are evaluated throughout this Final ~~DEIR~~ EIR.

Overall, construction of Conservation Measures would not require or result in the relocation or construction of new or expanded water facilities, the construction of which could cause significant environmental impacts. Therefore, water facility impacts would be less than significant.

Construction Monitoring

Construction monitoring for water quality, fisheries monitoring and fish rescue, aquatic species rescue and relocation, invasive species monitoring and control, and other monitoring efforts would have no impact on the need for new or expanded water facilities. As noted above, the construction monitoring activities would be limited to individual field personnel visiting monitoring sites, taking samples, and installing minor equipment within or adjacent to the stream channel. The activities would not require or consume water and no dewatering or other activities would be required that could impact water supply. Therefore, no impact would occur.

Post-Construction Anderson Dam Facilities Operations and Maintenance

The Project would allow Valley Water to use an existing water storage facility to its historic capacity. No new water is being requested as part of the Project, and the Project would not expand the storage capacity of the reservoir. Implementation of the FAHCE flow regime would not require additional water supply, nor would it require any additional water facilities not included in the Project. No aspect of the Project would create additional water demand over the long-term such as to require the construction of new or expanded water facilities.

While dam maintenance activities may require small amounts of water, these water demands could be served through existing, readily available sources. Thus, no new or expanded water facilities would be required. Based on the above analysis, the impact from dam facility operation and maintenance would be less than significant.

Post-Construction Conservation Measures Operation and Maintenance

As discussed above in Impact WS-1, the Conservation Measures (Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach, Sediment Augmentation Program, and Phase 2 Coyote Percolation Dam CM) would operate unattended and would not consume water in their operation. None of these Conservation Measures would serve a water supply purpose (although the Phase 2 Coyote Percolation Dam CM would improve fish passage at an existing water supply facility), nor would they involve habitable development that would create a need for water supply. Thus, the operation of the Conservation Measures would not require or result in the relocation or construction of new or expanded water supply facilities, the construction of which could result in significant environmental impacts, and the water facility impact would be less than significant.

Maintenance activities for the Conservation Measures are described above under Impact WS-1, as well as in Chapter 2, *Project Description*; generally, the activities would be limited to vegetation management/debris removal, periodic sediment removal, regrading, localized dewatering, and related actions that would not substantially affect water supply nor require or result in the need to relocate or construct new or expanded water facilities. Any water supply needed during maintenance activities could be met through existing sources. Therefore, water facility impacts would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

Adaptive management measures may refine Anderson Dam flow releases, and augment Conservation Measures when they are not functioning as intended or not meeting measurable objectives. The AMP activities would not reasonably include substantial dewatering of Anderson Reservoir or actions that would substantially inhibit or adversely affect groundwater recharge operations. Additionally, the FAHCE AMP activities would not require substantial quantities or water. As such, the AMP would not require or result in the relocation or construction of new or expanded, the construction of which could cause significant environmental impacts. Therefore, at this programmatic level of analysis, impacts are considered to be less than significant.

Significance Conclusion Summary

The Project itself would include a number of new or expanded water supply facilities, although the proposed modifications modify an existing facility (Anderson Dam) for the purpose of safety and seismic stability. The reservoir capacity would not be expanded. The effects of the Project's water facilities are evaluated throughout the remainder of the EIR, and are thus not repeated here. Although the Seismic Retrofit component construction could adversely affect groundwater recharge/storage to some degree, the effects would not be significant with implementation of increased imported water releases, and no new or expanded well facilities would be constructed as a result.

There is potential for small private wells located along the rim of Anderson Reservoir (outside of the managed Coyote Valley aquifer boundary) to be significantly adversely affected by the prolonged dewatering of the reservoir, as this could affect the lateral movement of groundwater and the hydraulic head in the area (potentially affecting the productivity of the wells). No new or expanded private wells (located along the rim of the reservoir) would be constructed due to water table effects associated with the reservoir remaining in a dewatered state during the construction period, given implementation of **Mitigation Measure GW-1**. Additionally, given implementation of **Mitigation Measure GW-2**, any impacts on groundwater quality from blasting activities will be avoided or minimized, such that new or expanded wells would not need to be constructed. The construction water demands can be met with existing sources and no new or expanded facilities would be needed. Similarly, Project components other than Seismic Retrofit construction would not require new or expanded water facilities. Therefore, the water facility impact would be **less than significant with mitigation.**

Mitigation Measures

GW-1 Provide Alternative Water Supplies

GW-2 Perchlorate Best Management Practices.

3.13.5 Cumulative Impacts

The geographic study area for the cumulative impact analysis for Water Supply is Santa Clara County.

This section describes the Project's contribution to cumulative water supply impacts, as summarized in **Table 3.13-3**.

Table 3.13-3. Summary of Project Impact Contribution to Cumulative Water Supply Impacts

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact WS-1: Substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years	No	No	NCC	None	No
Cumulative Impact WS-2: Require or result in the relocation or construction of new or expanded water facilities, the construction of which could cause significant environmental effects	Yes	No	CC	MM GW-1 MM GW-2	No

***Cumulative Impact WS-1: Substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years* (Not Cumulatively Considerable)**

During the Seismic Retrofit component construction, Anderson Reservoir would be almost completely dewatered which would limit supplies available for groundwater recharge and water supply. Once Project construction has been completed, releases from the dam would be made in accordance with the FAHCE operating rule curves. As discussed above, Valley Water's projections in the UWMP indicate that supplies would be sufficient to meet demands into the future, even in single and multiple year dry periods.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction, restoration, or operation would affect Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years.

Cumulative Effects of Project with the FOCP

The FOCP lowered the storage behind Anderson Reservoir to deadpool, which reduces available local supplies to be released by the reservoir for groundwater recharge in Coyote Creek and the Coyote Percolation Pond. However, the FOCP also includes the Cross Valley Pipeline Extension and chillers at Anderson Reservoir that increase the flexibility in using imported water for groundwater recharge.

The FOCP with the Project extends the period that local supplies would be reduced. However, modeling conducted by Valley Water has indicated that no significant impacts would occur to groundwater and water supply conditions during the Seismic Retrofit construction period. The modeled During Construction scenario shows that some adverse impacts to groundwater (i.e., reduced recharge relative to demands) would occur as a result of the reservoir dewatering and reduced releases during the construction period. However, based on the analysis, which considered hydrologic conditions over a period of 20 years (1990 to 2010), groundwater storage in the Coyote Valley area (the most sensitive area regarding water supply) would remain above 5,000 AF for the entirety of the modeling run. If Valley Water's regional water supplies run low relative to demands during the Seismic Retrofit component construction period, potentially exacerbated by the unavailability of Anderson Reservoir (Valley Water's largest surface water storage facility), Valley Water could issue water use restrictions in accordance with the WSCP.

Implementation of the Project would allow Valley Water to bring a restricted water storage facility back to its historic capacity. Prior to 2009, when restricted capacities were implemented, Anderson Reservoir had been managed to meet regional water supply goals and maximize groundwater recharge utilizing its full capacity. The primary purpose of the Project is to seismically retrofit, maintain, and operate Anderson Dam and Reservoir to meet FERC and DSOD safety requirements, thereby allowing Valley Water to maximize water supply and related incidental benefits.

The impact of the Project with the FOCP on water supplies is not cumulatively significant.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Other projects that could impact water supplies in Santa Clara County include development projects throughout the County. New development in the County typically increases the demand for groundwater, although new development is subject to building code requirements that minimize water demand with water efficient water fixtures and landscaping. Valley Water's overall water supplies to meet future demands during normal, single-year, and multi-year dry periods are analyzed in the 2020 UWMP. The UWMP finds that Valley Water will have sufficient supplies to meet future demand in all year types. The UWMP accounts for new development throughout the County, and Anderson Reservoir being out of commission until sometime between 2030 and 2035, therefore the UWMP accurately reflects the cumulative nature of new development on water supply and the timeline of the Project.

Long-term, the Project would restore storage at Anderson Reservoir, which would support the availability of water in normal, dry, and multiple dry years. In addition, potential future projects in Table 3.01-2 include other reservoir retrofits (at Calero, Almaden, and Guadalupe Reservoirs), all of which would restore available water storage in the County; Pacheco Reservoir Expansion Project and B.F. Sisk Dam Raise and Reservoir Expansion, which would provide new storage for Valley Water; Silicon Valley Purified Water Project, Valley Water Additional Conservation and Stormwater Projects and Programs, and the Countywide Water Reuse Master Plan that would provide new water sources.

The impact of the Project combined with other projects to the availability of water supplies is not cumulatively significant.

Significance Conclusion Summary

Modeling results indicate that there may be a reduction in groundwater recharge and storage downstream of the dam during construction, but that simulated groundwater storage would remain above the 5,000 AF outcome measure for Coyote Valley. With the increased imported water releases, WEAP modeling has indicated that no significant impacts would occur to groundwater conditions during the Seismic Retrofit construction period. The UWMP, which accounts for Anderson Dam being offline during the Seismic Retrofit component construction period and new growth throughout the County, found that Valley Water's supplies would be sufficient to meet demands in single and multiple dry year scenarios. The Project's impact to water supply with the FOCP and other probable future projects are not cumulatively significant, and the Project's contribution is **not cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Cumulative Impact WS-2: Require or result in the relocation or construction of new or expanded water facilities, the construction of which could cause significant environmental effects (Not Cumulatively Considerable)

During the Seismic Retrofit component construction, Anderson Reservoir would be almost completely dewatered, which would limit supplies available for groundwater recharge and water supply.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction, restoration, or operation would affect Santa Clara County's water supply.

Cumulative Effects of Project with the FOCP

The FOCP lowered the storage behind Anderson Reservoir to deadpool, which reduces available local supplies to be released by the reservoir for groundwater recharge in Coyote Creek and the Coyote Percolation Pond. However, the FOCP also includes the Cross Valley Pipeline Extension and chillers at Anderson Reservoir that increase the flexibility in using imported water for groundwater recharge.

The FOCP with the Project extends the period that local supplies would be reduced. However, modeling conducted by Valley Water has indicated that no significant impacts would occur to groundwater and water supply conditions during the Seismic Retrofit construction period.

As discussed in Section 3.12, "Groundwater Resources," there is potential for small private wells located along the rim of Anderson Reservoir (outside of the managed Coyote Valley aquifer boundary) to be significantly adversely affected by the prolonged dewatering of the reservoir, as this could affect the lateral movement of groundwater and the hydraulic head in the area (potentially affecting the productivity of the wells). The impact is cumulatively significant and the Project's contribution to the potential need for new or improved wells around Anderson Reservoir is cumulatively considerable.

The Project could impact groundwater quality using explosives that contain perchlorate and other nitrogen-based chemicals which could cause groundwater pollution at the Project level. The FOCP <u>would not</u> ~~could also potentially~~ use explosives in constructing the outlet tunnel that may contain perchlorate or other nitrogen-based chemicals. ~~The cumulative risk to groundwater pollution is significant and the Project's contribution is cumulatively considerable~~.

Implementation of the Project would allow Valley Water to bring a restricted water storage facility back to its historic capacity. Prior to 2009, when restricted capacities were implemented, Anderson Reservoir had been managed to meet regional water supply goals and maximize groundwater recharge utilizing its full capacity. The primary purpose of the Project is to seismically retrofit, maintain, and operate Anderson Dam and Reservoir to meet FERC and DSOD safety requirements, thereby allowing Valley Water to maximize water supply and related incidental benefits.

The regional impact to the availability of long-term water supplies and need for new or expanded water facilities is not cumulatively considerable with the FOCP.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Other projects that could impact water supplies in Santa Clara County include development projects throughout the County. New development in the County typically increases the demand for groundwater, although new development is subject to building code requirements that minimize water demand with water efficient water fixtures and landscaping. Valley Water's overall water supplies to meet future demands during normal, single-year, and multi-year dry periods are analyzed in the 2020 UWMP. The UWMP finds that Valley Water will have sufficient supplies to meet future demand in all year types. The UWMP accounts for new development throughout the County, and Anderson Reservoir being out of commission until sometime between 2030 and 2035, therefore the UWMP accurately reflects the cumulative nature of new development on water supply and the timeline of the Project.

Long-term, the Project would restore storage at Anderson Reservoir, which would support the availability of water in normal, dry, and multiple dry years. In addition, potential future projects in Table 3.01-2 include other reservoir retrofits (at Calero, Almaden, and Guadalupe Reservoirs), all of which would restore available water storage in the County; Pacheco Reservoir Expansion Project and B.F. Sisk Dam Raise and Reservoir Expansion, which would provide new storage for Valley Water; Silicon Valley Purified Water Project, Valley Water Additional Conservation and Stormwater Projects and Programs, and the Countywide Water Reuse Master Plan that would provide a new water source. These water storage and water supply projects may be needed to address cumulative growth throughout the County and cause significant cumulative impacts; however, the Project's contribution to the need for additional water supplies requiring new or expanded facilities is not cumulatively considerable.

Significance Conclusion Summary

The Project would make Anderson Dam seismically safe, compliant with safety standards, and restore historic storage capacities, which would support water supply in the County.

During construction of the Seismic Retrofit, modeling results indicate that there may be a reduction in groundwater recharge and storage downstream of the dam during construction, but that simulated groundwater storage would remain above the 5,000 AF outcome measure for Coyote Valley. The Project's regional impact to the availability of long-term water supplies and need for new or expanded water facilities is not cumulatively considerable.

There is potential for small private wells located along the rim of Anderson Reservoir (outside of the managed Coyote Valley aquifer boundary) to be significantly adversely affected by the prolonged dewatering of the reservoir, as this could affect the lateral movement of groundwater and the hydraulic head in the area (potentially affecting the productivity of the wells). The impact when added to FOCP impacts is cumulatively significant and the Project's contribution to the potential need for new or improved wells around Anderson Reservoir is cumulatively considerable.

The Project ~~and FOCP~~ could ~~both~~ pollute groundwater resources through the introduction of perchlorates or other nitrogen-based chemicals by blasting activities. <u>The FOCP does not require use of explosives that may contain perchlorate or other nitrogen-based chemicals</u>. ~~The cumulative impact with FOCP would be significant, and the Project's contribution would be cumulatively considerable~~. Implementation of **Mitigation Measure GW-2** (Perchlorate Best Management Practices) would ensure that risks to groundwater pollution are minimized and the Project's contribution is **not cumulatively considerable**.

With the implementation of **Mitigation Measure GW-1** (Provide Alternative Water Supplies), no new or expanded private wells (located along the rim of the reservoir) would be necessary due to water table effects associated with the reservoir remaining in a dewatered state during the FOCP and Project construction period. Additionally, **Mitigation Measure GW-2** (Perchlorate Best Management Practices) will be implemented to avoid or minimize impacts on groundwater wells in the vicinity of Anderson Dam from blasting activities. Post-mitigation, the Project's impacts would **not be cumulatively considerable.**

Mitigation Measures

GW-1 Provide Alternative Water Supplies

GW-2 Perchlorate Best Management Practices.

3.13.6 References

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3.14 Water Quality

This section presents the environmental setting, regulatory setting, and impact analysis, and proposed mitigation measures for the Project's impacts on water quality. Water quality refers to the chemical, physical, and biological characteristics of water. The study area for this analysis includes Anderson Reservoir and all downstream potentially affected surface waters, including Coyote Creek out to South San Francisco Bay. The study area does not include Upper Penitencia Creek or other tributaries downstream of Anderson Reservoir. Fish rescued as part of the Project may be relocated to Upper Penitencia Creek, but this would not adversely affect water quality in Upper Penitencia Creek. Flows from Anderson Reservoir and Coyote Creek cannot flow upstream into tributaries. Additional discussion of water quality or water quality-related information can be found in Section 3.4, *Biological Resources – Fisheries*; Section 3.11, *Hydrology*; Section 3.12, *Groundwater Resources*; Section 3.13, *Water Supply*; Appendix F, *Biological Resources – Fisheries Technical Appendix*; Appendix K, *Hydrology Technical Appendix*; and Appendix L, *Water Quality Technical Memorandum* ~~*Appendix*~~.

3.14.1 Environmental Setting

The Coyote Creek Watershed is the largest watershed in the county, draining approximately 322 square miles, and extending from the urbanized valley floor upward to the natural areas of the Mt. Hamilton range (Valley Water 2021a). Anderson Reservoir has a catchment area of roughly 193 square miles (Valley Water 2020a).

The Project Area includes Anderson Reservoir, Anderson Dam, Ogier Ponds, the Coyote Percolation Dam, and approximately 10 miles of Coyote Creek channel located between Anderson Dam and the downstream edge of the Coyote Percolation Pond where the Phase 2 Coyote Percolation Dam CM would be implemented (**Figure 3.14-1**). The study area includes Coyote Creek downstream to the tidelands area of the Bay. This section provides a summary of information on historic and existing water quality for the impact evaluation conducted for the Project. The information presented is primarily for Pre-FERC Order Baseline Conditions, with occasional references to more recent data.

Flows in Coyote Creek below Anderson Dam are affected by releases from Anderson Reservoir, releases of imported water via the Coyote Discharge Line, and the hydroelectric facility downstream from the dam. USGS streamflow station 11170000 (previously, Valley Water SF82), Coyote Creek near Madrone, California is the nearest location that measures these releases. The median flows by month, for the water years 2000 through 2019, shows a range of 40-50 cfs in the summer (June to September) and 20-25 cfs in the winter (January to March) (Valley Water, 2021c ~~undated 1~~). Greater summer releases reflect Valley Water operations to replenish the groundwater subbasin.

Anderson Reservoir Water and Sediment Quality

Historically (i.e., prior to the drawdown implemented to respond to FERC's February 20, 2020 Order), near-surface temperatures within the reservoir ranged from 10 to 12 °C in winter and 23 to 25 °C in summer (**Table 3.14-1**). Similar values were recorded in 2021 following the drawdown of the reservoir, with temperatures ranging between 9 and 12 °C in January and February and 22 and 24 °C in June and July (Valley Water 2021b ~~2021e~~). Typically, water temperatures in the reservoir stratify seasonally with cooler water toward the bottom, gradually increasing toward the surface during summer and fall. Water temperatures in the reservoir become more uniform top to bottom in winter and early spring (Valley Water, 2021c ~~undated 1~~).

Similar to the temperature conditions in the reservoir noted above, historically prior to implementation of the FERC Order, DO in the reservoir also stratified seasonally in summer and fall. As the reservoir warmed, fair weather conditions reduce reservoir mixing, and DO is used by fish, aquatic plants and algae, and bacteria, anoxic conditions could be created at the reservoir bottom. The stratified conditions supported higher DO levels toward the reservoir surface. DO levels became more uniform with cooler reservoir temperatures and the seasonal mixing of the water column in winter and early spring. Reservoir stratification and oxygen depletion varied based on many factors including water storage, which outlet portal was in use, the rate of outlet portal release, water residence time, fetch, wind, and natural climate fluctuations.

Prior to implementation of the FERC Order near-surface turbidity readings in the reservoir were typically between 1 and 5 NTU but could reach higher levels following large rain events. Some turbidity measurements have been collected within tributary creeks that provide insight into the relationship between influent turbidity and turbidity in the reservoir. Valley Water monitoring data (unpublished) recorded that turbidity in the Las Animas Creek and Packwood Creek tributaries increased to 550 NTU and 210 NTU, respectively, after a March storm event in 2011, whereas turbidity within the reservoir itself was elevated to only about 25 NTU after that storm event, indicating that the reservoir has an overall moderating (settling) effect on natural precipitation related increases in turbidity.

Historically, pH has ranged from 7.4–8.8 in the reservoir, with an average of and averaging approximately 8.1. More recent pH readings have been similar (average of 8.0 for the period of December 1, 2021, to December 15, 2021) (Valley Water 2021c ~~f~~).

Table 3.14-1. Reservoir Near Surface Water Quality Summary, 2004-2019 Averages

Sample Month	Temperature (°C)	Turbidity (NTU)	pH
February	11.2	4.8	8.0
May	18.3	2.5	8.2
August/September	23.8	1.8	8.3
November/December	16.6	48.8	8.1

Source: Valley Water 2021c ~~undated 1~~

~~As noted above, under~~ Under the 2024 CWA Section 303(d) list, water quality in Anderson Reservoir is listed as impaired for mercury and polychlorinated biphenyls (PCBs). Mercury is a naturally occurring trace metal that primarily enters water bodies through geologic or atmospheric sources. Mercury may be present in sediments that have accumulated due to erosion of geologic formations containing mercury, or as a result of significant air deposition over time. PCBs are synthetic organic chemicals that were used for numerous industrial applications until manufacturing was banned in 1979. They are relatively insoluble in water and tend to adsorb to sediments and suspended particulate matter (NCBI 2021, as cited in Valley Water 2021b ~~2021e~~). While Anderson Reservoir is listed as impaired under Section 303(d), mercury and PCBs have not been detected in any near-surface water samples of Anderson Reservoir in recent years (2004-2019) (Valley Water 2021c ~~Undated~~). Additionally, sediment sampling in preparation for and during FOCP construction found that mercury and PCB concentrations in Anderson Reservoir sediments were below sediment screening values for both pollutants (**Table 3.14-2**, Stillwater Sciences 2024).

Figure 3.14-1 Coyote Creek and Anderson Dam Watersheds

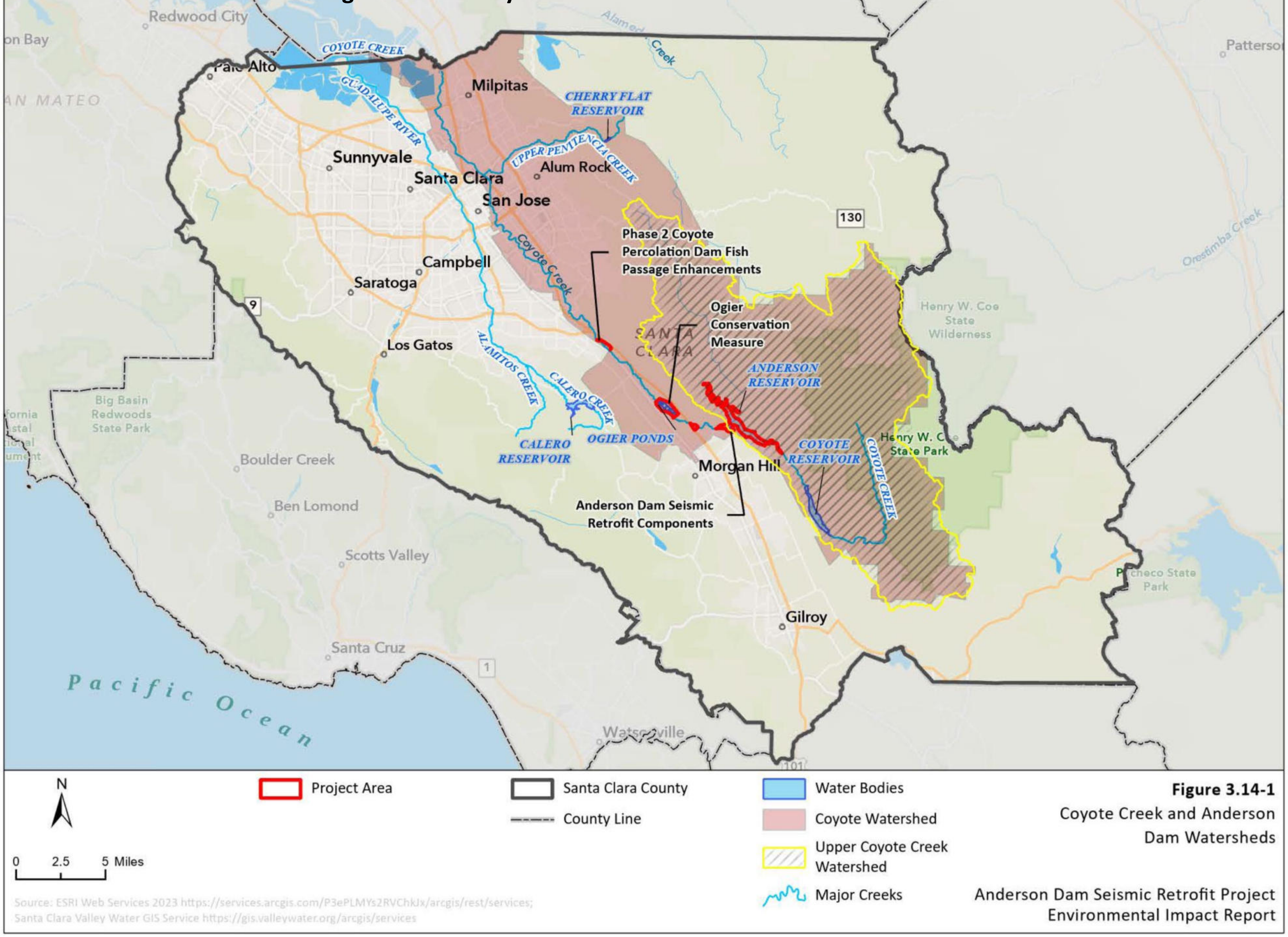


Table 3.14-2 Sediment Quality Screening Values for Mercury and PCBs

Analyte	Weighted Average ~~(µg /kg)~~	Reuse Criteria ~~(µg /kg)~~
Mercury	0.07 (mg /kg)	1.0 (mg /kg)
PCBs	6.3 (µg /kg)	22.7 (µg /kg)

Source: Stillwater Sciences 2024 ~~Valley Water 2023d~~

Key: ~~Mg~~ mg = milligrams; kg = kilograms; µg = micrograms

The source of mercury to Anderson Reservoir is unknown but it is assumed to be naturally occurring in local geology and deposited to the watershed atmospherically (Valley Water 2021b ~~2021e~~). Similarly, the source of PCBs to Anderson Reservoir is unknown (Valley Water 2021b ~~2021e~~). Sediment PCB data ~~are nonexistent~~ for Anderson Reservoir collected as part of the FOCP were below sediment screening values.~~, but~~ In addition, current surface sediment concentrations are assumed to be low, as PCBs have never been detected in outflow from Anderson Reservoir (Valley Water 2021b ~~2021e~~). Sediment samples indicate that PCBs and Mercury are not adhered to reservoir sediments in concentrations that exceed screening values assigned for each constituent that indicate the potential for water quality impact.

Anderson Reservoir is not identified on the 2024 CWA Section 303(d) list as impaired for diazinon (SWRCB 2024). Diazinon was banned for residential use in 2004 and there is no agricultural source of diazinon near Anderson Reservoir. While tributaries to Anderson Reservoir, including Coyote Creek, are impaired for diazinon, none of the five samples collected and tested as required by the FOCP water quality certification exceeded regulatory thresholds for listing diazinon (SWRCB 2024). Available monitoring data indicate low levels of diazinon in sediments and water mobilized from Anderson Reservoir as stated in the *Anderson Dam and Reservoir FERC Order Compliance Project Water Quality Certification Condition 8: Mercury, Diazinon, and PCBs Plan* (Valley Water 2021d). In addition, in consultation with RWQCB staff, it was determined that no further testing is necessary, nor are any diazinon-specific control measures necessary during the implementation of the FOCP.

Coyote Creek Water Quality

Under the 2024 CWA Section 303(d) list, water quality in Coyote Creek is identified as impaired for ~~Diazinon~~ pesticides (diazinon, bifenthrin, cypermethrin, and pyrethroids), toxicity, ~~and~~ trash, dissolved oxygen, and mercury. A study by Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) found that over a period of 14 years, sediment toxicity in Coyote Creek has been decreasing and sediment toxicity is generally not present in Coyote Creek (SCVURPPP 2020).

Anderson Reservoir to Ogier Ponds

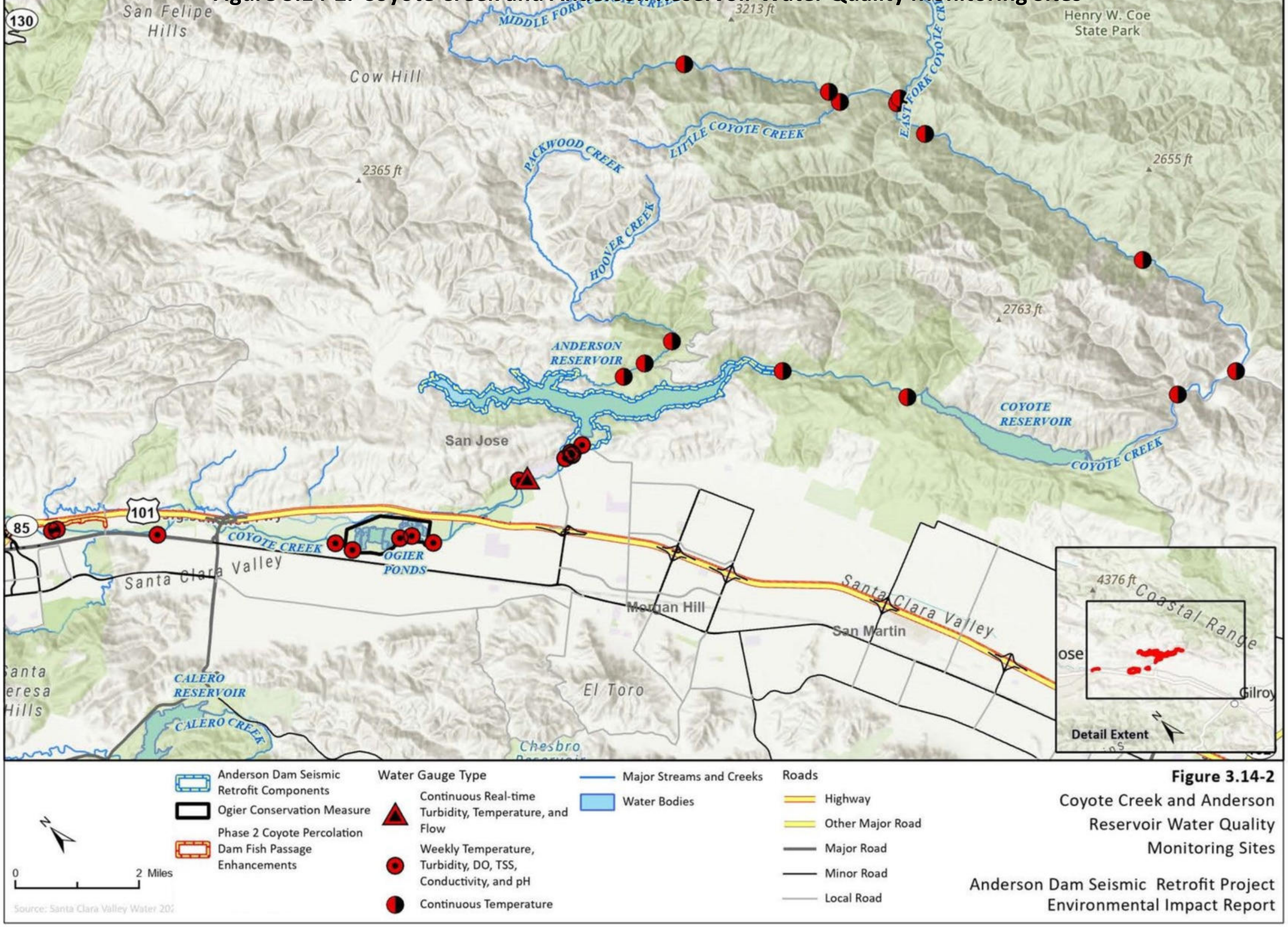
Valley Water has monitored water temperature at multiple sites along Coyote Creek downstream of Anderson Dam for many years. More recently Valley Water has added turbidity, DO, pH, and conductivity to monitoring efforts at some sites (**Figure 3.14-2**). Unpublished temperature data collected by Valley Water in 2005, 2007, 2008, 2009, and, more recently, in 2021, were reviewed for this analysis. Valley Water aggregated and corrected the raw data from these years, as needed, to determine daily average, minimum, and maximum temperatures. The results of these monitoring efforts are summarized below.

Water temperatures in Coyote Creek below Anderson Dam are driven by the volumes of local and imported water used and the elevation of the reservoir cold-water pool in relation to the inlet port being used for releases. From late spring through early fall, water is released from the deep, cold-water pool in Anderson Reservoir to Coyote Creek for groundwater recharge, which also helps maintain cooler water temperatures in the FCWMZ downstream of the dam. Creek temperatures generally fluctuate between 18 °C and 24 °C during the summer and between 8 °C and 12 °C in the winter. Creek temperatures generally peak in July (24 °C) and are coolest in December and January (around 10 °C). In July and August 2021, maximum weekly average temperatures at monitoring sites ranged from 22–25 °C.

Based on a review of available data, Coyote Creek water temperatures in the reach from the dam outlet to the Model Airplane Park (approximately 2.8 miles downstream and within the FCWMZ) appear to be particularly influenced by cooler reservoir discharges from the Anderson Outlet. Downstream of the Model Airplane Park, the channel becomes wider, shallower, and less shaded, and temperatures increase by approximately 2 to 3 °C at the Ogier Ponds and Coyote Creek Golf Course, approximately 4 miles downstream from the dam.

Over that same period, daily mean DO levels at sites between the dam and Ogier Ponds ranged from approximately 6.7 to 9 mg/L. Portions of Coyote Creek can become completely dry during much of the dry season.

Figure 3.14-2. Coyote Creek and Anderson Reservoir Water Quality Monitoring Sites



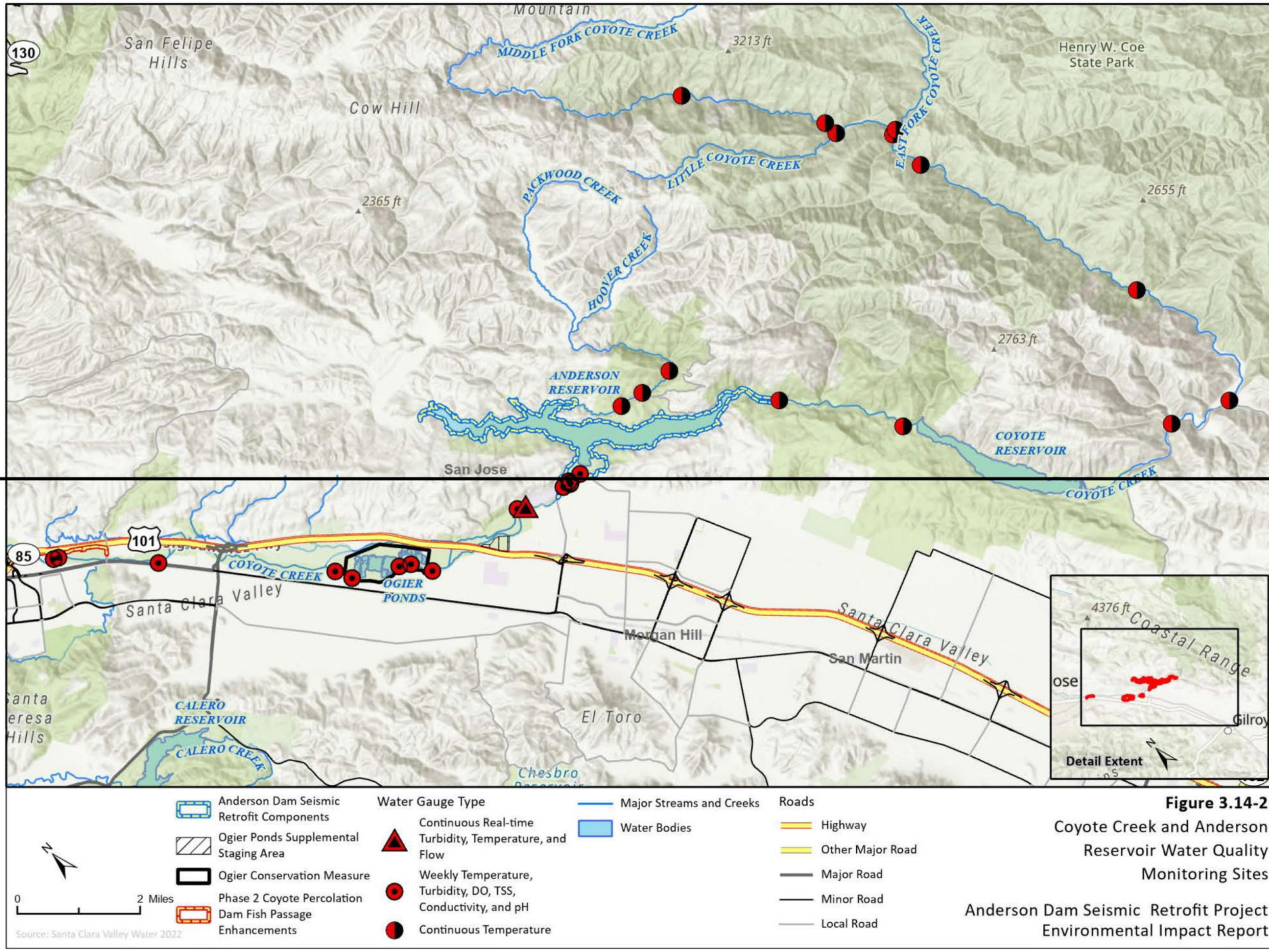


Figure 3.14-2
Coyote Creek and Anderson Reservoir Water Quality Monitoring Sites

Downstream of Ogier Ponds

Recent SCVURPPP annual Urban Creeks Monitoring Reports have presented results from water quality monitoring and sediment sampling on Coyote Creek (SCVURPPP 2018, 2019). In Water Years (WY) 2017 and 2018, general water quality parameters (pH, DO, specific conductance, and temperature) were measured at three stations in lower Coyote Creek (downstream of Ogier Ponds between I-280 and US 101 near Valley Water's COY03) over two 2-week periods in June and September. In 2017, the general water quality parameters were similar among the stations with the exception of DO, which displayed different patterns at the sites. These findings were consistent with SCVURPPP's Coyote Creek Dissolved Oxygen Stressor Source Identification (SSID) Project, which concluded that low gradient channels and high amounts of accumulated organic material in the studied reach cause low DO concentrations.

These sites did not exceed the San Francisco Bay Municipal Regional Stormwater Permit maximum temperature SSID trigger threshold of 24 °C but did exceed the MWAT SSID trigger of 17 °C for two consecutive weeks during both sampling periods for WYs 2017 and 2018.

In both WYs 2017 and 2018, the DO levels in waters designated as having cold freshwater habitat (COLD) beneficial uses (i.e., 7 mg/L) were not met in over 20 percent of the measurements recorded at all three water quality stations in Coyote Creek. The results were similar to the findings from previous studies carried out at the same locations below Ogier Ponds. The low DO concentrations were caused by low gradient channels with high amounts of accumulated organic material.

Values for pH and specific conductivity measured at the three sites in Coyote Creek downstream of Ogier Pond between I-280 and US 101 near Valley Water's COY03) during WYs 2017 and 2018 did not exceed their respective SSUD triggers during either event.

Coyote Creek Estuary and South San Francisco Bay Water Quality

In July 2013, San Francisco Estuary Institute began continuous water quality monitoring for several parameters in San Francisco Bay. DO in the South San Francisco Bay typically ranges from roughly 6 mg/L in the summer to 8.5 or 9 mg/L in the winter months, with levels at Coyote Creek at Alviso Slough dropping as low as 2-3 mg/L in the summer (San Francisco Estuary Institute 2023, San Francisco Bay Nutrients Visualization Tool 2023). Water temperatures in the South San Francisco Bay (at Coyote Creek at Alviso Slough) typically fluctuate between roughly 10 °C in the winter and 24-25 °C in the summer. Turbidity at Coyote Creek at Alviso Slough can fluctuate greatly from about 15 to over 1,000 Formazin Nephelometric Unit (San Francisco Bay Nutrients Visualization Tool 2023).

Imported Water Quality

Imported water <u>from</u> San Luis Reservoir is released Anderson Reservoir and/or Coyote Creek through the CDL to augment groundwater recharge and incidentally improve instream flow volumes and temperatures for fisheries and riparian and groundwater dependent habitat. The imported water comes from San Luis Reservoir, which is part of the Central Valley Project and State Water Project <u>and stores imported water from the San Juaquin-Sacramento Bay Delta</u>. Imported water is sometimes released directly to Coyote Creek through the CDL or at other times is mixed with local water in the reservoir before release, particularly depending upon relative temperature of the reservoir and imported water supplies. Water quality for imported water in San Luis Reservoir is summarized in **Table 3.14-3** below.

Table 3.14-3. San Luis Reservoir Water Quality Summary, 2020-2021 Averages

Sample Month	Temperature (°C)	Turbidity (NTU)	pH
February	14.6	1.0	7.3
May	15.4	1.25	7.4
August	20.3	2.1	8.3
October - December	-	1.7	7.3

Source: Valley Water n.d.~~Undated 2~~

3.14.2 Regulatory Setting

3.14.2.1 Federal Laws, Regulations, and Policies

Clean Water Act

The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The key sections of the CWA that pertain to water quality regulation are sections 303, 401, 402, and 404 (discussed hereunder).

Section 303, Impaired Water Bodies

Under CWA Section 303[d], states are required to identify "impaired water bodies" (those that do not meet established water quality standards), identify the pollutants causing the impairment, establish priority rankings for waters on the list, and develop a schedule for preparing control plans to improve water quality. Following listing, USEPA then approves the state's recommended list of impaired waters or adds and/or removes water bodies to the list. Each RWQCB must update the Section 303[d] list of impaired waters every 2 years. Water bodies on the list have no further assimilative capacity for the identified pollutant, and the Section 303[d] List identifies priorities to develop pollution control plans for each listed water body and pollutant.

The 2024 303(d) list was approved by the SWRCB in March 2024, and partially approved and partially disapproved by the USEPA on December 12, 2024. According to the 2024 303(d) ~~most current~~ list approved by the SWRCB, Anderson Reservoir is listed as impaired for mercury and PCBs, and Coyote Creek is listed as impaired for trash ~~and~~, pesticides (diazinon, bifenthrin, cypermethrin, and pyrethroids), toxicity, dissolved oxygen, and mercury). The South (Lower) San Francisco Bay, to which Coyote Creek drains, is listed as impaired by chlordane, dichlorodiphenyltrichloroethane (DDT), dieldrin, dioxin compounds, furan compounds, invasive species, mercury, PCBs, polycyclic aromatic hydrocarbons (PAHs), toxicity, trash, and selenium from multiple known and unknown sources (SWRCB 2024 ~~2017~~). The USEPA disapproved the omission of Coyote Creek as impaired for benthic community effects and recommended that this impairment be added to the 2024 303(d) list. At the time of preparation of this Final EIR in December 2024, the addition of this impairment to the 303(d) list had not been approved or incorporated into the final 2024 303(d) list. After a 30-day public comment period, the USEPA will transmit the final list of impairments that EPA is adding to the 303(d) list to the SWRCB (USEPA 2024).

The pollution control plans triggered by the CWA Section 303[d] List are called Total Maximum Daily Loads (TMDL). The TMDL is a “pollution budget” designed to restore the health of a polluted body of water. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, thereby ensuring the protection of beneficial uses. A TMDL also contains the target reductions needed to meet water quality standards and allocates those reductions among the pollutant sources in the watershed (point sources, non-point sources, and natural sources). The TMDL process quantifies water quality problems, identifies pollutant sources, and recommends pollutant load reductions or control actions needed to restore and protect the beneficial uses of the impaired water body. The calculation of a TMDL includes a margin of safety and considers seasonal variations (40 CFR Section 130.2). TMDLs for ~~the South San Francisco Bay that are relevant to the~~ receiving waters downstream of Anderson Reservoir ~~and Coyote Creek~~ include the San Francisco Bay Mercury TMDL (approved by USEPA in 2008), San Francisco Bay PCBs TMDL (approved by USEPA in 2010), and Diazinon and Pesticide-Related Toxicity in Urban Creeks ~~Dioxin Pesticide Toxicity~~ TMDL (approved by USEPA in 2007).

Project applicability: Project activities would occur within water bodies listed as impaired under Section 303(d), for which TMDLs have been implemented or will be developed.

Section 401, Water Quality Certification

For an applicant of a federal permit or license to conduct any activity that may result in a point source discharge of a pollutant to a water of the United States, Section 401 of the CWA requires the State to issue a certification that the activity will comply with the state’s water quality standards. The state may grant, grant with technical conditions imposed on the project activity, or deny the Section 401 certification.

The discharge of dredged or fill material into waters of the United States, including wetlands, as determined by USACE, is subject to permitting specified under Section 404 of the CWA (Discharges of Dredge or Fill Material), discussed below. A Section 401 water quality certification is required for all Section 404 permitted activities. In California, the SWRCB or its nine RWQCBs issue water quality certifications. The SWRCB or RWQCB is responsible for implementing section 401 in compliance with the CWA and the applicable regional water quality control plan (also known as a basin plan).

Project applicability: Given that the Project would involve, among other activities, the discharge of dredge and fill material into Coyote Creek to seismically retrofit Anderson dam, which is a facility that FERC has exempted from licensing under the Federal Power Act, it will also require issuance of a 401 water quality certification by the SWRCB, which is the water board that has jurisdiction over the project under 23 CCR Section 3855. Projects that require a 404 permit for discharge of dredged and fill materials are also required to obtain a 401 water quality certification.

Section 404, Permits for Fill Placement in Waters and Wetlands

CWA Section 404 regulates the discharge of dredged and fill materials into “waters of the United States,” or jurisdictional waters, which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Before any actions that may discharge dredged or fill material into surface waters or wetlands are carried out, a delineation of jurisdictional waters of the United States must be completed, following USACE protocols (USACE 1987), in order to determine whether the project area encompasses wetlands or other waters of the United States that qualify for CWA protection.

For actions that will discharge dredged or fill material into waters of the United States, a permit must be obtained from the USACE, unless the activity is exempt from Section 404 regulation (e.g., certain farming and forestry activities).

Under USEPA guidelines, no discharge of dredged or fill material may be permitted if: (1) a practicable alternative exists that is less damaging to the aquatic environment, or (2) the nation’s waters would be significantly degraded (USEPA 2023a). In other words, applicants must first show that steps have been taken to avoid impacts to wetlands, streams and other aquatic resources; that potential impacts have been minimized; and that compensation will be provided for all remaining unavoidable impacts (USEPA 2023a). For most discharges that will have only minimal adverse effects, a general permit may be suitable. General permits are issued on a nationwide, regional, or state basis for particular categories of activities (USEPA 2023a). For proposed activities that have potentially significant impacts, an individual permit is required.

Project applicability: Coyote Creek and Anderson Reservoir would be considered navigable waters, which would be subject to Section 404 and USACE jurisdiction. The Project would involve discharge of dredged and fill materials to such jurisdictional waters, and therefore will require a Section 404 permit from USACE.

Section 402, Permits for Stormwater Discharge

CWA Section 402 regulates discharges of pollutants to surface waters through the NPDES program. The NPDES program is officially administered by the USEPA. However, in California, the USEPA has delegated its authority to the SWRCB; the SWRCB in turn delegates implementation responsibility to the nine RWQCBs, as discussed in Porter-Cologne Water Quality Control Act below. The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual (activity- or project-specific) permits. Please see below under “State Laws, Regulations, and Policies” for discussion of the Construction General Permit and the Municipal Regional Stormwater NPDES permit, which would be applicable to the Project.

3.14.2.2 State Laws, Policies, and Regulations

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is the primary State regulation governing water quality. The Porter-Cologne Act was passed in 1969, and together with the CWA, provides regulatory guidance to protect water quality and water resources in the state. The Porter-Cologne Act established the SWRCB and divided California into nine regions, each overseen by a RWQCB. The Porter-Cologne Act established regulatory authority over discharges to “waters of the State,” which are defined as “any surface water or groundwater, including saline waters, within the boundaries of the State” (California Water Code, Division 7, Section 13050). More specifically, the SWRCB and its nine RWQCBs have jurisdiction over the beneficial uses and supporting water quality objectives (WQOs~~)~~ assigned by the RWQCB or

SWRCB for various waters of the State. The Porter-Cologne Act also assigned responsibility for implementing CWA sections 303, 401, and 402 within California to the SWRCB and RWQCBs.

The Porter-Cologne Act authorizes the SWRCB to adopt statewide water quality control policies and requires each of the nine RWQCBs to develop and periodically review of regional water quality control plans (basin plans) for the protection of water quality s in each of California's nine regions. Statewide water quality control policies are adopted and maintained by the SWRCB. Regional basin plans are unique to each region and must identify beneficial uses, establish WQOs for the reasonable protection of the beneficial uses, and establish a program of implementation for achieving the WQOs. Basin plans must also comply with Section 303 of the CWA, which requires states to establish their own water quality standards. Basin plans provide the technical basis for the RWQCBs to determine waste discharge requirements, issue CWA Section 402 permits and Section 401 certifications, take enforcement actions, and evaluate grant proposals. In 2024, AB 2875 established a State policy to ensure no net loss, and long-term gains, in the quantity, quality, and permanence of wetlands acreage.

San Francisco Bay Basin Plan

The portions of the county that drain to San Francisco Bay are governed by the San Francisco Bay Basin Plan (San Francisco Bay RWQCB 2019 ~~2023~~). The beneficial uses established in the San Francisco Bay Basin Plan for surface waters in the Project area are shown in **Table 3.14-4**. The Project area is located within the Santa Clara Basin. The Basin Plan also establishes water quality objectives to protect beneficial uses (i.e., WQOs). Key WQOs established in the Basin Plan that apply to the Project are listed below:

- DO in non-tidal waters: Cold water habitat: 7.0 mg/L; Warm water habitat: 5.0 mg/L.
- Temperature: The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8°C) above natural receiving water temperature.
- Turbidity: Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 NTU.
- pH: The pH shall not be depressed below 6.5 nor raised above 8.5. This encompasses the pH range usually found in waters within the basin. Controllable water quality factors shall not cause changes greater than 0.5 units in normal ambient pH levels.
- Toxicity: All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species. There shall be no acute or chronic toxicity in ambient waters. Acute toxicity is defined as a median of less than 90 percent survival, or less than 70 percent survival, 10 percent of the time, of test organisms in a 96-hour static or continuous flow test.

Project applicability: The Project would affect Anderson Reservoir, Coyote Creek, Coyote Slough (tidally influenced), and South San Francisco Bay, for which beneficial uses have been designated by San Francisco Bay RWQCB. Thus, the Project would be subject to the San Francisco Bay Basin Plan and the impact analysis (Section 3.14.4) considers the potential for impacts on the applicable beneficial uses.

Table 3.14-4. Beneficial Uses of Surface Water Bodies in the Project Area

Water Body	Beneficial Uses[1]																		
	AGR	MUN	FRSH	GWR	IND	PROC	COMM	SHELL	COLD	EST	MAR	MIGR	RARE	SPWN	WARM	WILD	REC-1	REC-2	NAV
Santa Clara Basin																			
San Francisco Bay South					E		E	E		E		E	E	E		E	E	E	E
Coyote Slough										E			E			E	E	E	
Coyote Creek (nontidal)				E			E		E			E	E	E	E	E	E	E	
Anderson Reservoir		E		E			E		E					E	E	E	E*	E	

Source: San Francisco Bay RWQCB 2019 ~~2023~~

Notes:

[1] Beneficial Uses are defined as: Agricultural Supply (AGR), Cold Freshwater Habitat (COLD), Ocean, Commercial, and Sport Fishing (COMM), Estuarine Habitat (EST), Freshwater Replenishment (FRSH), Groundwater Recharge (GWR), Industrial Service Supply (IND), Marine Habitat (MAR), Fish Migration (MIGR), Municipal and Domestic Supply (MUN), Navigation (NAV), Industrial Process Supply (PRO), Preservation of Rare and Endangered Species (RARE), Water Contact Recreation (REC-1), Non-contact Water Recreation (REC-2), Shellfish Harvesting (SHELL), Fish Spawning (SPWN), Warm Freshwater Habitat (WARM), and Wildlife Habitat (WILD).

[2] E = existing beneficial use, E: Water quality objectives apply; water contact recreation is prohibited or limited to protect public health*

Construction General Permit

Most construction projects that disturb 1 acre of land or more are required to obtain coverage under the SWRCB's General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, (Order 2022-0057-DWQ; adopted on September 8, 2022 and effective September 1, 2023 – "Construction General Permit"), which requires the applicant to file a public notice of intent to discharge stormwater, and to prepare and implement a SWPPP. The SWPPP must include a site map and a description of the proposed construction activities; demonstrate compliance with relevant local ordinances and regulations; and present the BMPs that will be implemented to prevent discharge of pollutants associated with construction activities in storm water and runoff leaving a construction site. For example, BMPs must control soil erosion during construction, discharges of sediment, and discharges of other construction-related pollutants (such as concrete wash water, and heavy equipment fuels and lubricants) to surface waters. The SWPPP must also provide for implementation of visual and water quality sampling-based monitoring for discharges of runoff. The monitoring must be designed and conducted to assure ongoing compliance of storm water and runoff discharges from the construction site with the Construction General Permit.

The SWPPP must include BMPs, among other management measures, BMPs to control erosion at the source, such as through minimizing soil disturbance, preserving existing vegetation where feasible, and stabilizing and revegetating disturbed areas as soon as possible after grading or construction activities. Temporary soil stabilization measures/practices that could be utilized include covering disturbed areas with mulch, temporary seeding, soil stabilizers, binders, fiber rolls or blankets, temporary vegetation, and permanent seeding (SWRCB 2022). Additionally, the SWPPP may include sediment control measures, which would be used to capture any soil that becomes eroded. This may include perimeter control measures, such as installing silt fences or placing straw waddles below slopes, sediment basins and active treatment systems to remove sediment prior to storm water releases (SWRCB 2022). Wastewater and cement washout and cleanout areas or structure, secondary containment facilities, hazardous materials spill plans and other hazardous materials control measures to preclude discharge of toxic construction related pollutants in storm water runoff must also typically be included in the SWPPP (SWRCB 2022). Permittees are further required to conduct annual and precipitation related monitoring and reporting to ensure that BMPs are correctly implemented and that they are effective in controlling the discharge of construction-related pollutants.

Project applicability: The Project would disturb greater than 1 acre of land; therefore, it would need to obtain coverage under the Construction General Permit. To comply with the Construction General Permit, Valley Water will need to prepare and implement a SWPPP <u>that would be applicable to construction activities outside of the reservoir.</u>

Municipal Regional Stormwater NPDES Permit

The Municipal Regional Stormwater NPDES permit (Order R2-2022-0018) (San Francisco Bay RWQCB 2022) covers municipal stormwater discharges from the majority of Bay Area counties and cities. The permit is applicable to Valley Water, Santa Clara County, the City of San José, and other cities and storm water management agencies within the county that have joined together to form the SCVURPPP. The Municipal Regional Stormwater NPDES permit establishes discharge prohibitions, annual reporting requirements, construction site controls, water quality monitoring, pesticides toxicity control, trash load reductions, and provisions to address existing TMDLs established for the Bay. The continuous monitoring requirements include triggers that indicate the need for further study. The temperature trigger is defined as any of the following:

a) MWAT exceeds 17 °C for a steelhead stream, or 20 percent of the instantaneous results exceed 24 °C

b) 20 percent of instantaneous pH results are less than 6.5 or greater than 8.5

c) 20 percent of instantaneous specific conductance results are greater than 2000µS, or there is a spike in readings with no obvious natural explanation

d) 20 percent of instantaneous DO results are less than 7 mg/L in a cold water fishery stream

When results at one sampling station (e.g., along Coyote Creek) exceed the applicable temperature or DO trigger or demonstrate a spike in temperature or drop in dissolved oxygen with no obvious natural explanation, the Permittees l must identify the sample site as a candidate SSID project. SSID projects are intended to be oriented toward taking action(s) to alleviate stressors and reduce sources of pollutants.

The purposes of the measures included in the Municipal Regional Stormwater NPDES Permit are to control and reduce the levels of pollution in both stormwater and non-stormwater runoff discharges from storm drains into watercourses or features that are waters of the state or waters of the United States; gather concentration and loading information for a number of pollutants of concern; and ensure the implementation of appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects the discharge runoff into storm water management systems that concentrate and discharge runoff to jurisdictional waters. The permit was recently amended to refine development categories and low-impact development specifications.

Stormwater runoff that is concentrated within and enters Anderson Reservoir and Coyote Creek through storm water management system outfall pipes and similar facilities is covered under the provisions of the NPDES permit, which include prohibiting certain discharges, such as solid wastes, and discharges that cause or contribute to a violation of any receiving water limitation or applicable water quality standard (San Francisco Bay RWQCB 2022).

Project applicability: The Project would expand a road and parking lot and would comply with applicable Municipal Regional Stormwater NPDES permit requirements.

3.14.2.3 Local Laws, Policies, and Regulations

City of Morgan Hill General Plan, 2017 ~~2016~~

The City of Morgan Hill 2035 General Plan (2017 ~~2016~~) contains the following goals and policies relevant to water quality and the Project:

Open Space, Hillsides, and Scenic Features

Goal NRE-5: Preservation and reclamation of streams and riparian areas as open space.

Policy NRE-5.2: Other Agencies and Environmental Review. Coordinate with jurisdictional agencies, as required, as part of the environmental review process for development projects.

Policy NRE-5.3: Natural State of Streamside and Riparian Areas. Retain natural streamside and riparian areas in their natural state in order to preserve their value as percolation and recharge areas, natural habitat, scenic resources, and recreation corridors, and to stabilize banks. (South County Joint Area Plan 15.08).

Policy NRE-5.4: Development Impacts in Riparian Areas. Consider development impacts upon wildlife in riparian areas and mitigate those environmental impacts.

Policy NRE-5.5: Flood Control Projects. Where flood control projects are needed to protect existing development, minimize disruption of streams and riparian systems, maintaining slow flow and stable banks through design and other appropriate mitigation measures. (South County Joint Area Plan 15.08)

Policy NRE-5.6: Stream Channel Protection. Protect existing stream channels and riparian vegetation by requiring buffering or landscaped setbacks and storm runoff interception as specified in **Table NRE-1** and consistent with the Santa Clara Valley Habitat Plan.

Table NRE-1. Morgan Hill Stream Channel Protection

	Category 1 Streams (Water Present Year-Round During Normal Rain Years)		**Category 2 Streams (Water Present During the Wet Season Only During Normal Rain Years)**
Slope	Inside Urban Service Area	Outside Urban Service Area	Inside/Outside Urban Service Area
0-30%	100 feet	150 feet	35 feet
>30%	150 feet	200 feet	

Environmental Hazards

Goal SSI-5: The least possible damage to persons and property from flooding.

Policy SSI-5.2: Private Development in Flood-Prone Areas. If development is allowed in flood-prone areas, provide flood control facilities or appropriate flood-proofing prior to or in conjunction with development at developers' expense. (South County Joint Area Plan 12.05)

Policy SSI-5.9: Riparian Natural Functions. Restore and maintain the natural functions of riparian corridors, creeks, and channels to reduce flooding, convey stormwater flows, and improve water quality.

Policy SSI-5.10: New Development in Dam Inundation Areas. Consider risk of dam inundation in new development proposals within the Anderson, Chesbro, and Coyote Dam inundation areas.

Goal SSI-6: Adequate, safe, and environmentally responsible drainage and flood control.

Policy SSI-6.1: Flood Control Projects. Minimize disruption of natural riparian areas by flood control projects needed to protect presently existing development by maintaining slow flow and stable banks through design and other appropriate mitigation measures. (South County Joint Area Plan 15.08)

Policy SSI-6.3: Existing and Planned Development. Areas which are developed or planned for development should be protected by the construction of flood control facilities. (South County Joint Area Plan 12.00)

Envision San José 2040 General Plan, 2023 ~~2011~~

The Envision San José 2040 General Plan (2023 ~~2011, Revised in 2020~~) contains the following goals and policies relevant to water quality and the Project:

Goal MS-20: Ensure that all water in San José is of the highest quality appropriate for its intended use.

Policy MS-20.3: Protect groundwater as a water supply through flood protection measures and the use of stormwater infiltration practices that protect groundwater quality. In the event percolation facilities are modified for infrastructure projects, replacement percolation capacity will be provided.

Goal ER-9: Protect water resources because they are vital to the ecological and economic health of the region and its residents.

Policy ER-9.1: In consultation with the Valley Water, other public agencies and the Valley Water Water Resources Protection Guidelines and Standards (2006 or as amended), restrict or carefully regulate public and private development in streamside areas so as to protect and preserve the health, function, and stability of streams and stream corridors.

Policy ER-9.4: Work with Valley Water to preserve water quality by establishing appropriate public access and recreational uses on land adjacent to rivers, creeks, wetlands, and other significant water courses.

Policy ER-9.5: Protect groundwater recharge areas, particularly creeks and riparian corridors.

3.14.3 Methodology and Approach to Impact Analysis

This impact analysis evaluates impacts on water quality that will occur as a result of the following activities:

- Seismic Retrofit Construction
- Conservation Measures Construction
- Construction Monitoring
- Seismic Retrofit Post-Construction Operations and Maintenance
- Conservation Measures Post-Construction Operations and Maintenance
- Post-Construction FAHCE Adaptive Management

Baseline conditions used for this impact analysis vary depending on the activity analyzed. For construction of the Seismic Retrofit and Conservation Measures, the Pre-FERC Order Baseline is used, which reflects the conditions that existed prior to implementation of the FERC Order. For some construction impact analyses, the existing conditions baseline (conditions following FOCP implementation) is also used. The post-construction operations and maintenance analyses also use the Pre-FERC Order Conditions Baseline. The future conditions baseline is also used for post-construction operations and maintenance, representing how Valley Water would manage Anderson Dam releases in the absence of FAHCE, but taking into account future water demand and imported water availability. For this analysis, impacts are considered both qualitatively and quantitatively depending on the types of data available and the nature of the impact being examined.

Regulated Water Quality Parameters Analyzed

The evaluation of the water quality impacts in this analysis focuses on the following constituents of concern that would be impacted by the Project:

- Temperature
- Turbidity
- DO
- <u>PAHs (fuel, oil, lubricants)</u>

- Hazardous materials
- Trash
- pH

Reservoir levels and releases from Anderson Reservoir directly affect these parameters and the parameter directly correlate with the ability of Anderson Reservoir and Coyote Creek to support their designated beneficial uses. In addition to these parameters, water quality impacts of hazardous materials that may be used during construction and maintenance activities are generally evaluated.

The following specific constituents of concern, although subject to regulations, are not expected to be affected by the Project and are not specifically analyzed:

Mercury and PCBs: Anderson Reservoir is listed as impaired for mercury and PCBs; however, recent sampling of the sediments on the bottom of Anderson Reservoir found that the sediments have low readings (below sediment screening values) for both mercury and PCBs (Stillwater Sciences 2024 ~~Valley Water 2023d~~). Mercury and PCBs have not been detected in any near-surface water samples of Anderson Reservoir in recent years (2004-2019) (Valley Water n.d.), and PCBs have never been detected in outflow from Anderson Reservoir (Valley Water 2021b ~~2021e~~). The sites where Conservation Measures would be constructed in or near Coyote Creek (Ogier Ponds, North Channel Reach ~~Extension~~, and Phase 2 Coyote Percolation Pond) did not support industrial uses in the past that could suggest mercury or PCBs in soils or sediments and Coyote Creek is not impaired by Mercury or PCBs. Mercury concentrations in Coyote Creek meet TMDL thresholds for San Francisco Bay (McKee & ~~L.J.~~ Leatherbarrow~~, J.E.,~~ 2005). Given the low occurrence of mercury and PCBs in the reservoir and creek channel, it is unlikely that erosion and release of sediments from the reservoir would contain levels that would impact Coyote Creek or downstream uses.

Trash and Diazinon Pesticides: Coyote Creek is listed as impaired by ~~trash and~~ pesticides (diazinon, bifenthrin, cypermethrin, and pyrethroids). South San Francisco Bay is impaired by pesticides (chlordane, and dieldrin). The Project would not require use of these banned and restricted-use pesticides. Available monitoring data indicate low levels of diazinon in reservoir sediments. Therefore, the Project is not likely to ~~generate trash or diazinon or~~ result in banned or restricted pesticides ~~in trash or diazinon~~ entering the creek. Anderson Reservoir is not a source of these materials and would not contribute to the impairments downstream. Limited quantities of legal pesticides could be used during construction and are addressed in the impact analysis.

~~Chlordane, DDT, dieldrin, dioxin~~ Dioxin compounds, furan compounds, DDT, ~~invasive species,~~ and selenium: South San Francisco Bay is impaired by ~~chlordane,~~ DDT, ~~dieldrin,~~ dioxin compounds, furan compounds, ~~invasive species, mercury, PCBs,~~ and selenium. The Project is not likely to generate these water quality pollutants or change their concentrations in south San Francisco Bay.

Invasive Species: South San Francisco Bay is impaired by invasive species. Invasive species are addressed in Section 3.4, *Biological Resources- Fisheries Resources*, and in Section 3.5, *Biological Resources – Wildlife and Terrestrial Resources*, and are therefore not addressed in this section.

Toxicity: Coyote Creek and South San Francisco Bay are impaired by toxicity. The RWQCB has established an Diazinon and Pesticide-Related Toxicity in Urban Creeks ~~Dioxin Pesticide Toxicity~~

TMDL (San Francisco Bay RWQCB 2005). The Bay Plan requires that all waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. A study by SCVURPPP found that over a period of 14 years, sediment toxicity in Coyote Creek has been decreasing and sediment toxicity is generally not present in Coyote Creek (SCVURPPP 2020). The Project is unlikely to affect levels of toxicity in Coyote Creek or South San Francisco Bay.

~~pH: The Bay Plan requires that pH not be depressed below 6.5 nor raised above 8.5. This encompasses the pH range usually found in waters within the basin. Controllable water quality factors cannot cause changes greater than 0.5 units in normal ambient pH levels. Prior to implementation of the FERC Order, pH ranged between 7.4–8.8 in the reservoir, with an average of approximately 8.1. More recent pH readings have been similar (average of 8.0 for the period of December 1, 2021 to December 15, 2021) (Valley Water 2021f). Values for pH measured at the three sites in Coyote Creek downstream of Ogier Ponds during WYs 2017 and 2018 did not exceed their respective SSUD triggers for pH. In addition, pH has not been a parameter of concern for fisheries habitat in Coyote Creek and the Project is unlikely to cause a discernable change to the pH of the water.~~

3.14.3.1 Seismic Retrofit Project Construction

Potential construction-related water quality effects within Anderson Reservoir and in Coyote Creek downstream of Anderson Dam were evaluated both qualitatively and quantitatively for the potential to impair beneficial uses of surface waters; violate any applicable water quality standards or waste discharge requirements, or otherwise substantially degrade surface water quality; and/or conflict with or obstruct implementation of the San Francisco Bay Basin Plan. Potential water quality impacts of the Project were characterized by comparing them to water quality data from Anderson Reservoir and Coyote Creek collected by Valley Water.

Prior to the FERC Order, the maximum allowable storage elevation of Anderson Reservoir (according to DSOD restrictions) was 592.9, which corresponds to a volume of 52,416 AF,[1] which is considered the baseline condition of the reservoir for this analysis Following FOCP, the reservoir was left at deadpool which is the existing conditions baseline, which is also used for certain analyses. The Seismic Retrofit construction is planned to occur over a 7-year duration, as described in Chapter 2, and the timing of specific activities with respect to the overall construction schedule is considered in the impact analysis. Work would begin by dewatering the reservoir to elev. 450 ~~467~~ feet during Year 1~~ and to elev. 450 feet during Year 2~~. Discharge of stored water would occur through the existing Stage 1 Diversion System (previously built as part of the FOCP). The reservoir would be maintained at elev. 450 feet during Years 2 and 3. The reservoir would be filled to elev. 556 feet in Year 4, elev. 556 feet in Year 5, and elev. 657 feet in Year 6. ~~Dewatering of the reservoir to elev. 453 feet during~~ To maintain the reservoir level during Years 2, 3, 4, 5, and 6, diversion of flows would occur through the Stage 2 Diversion System.

During the construction period all inflows into Anderson Reservoir would be passed through the Stage 1 and Stage 2 Diversion System to maintain the target water surface elevation. If inflow is not sufficient to maintain flows downstream in Coyote Creek for water supply, groundwater

[1] Note that during large storm events, the inflow to the reservoir can exceed its existing outlet capacity, in which case the reservoir elevation and storage may exceed these amounts.

recharge, and environmental benefits, imported water may be used to augment flows. Chillers at the CDL may be used to chill imported water (up to 10 cfs) with the goal of keeping releases at or below 16 °C.

Historical operating conditions of the reservoir were considered as a point of comparison, such as past dewatering events during which the entire reservoir was dewatered in 1961 and 1987. This analysis also looks at impacts of using increased volumes of imported water to supplement stream flows during dam construction.

Impacts to water quality during construction were largely based on the findings presented in: 1) sediment modeling studies conducted by URS in 2020 and 2021 that consider the potential for the ADTP and the Project to mobilize sediment within Anderson Reservoir and downstream in Coyote Creek (URS 2020~~, 2021~~), which are included in Appendix K to this EIR and 2) the *Biological Resources-Fisheries Technical Report* (Appendix F to this EIR), which includes quantitative analysis of suspended sediment, water temperature, and other Project impacts.

3.14.3.2 Conservation Measures Construction

Conservation Measures to be constructed would include the Ogier Ponds CM, Phase 2 Coyote Percolation Dam CM, Maintenance of the North Channel Reach ~~Extension~~, Sediment Augmentation Program, and Maintenance of the Spawning and Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach. While the Conservation Measures are intended to benefit fish habitat, water quality, groundwater recharge, and water supply, their construction could have short-term impacts on water quality in Coyote Creek, Ogier Ponds, the Coyote Percolation Ponds, and the San Francisco Bay. This analysis considered potential impacts from the removal of vegetation or channel material during construction of Conservation Measures, and impacts of adding cobble, gravel, and sediment to reaches downstream of the dam.

The Ogier Ponds CM would restore approximately 6,500 linear feet of river channel and connect the channel to the floodplain. Construction activities include creating a defined creek channel by separating the existing hydraulic connection between Coyote Creek and Ogier Ponds, returning the creek to a riverine channel, and adding ecological enhancements to the channel and floodplain. Construction of the Ogier Ponds CM would involve routing creek flows through diversion pipelines around the construction area and placing fill in multiple ponds. Ponds 1 and 5 would be filled completely and Ponds 2 and 4 ~~5~~ would be partially filled. Separating the Ogier Ponds from Coyote Creek would improve water quality by lowering temperatures in the creek downstream of the ponds. Although a managed hydrological connection (through weirs) would be maintained between the Creeks and the ponds to avoid degradation of pond water quality, the Ogier Ponds CM would allow the full CWMZ as defined in the FAHCE *Settlement Agreement* to function. Because the ponds would no longer result in the significant warming of the creek flow, the existing elevated temperature of creek water downstream of the CWMZ would also be colder which would further benefit beneficial uses in Coyote Creek. Construction of the Ogier Ponds CM would begin in Year 6 and end in Year 8, which would minimize overlap of this ~~project~~ conservation measure with Seismic Retrofit construction. Construction would occur over a three-year period during the dry season work window. Construction of the Ogier Ponds CM would require dewatering of the pond areas to be filled, diversion of creek flow around the work area, and control of groundwater to minimize expected seepage into the work areas, which would be implemented annually during the dry season work window.

~~Construction~~ Maintenance activities ~~associated with~~ in the North Channel Reach ~~Extension~~ would occur during the dry season work window ~~of Year 1~~ and would include minor and intermittent maintenance activities (e.g., vegetation management, replanting, and maintenance of the wetland bench). These activities may require minor and localized dewatering ~~and grading in the channel. The re-opening of the historical Coyote Creek Channel (north channel) would increase the total stream habitat available downstream of Anderson Dam and avoid hardening the south channel. The reopened channel bed would be lined with an engineered fill, and the channel banks would be lined with a biotechnical lining that will allow the growth of vegetation. Linings in the north channel would be designed to remain stable during a flow of 6,000 cfs that has the potential to occur, albeit with a low likelihood, after construction of the Stage 2 Diversion. A revegetation plan would be prepared that will include details on planting in the channel banks and riparian zone, as well as the installation of habitat improvement features.~~

Sediment augmentation activities would improve geomorphic processes that create and maintain steelhead habitat (sediments and spawning gravels) and reduce channel incision that is typical in Coyote Creek downstream of the dam. ~~This program would consist of stockpiling approximately 55,000 cy of suitable sediment from the exposed reservoir. Sediment used from an onsite source would be washed and sorted prior to placing it in Coyote Creek.~~ Initially, following Project construction approximately 500 cy of sediment would be delivered downstream of the dam, near the confluence of the North and South Channels within the Live Oak Restoration Reach ~~or Ogier Ponds~~. Additional sediment augmentation would occur within the Live Oak Restoration Reach and/or within the Ogier Ponds CM Restoration Reach at least every 5 years in an amount up to 500 cy, as necessary and pursuant to the Project and FAHCE Adaptive Management Program. If high flow events during construction mobilize all the injected sediment within the Live Oak Restoration Reach, additional sediment would be added to a location determined based on monitoring and in coordination with the AMT. Over the long-term, Valley Water would, maintain and adaptively manage implementation of the Sediment Augmentation Program to address sediment supply and transport effects of construction and operation of Anderson Dam, and support elements of steelhead critical habitat that are maintained by sediment and geomorphic processes, including spawning gravel quality and availability and rearing habitat.

The Phase 2 Coyote Percolation Dam CM would build upon the Phase 1 design from FOCP to improve upstream and downstream passage at the Coyote Percolation Dam area. Phase 1 improvements are part of the existing conditions baseline and they include 1) replacing the existing steel flashboard dam with an inflatable bladder dam, 2) constructing a portion of a roughened channel to provide upstream and downstream fish passage routes over the dam when the bladder dam is deflated (i.e., Dam-Down conditions), 3) upgrading the approach channel to the fish ladder to a roughened channel that better meets fish passage hydraulic criteria, and 4) upgrading portions of the fish ladder to meet fish passage hydraulic criteria over an increased range of flows. Phase 2 would build on these improvements to meet the most recent applicable CDFW (Love and Bates 2009) and NMFS (NMFS 2022) design criteria for anadromous fish passage across the entire range of design flows. Phase 2 improvements would include 1) constructing a roughened channel over the dam to provide improved upstream and downstream fish passage at higher flows, 2) replacing the radial gates next to the fish ladder with bypass weirs to provide more suitable conditions for downstream passage, and 3) other facility modifications to meet the most recent applicable CDFW (Love and Bates 2009) and NMFS (2022) fish passage design criteria. Therefore, the updated Coyote Percolation Dam after the completion of Phase 2 will allow fish passage at a wider range of flows, including across all

CDFW (Love and Bates 2009) and NMFS (2022) design flows, with less delay and safer downstream passage.

3.14.3.3 Construction Monitoring

The Construction Monitoring component of the Project includes measures to monitor the effects of the Project on the environment and reduce those effects through the avoidance and minimization of impacts. Construction monitoring includes the monitoring of Coyote Creek downstream from Anderson Dam for flow, water quality parameters (including temperature, DO turbidity, and pH), suspended sediment, sediment deposition, and steelhead habitat quality including conditions, migration, migration flows, spawning, and juvenile rearing. As described in Chapter 2, *Project Description,* water temperature, DO, turbidity, and pH have been monitored during FOCP as part of the Condition 2 Plan and will continue to be monitored throughout construction of the Project. The water quality monitoring procedures would be documented in a Water Quality Sampling Plan. In addition, data would be collected for stormwater and runoff discharges from construction areas outside of the reservoir pursuant to a SWPPP developed in accordance with requirements set forth in the statewide Construction General Permit. The SWPPP, including construction discharge turbidity and pH monitoring that complies with the Construction General Permit, would be prepared and implemented to address construction stormwater discharges associated with out-of-reservoir seismic retrofit improvement construction activities

Valley Water prepared a Sediment Deposition Monitoring Plan in Coyote Creek Downstream of Anderson Dam for the FOCP, which Valley Water would continue to implement through construction of the Project. Sediment deposition monitoring would evaluate available habitat conditions for steelhead (spawning gravel, and monitoring sites for spawning gravel quality, egg incubation, juvenile rearing, and fish migration) using the Habitat Criteria Mapping (HCM) approach within the Coyote Creek FCWMZ. ~~suspended~~ Suspended sediment monitoring would also be implemented in accordance with Valley Water's Sediment Monitoring Plan prepared for the FOCP (Valley Water 2021e ~~2021b~~), including monitoring of suspended sediment discharges from Anderson Reservoir through completion of Project construction activities as well as the effects of the discharges on Coyote Creek downstream of the dam. Continuous turbidity monitoring equipment (15-minute intervals), suspended sediment concentration (daily intervals), and suspended load (daily intervals) would be used to evaluate the effect of the discharges on Coyote Creek fisheries habitat and Coyote Creek baylands habitat downstream of the dam. This suspended sediment monitoring data would be used together with the data collected under the Sediment Deposition Monitoring Plan to assess and confirm the anticipated the impacts from sediment released during FOCP and Project construction on spawning habitat quantity and quality and guide the implementation of CMs to offset those effects. ~~would collect turbidity data which will be used, in combination with habitat assessment monitoring information and sediment deposition data collected as part of sediment deposition monitoring, to develop a sediment rating curve at several locations on Coyote Creek. This information will be used to guide the post-construction sediment augmentation program designed to assure that the project delivers a benefit to fisheries habitat and related beneficial uses.~~

Implementation of the construction monitoring measures will involve small numbers of people visiting a number of areas throughout the Project area. Those people and their vehicles and equipment may result in minor, localized, and temporary disturbance of sediment, bank material, and vegetation in aquatic, wetland, and riparian areas. However, such monitoring would help minimize impacts on water quality during construction by identifying adverse effects requiring remediation.

Continued implementation of the Wetland and Riparian Habitat Dryback Monitoring Plan throughout Seismic Retrofit construction would also help identify any adverse water quality effects that creek dryback may be having. If any adverse dryback conditions are noted, Valley Water would augment creek flow if feasible. Implementation of this type of monitoring would involve the same types of activities and effects as the other construction monitoring described above.

3.14.3.4 Seismic Retrofit Post-Construction Operations and Maintenance

Post-construction Anderson Dam facilities operations assume elimination of reservoir ~~seismic~~ restrictions on water storage and behind-dam elevations, and implementation of FAHCE rule curve flows for the benefit of steelhead. Operational activities include operation of Anderson Dam using the FAHCE operational rule curves to guide the timing and volume of flows released from Anderson Dam and the use of the new outlet works that allow for releases of cooler water to Coyote Creek. Due to the elimination of DSOD and FERC elevation restrictions on water storage in Anderson Reservoir, water levels in the reservoir would be maintained at higher elevations than under the Pre-FERC Order Conditions Baseline.

As described above for construction impacts, potential post-construction operations related water quality effects were evaluated qualitatively and quantitatively. The proposed outlet works would increase the outlet flow capacity of the dam to 6,720 cfs. Post-construction releases from Anderson Reservoir would be governed by the FAHCE rule curves.

Post-construction operations and maintenance-related water quality effects are evaluated qualitatively and quantitatively. The analysis of post-construction operations water quality impacts is based on the WEAP model results, and results presented in the *Sediment Deposition in Coyote Creek above Ogier Ponds and Discharge to Estuary (*Appendix K) and the *Biological Resources Fisheries-Technical Report* (Appendix F).

Post-construction flows based on elimination of reservoir storage restrictions and implementation of FAHCE releases were analyzed in comparison to two baselines: the Pre-FERC Order Conditions Baseline representing the way Valley Water managed Anderson Dam releases prior to the FERC Order, and the future conditions baseline representing how Valley Water would manage Anderson Dam releases in the absence of FAHCE, but taking into account future water demand and imported water availability. In general, FAHCE flows may entail slightly lower flows in winter and summer, due to retention of water in the reservoir to provide increased spring pulse flows, than either of the two baseline conditions, punctuated by the increased spring pulse flow releases. Moderately high flows of greater than or equal to 500 cfs or 1,000 cfs could occur more frequently in response to precipitation events relative to the Pre-FERC Order Conditions Baseline due to an increase in the capacity of the dam outlets. The effects of such changes may differ in different parts of Coyote Creek depending on groundwater recharge rates and natural climate conditions.

There is substantial uncertainty regarding the temperature WQO in the San Francisco Bay Basin Plan, both based on the lack of a definition of “natural receiving water” and given that some scientific research has shown that southern populations of salmonids may have adapted to warmer temperatures. To determine the potential for significant temperature impacts, average daily temperatures exceeding 71.6 °F (22 °C) in the CWMZ were selected as the significance criterion ~~threshold~~. USEPA has indicated that temperatures between 71.6 °F and 75.2 °F (22 °C and 24 °C) could begin to change salmonid behavior in response to increased temperature and limit salmonid distribution (USEPA 1999a and 2003, as cited in Carter 2008), with numerous reports citing juveniles present at temperatures of approximately 72 °F (22 °C) (NCRCD 2014, SCWA 2003, Smith, J. 2018). Temperatures exceeding 71.6 °F (22 °C) would have a higher likelihood of altering salmonid behavior, reducing fitness, and approaching increased potential for mortality (depending on duration of exposure). Therefore, average daily temperatures exceeding 71.6 °F (22 °C) in the CWMZ are considered a significant impact in this EIR. It should be noted that this temperature is likely conservative for salmonids found in California, as research indicates that they may be locally acclimated to even warmer conditions. Juvenile CCC steelhead have been observed in streams with temperatures as high as 75.2 °F to 78.8 °F (24 °C to 26 °C) (Hayes et al. 2008, Kubicek and Price 1976). These temperatures align with those reported from controlled studies that showed CCC steelhead could maintain 95 percent of their aerobic scope at temperatures as high as 76.3 °F (24.6 °C) (Verhille et al. 2016). Taken together, these studies provide evidence that steelhead in central California can tolerate temperatures greater than 75.2 °F (24 °C), although thermal variances occur with some populations having higher or lower thermal tolerance (Myrick & Cech ~~2000,~~ 2001; Beakes et al. 2010; Chen et al. 2015).

It should be noted that the FAHCE Program identifies 64.4°F (18°C) in the Coyote Creek CWMZ as the temperature objective that best supports certain species' life cycles. However, based on the above discussion, exceeding this temperature in the CWMZ would not necessarily constitute a substantial adverse effect on salmonids in Coyote Creek, so it was not used as EIR significance criteria.

Additionally, the analysis focuses on Project temperature impacts in the CWMZ because this is the area specifically identified in the Settlement Agreement and historically perennial, and is also where Valley Water operations have the most direct influence on water temperatures through reservoir releases. This is consistent with the San Francisco Bay Basin Plan's emphasis on "controllable water quality factors" when considering achievement of WQOs.

In post-construction conditions, Valley Water would continue to release imported water to the downstream end of the CWMZ via the Cross Valley Pipeline Extension, if stream flow from Anderson Dam does not reach the Cross Valley Pipeline Extension outfall and a dryback is present downstream. There is no temperature limitation for use of imported water in this manner because dryback is present at the release location (i.e., there are no natural receiving waters or temperature limitations as a result). This allows for managed aquifer recharge and meets minimum in-stream flow requirements. This would result in flows in Coyote Creek, and the maintenance of groundwater levels, that would help support multiple beneficial uses.

With respect to post-construction Anderson dam maintenance activities, Valley Water would maintain all Project-constructed features and facilities to ensure their proper function. Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP Program EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). The DMP includes BMPs and mitigation measures to minimize water quality impacts. For example, Valley Water would minimize the negative impacts of reservoir dewatering on water quality or sediment quality through implementation of DMP Mitigation Measure General-3, which requires the development a dam-specific reservoir dewatering plan for each dewatering event. BMPs HM-1 and HM-4 through HM-8, and DMP Mitigation Measures Water Quality-1 and **Wildlife-4** all deal with minimizing impacts to water quality from herbicides, pesticides, and rodenticides. For most water quality impacts, the Project's post-construction maintenance activities would not differ substantially from those impacts identified in the DMP EIR. Furthermore, previously identified DMP impacts would not be exacerbated with implementation of the Project.

3.14.3.5 Post-Construction Conservation Measures Operations and Maintenance

The Conservation Measures components includes the Ogier Ponds CM, Phase 2 Coyote Percolation Dam, Maintenance of the North Channel Reach ~~Extension~~, Sediment Augmentation Program, and Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach, all which focus on improving fish habitat.

As part of the Ogier Ponds CM, the creek channel would be widened and separated from the Ogier Ponds by weir and berms, and Coyote Creek would flow around the Ogier Ponds in normal circumstances. Eliminating creek flow through the ponds under general conditions via the creek pond separation project is a key element of improving summer temperatures and reducing predation within the Ogier Ponds Reach of Coyote Creek for the benefit of steelhead. The spillway structure would be designed to divert flows from the restored channel to the ponds to protect the integrity of the channel when flows exceed 2,000 cfs. Water in the ponds would be generally maintained by groundwater seepage. Changes in water quality may occur due to creek channel/pond separation as necessary to improve temperature and other steelhead habitat conditions within Coyote Creek include reduction in DO (particularly in summer) and surface water changes. Creek flows through the ponds would only occur via operation of spillway. High flows would flow into Pond 2 through spillway, then travel through Ponds 3 and 4, until flows exit Pond 4 and flow back into the creek via a culvert that will have fish screens to prevent predation. Monthly inspections would be conducted to monitor water quality changes. To maintain or improve DO in the ponds during normal conditions in the absence of creek flow-through, solar powered floating aerators would be installed to maintain or improve DO as compared to existing conditions. Other water quality best management practices may also be deployed, if necessary as indicated by pond water quality monitoring results to maintain or improve upon existing water quality conditions in the ponds. Maintenance of Ogier Ponds would include vegetation management, vegetation restoration, and inspection and repair of the berms, weirs, vegetation and habitat enhancement, and erosion protection.

Maintenance of the North Channel Reach would include maintaining the constructed wetland bench, maintaining design flow capacity through the North Channel, and replacing restoration plantings, as needed. ~~The North Channel Extension would accept most flows discharged from Anderson Reservoir. Maintenance of the North Channel Extension component would include removal of debris or vegetation from the channel, and possibly dewatering and grading the channel, if necessary, so that the channel maintains positive drainage.~~

The Sediment Augmentation Program would include continued inspection and placement of additional gravel/sediment, ~~ranging from 5 to~~ in an amount up to 500 cy at least every 5 years, as needed to support and maintain steelhead habitat throughout Coyote Creek.

The Phase 2 Coyote Percolation Dam CM would provide improved fish passage over the Coyote Percolation Dam. Within 13 months of completion of the Phase 2 Coyote Percolation Dam design (completion of design anticipated ~~in~~ prior to Year 1 ~~4~~), Valley Water will prepare a Phase 2 Coyot~~e~~ Percolation Dam Operations Plan in coordination with the regulatory agencies. The objectives of the Operations Plan will be to continue to provide sufficient groundwater recharge, while improving conditions for smolt migration. Maintenance would include periodic removal of sediment, vegetation management, repair of rock slope protection, and replacement of any in-channel bio-engineered habitat enhancements, as needed.

Within the Live Oak Reach, maintenance would include vegetation management and replacement of any in-channel bio-engineered habitat enhancements, as needed.

In-stream maintenance activities for the Conservation Measures would be conducted consistent with Valley Water’s existing SMP, which includes BMPs and avoidance and minimization measures to minimize potential impacts to water quality.

3.14.3.6 Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys).

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from of the original Conservation Measure construction.

Impacts of monitoring and adaptive actions are considered here at a programmatic level because the detailed characteristics, timing, and/or locations of the proposed adaptive measures are not known at the time of EIR preparation. Project-specific CEQA review would be undertaken in the future, as necessary, when specific projects are proposed, and project-specific details are available.

3.14.3.7 Applicable Avoidance and Minimization Measures, Best Management Practices, and VHP Conditions

Valley Water BMPs and VHP conditions and AMMs incorporated into the Project are described in Appendix A. Measures applicable to water quality are listed below and described in the impact discussions as applicable. The following BMPs would serve to minimize impacts on water quality from the Project:

- AQ-1 - Use Dust Control Measures
- HM-1 - Comply with All Pesticide Application Restrictions and Policies
- HM-2 - Minimize Use of Pesticides
- HM-4 - Comply with All Pesticide Usage Requirements
- HM-5 - Comply with Restrictions on Herbicide Use in Upland Area
- HM-6 - Comply with Restrictions on Herbicide Use in Aquatic Areas
- ~~HM-7 - Restrict Vehicle and Equipment Cleaning to Appropriate Locations~~
- HM-8 - Ensure Proper Vehicle and Equipment Fueling and Maintenance
- HM-9 - Ensure Proper Hazardous Materials Management
- HM-10 - Utilize Spill Prevention Measures
- WQ-1 - Conduct Work from Top of Bank
- WQ-2 - Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
- WQ-3 - Limit Impact of Pump and Generator Operation and Maintenance
- WQ-4 - Limit Impacts From Staging and Stockpiling Materials
- WQ-5 - Stabilize Construction Entrances and Exits
- WQ-6 - Limit Impact of Concrete Near Waterways
- WQ-8 - Minimize Hardscape in Bank Protection Design
- WQ-9 - Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
- WQ-11 - Maintain Clean Conditions at Work Sites
- WQ-15 - Prevent Water Pollution
- WQ-16 - Prevent Stormwater Pollution
- GEN-1 - In-Channel Work Window
- GEN-20 - Erosion and Sediment Control
- GEN-21 - Staging and Stockpiling
- GEN-26 - Spill Prevention and Response
- GEN-30 - Vehicle Maintenance
- GEN-31 - Vehicle Cleaning
- GEN-32 - Vehicle Fueling
- GEN-35 - Pump/Generator Operations and Maintenance
- VEG-1 - Minimize Local Erosion Increase from In-Channel Vegetation Removal
- BANK-1 - Bank Stabilization Design to Prevent Erosion Downstream

- BANK-2 - Concrete Use Near Waterways
- BANK-3 - Bank Stabilization Post-Construction Maintenance
- REVEG-1 - Seeding

Additionally, the following VHP conditions would serve to minimize impacts on water quality from the Project:

- ~~VHP~~ Condition 3 - Maintain Hydrologic Conditions and Protect Water Quality
- ~~VHP~~ Condition 4 - Avoidance and Minimization for In-Stream Projects
- ~~VHP~~ Condition ~~-~~5 - Avoidance and Minimization Measures for In-Stream Operations and Maintenance
- ~~VHP~~ Condition 7 - Rural Development Design and Construction Requirements
- ~~VHP~~ Condition ~~11~~ - Stream and Riparian Setbacks
- ~~VHP~~ Condition 12 - Wetland and Pond Avoidance and Minimization

Additionally, the following VHP ~~conditions~~ AMMs related to conditions 3, 4, and 5 would serve to minimize impacts on ~~hydrology~~ water quality from the Project ~~(refer to Appendix A for the full text of VHP conditions)~~:

2: Remove pollutants from surface runoff.

7: 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.

9: Personnel shall implement measures to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means when removing sediments from streams.

11: Vehicles shall be washed at approved areas.

12: No equipment servicing shall be done in the stream channel or immediate floodplain.

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

67: No stockpiling or placement of erodible materials shall occur in waterways or along areas of natural stormwater flow.

68: Stabilize stockpiled soil with geotextile or plastic covers.

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

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.

84: Appropriate erosion control measures (e.g., fiber rolls, filter fences, vegetative buffer strips) will be used on site.

87: Vehicles operated within and adjacent to streams will be checked and maintained daily to prevent leaks.

97: Erosion control measures shall be in place at all times during construction.

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

3.14.3.8 Thresholds of Significance

For the purposes of this EIR, consistent with *CEQA Guidelines* Appendix G, the Project would result in a significant impact to water quality if it would:

- **WQ-1a:** Impair beneficial uses of surface waters (criterion a).
- **WQ-1b:** Violate any applicable surface water quality standards or waste discharge requirements, or otherwise substantially degrade surface water quality (groundwater quality is assessed in Section 3.12, *Groundwater Resources*) (criterion b).
- **WQ-1c:** Conflict with or obstruct implementation of a water quality control plan (criterion c)

Rather than looking at each impact criterion individually, the impact analysis below considers whether the Project would result in a significant impact for criteria a, b, and c collectively, under Impact WQ-1. This is because these criteria are closely linked and separate analyses for each would lead to repetition and heavily overlapping discussions. For example, the same changes in water quality can result in the violation of water quality standards and impairment of beneficial uses. Additionally, the analysis of beneficial uses in Impact WQ-1a and water quality standards in Impact WQ-1b inherently identifies conflicts with the Basin Plan (WQ-1c) to the extent that impairments of beneficial uses or violations of applicable water quality standards would also conflict with the Basin Plan.

3.14.4 Impact Analysis

Impact WQ-1: Impair beneficial uses of surface waters OR violate any applicable surface water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality OR conflict or obstruct implementation of a water quality control plan **(Significant and Unavoidable)**

Seismic Retrofit Construction

Project construction activities would involve drawdown and dewatering of the reservoir, excavation of soils within or near the reservoir and creek, placement of fill within or near the reservoir or creek to construct dam improvements, potential sediment transport to water bodies from large-scale earth-moving activities, vehicle travel on unpaved access/haul roads, exposed unvegetated work sites and staging areas, uncovered stockpiles, dewatering of construction sites and excavated areas (such as tunnels), and mining/borrow activities. In addition, construction of temporary bridges may require construction within the creek channel. All these construction activities may cause the release of sediment, and pollutants adhered to sediment, in construction site storm water and runoff, which in turn may increase receiving water turbidity and sedimentation, and impact beneficial uses that are sensitive to increased turbidity. Particularly reservoir dewatering would periodically result in temporary, but substantial releases of sediment to Coyote Creek from the reservoir, particularly during and immediately following large storm events (greater than 2- to 5-year storms), during the construction period. These sediment releases would increase turbidity in Coyote Creek and may mobilize other pollutants adhered to sediment and release them into Coyote Creek~~, such as diazanon, dieldren, and other COCs for Coyote Creek~~. In addition, clearing, grading, and filling for construction of Seismic Retrofit facilities could mobilize sediment and pollutants adhered to sediment~~ (including, for example, mercury, PCBs, diazinon, dieldrin, and DDT)~~, which are then released to surface waters in construction site storm water and runoff. As discussed previously, while Anderson Reservoir is impaired for mercury and PCBs, recent sampling of the sediments on the bottom of Anderson Reservoir found that the sediments have low readings for both mercury and PCBs. Anderson Reservoir is not impaired for diazinon or other constituents of concern for Coyote Creek or San Francisco Bay, and the sediment testing indicated low levels of diazinon in reservoir sediments. As such, there is low potential for these pollutants to be released along with mobilized sediment.

In addition, reservoir releases during drawdown construction related conditions could increase water temperatures in Coyote Creek downstream because the reservoir pool from which water is released would be smaller and shallower.

Both in-reservoir and out-of-reservoir construction ~~Construction~~ activities would also involve the use of hazardous materials and petroleum products, which could accidentally be released into the environment, resulting in adverse effects on water quality. These issues are discussed separately below.

Seismic Retrofit construction also involves significant use of concrete in the form of shotcrete and poured form concrete to rebuild the dam and outlet facilities. Exposure of uncured concrete to precipitation or use of excessive water in placing concrete can result in the release of concrete constituents in runoff that affect the pH of receiving waters. In addition, cleaning and maintenance of equipment used to shoot and pour concrete into place can result in release of concrete constituents that affect pH of receiving waters.

Construction sites with multiple workers may also generate trash that is mobilized and discharges in storm water or runoff. Release or trash not only increases that pollutant, but trash can consist of substances that affect DO in receiving waters.

Reservoir Dewatering and Releases

As discussed in Chapter 2, *Project Description,* while water levels within Anderson Reservoir have been substantially reduced as part of the FOCP (presently maintained at deadpool), the reservoir would need to be fully dewatered for construction of the Seismic Retrofit component and kept low for the duration of construction. The dewatering would follow a multi-step process, whereby dewatering of the reservoir to elev. 450 ~~467~~ feet would occur during Year 1 of construction ~~and to elev. 450 feet during Year 2~~. The reservoir would be maintained at elev. 450 feet during Years 2 and 3. The reservoir would be filled to elev. 556 feet in Year 4, elev. 556 feet in Year 5, and elev. 657 feet in Year 6. ~~The reservoir would be maintained at elev. 453 feet during Years 3, 4, 5, and 6.~~ Flows would be released to lower the reservoir in a controlled manner that avoids downstream erosion and takes advantage of groundwater recharge in Coyote Creek.

Once dewatered, all inflow to the reservoir would be passed through the dam during construction through the Stage 1 Diversion System in Year 1 and 2, and through the Stage 2 Diversion System in Years 3, 4, 5, and 6. Outflow from the reservoir during construction is expected to range from 6 to 10 cfs in summer months and 8 to 600 cfs in the winter, depending on the water year type (Valley Water 2023b ~~2023c~~). Peak flows during storms would be greater.

Within-Reservoir Effects

With respect to the impacts on water quality within the reservoir itself, the dewatering under Seismic Retrofit component construction would exacerbate adverse effects which will have already occurred as compared to Pre-FOCP baselines conditions due to the partial dewatering (i.e., to deadpool) under FOCP. The further lowering of water levels within the reservoir would increase water temperature, turbidity (especially following storms), and potentially concentrate other pollutants that be present within the water column. When fully or partially dewatered, beneficial uses associated with the reservoir would be impaired; in particular, Commercial and Sport Fishing (COMM), Cold Freshwater Habitat (COLD), Fish Spawning (SPWN), Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Non-contact Water Recreation (REC-2), and Water Contact Recreation (REC-1), since the reservoir pool would be substantially reduced and Anderson Lake County Park would continue to be closed to the public, such that none of the identified beneficial uses would be possible or fully achievable. While some fish and wildlife habitat would remain in the small pool of water (roughly 500 AF) that may remain behind the cofferdam during the dry season, and the larger pool of water that could potentially accumulate despite fully open outlets during the wet seasons during Seismic Retrofit component construction, the habitat quality and extent would be substantially reduced compared to the Pre-FERC Order Baseline and the existing conditions baseline. As noted above, elevated temperatures and turbidity would occur in the remaining reservoir pool during Seismic Retrofit component construction, which would have adverse effects on fish and other aquatic wildlife and related beneficial uses within the reservoir. At the conclusion of construction, the reservoir would be allowed to refill, temperature and turbidity would be expected to return to Pre-FERC Order Conditions, and all beneficial uses would be restored. Impacts to Municipal and Domestic Supply and Groundwater Recharge (GWR), which are beneficial uses that are realized primarily through releases from Anderson Reservoir to Coyote Creek downstream (where percolation to groundwater then occurs), are discussed in more detail below and in Section 3.12, *Groundwater Resources*.

Based on the above analysis, construction phase water quality impacts within the reservoir are significant, and an unavoidable consequence of reservoir dewatering. As the reservoir must be maintained at a low storage level throughout construction, there are no additional measures to reduce the impact and it is significant and unavoidable.

Impacts of Sediment Releases on Coyote Creek

Due to lower reservoir levels and the direct release of reservoir inflows to the Creek through the Stage 1 Diversion System and Stage 2 Diversion System, releases from Anderson Reservoir to Coyote Creek during Seismic Retrofit component construction would have elevated suspended sediment/turbidity levels and temperatures since:

1. Exposed sediment in the reservoir basin would be more prone to erosion/suspension/ entrainment following large storm events (greater than 2- to 5-year storm events).
2. Rain events could suspend sediment from stockpile areas in, and around, the reservoir, and transport it downstream.

3. The smaller reservoir pool will settle out less suspended sediment prior to downstream release of flows.
4. Inflowing waters into the creek will be shallow and largely unshaded, and discharged from at or near the surface of the reservoir, as compared to having cooler deeper waters released at times when greater reservoir storage is allowed.
5. Releases during localized dewatering would enter Coyote Creek without treatment.

Suspended Sediment and Turbidity

During the first construction season (Year 1), when the reservoir is empty (Scenario 3 in the sediment transport modeling memorandums),[2] sediment models show that suspended sediment concentration[3] released from the reservoir to the Creek could hit 5,200 mg/L during flows of 500 cfs, which would be associated with precipitation events that are more frequent than the 2-year rain event. Suspended sediment concentration levels may reach values of 39,000 mg/L following a 2-year rain event (URS 2023, Valley Water 2023c). During construction seasons Year 2 though Year 6 (Scenario 4), the presence of a small pool above the interim dam would allow some suspended sediment to settle out prior to flows exiting the dam, leading to lower (but still elevated) modeled suspended sediment concentration in releases from the dam. Refer to Section 3.11, *Hydrology*, for a detailed discussion of the suspended sediment modeling results. As described therein, larger rain events would not necessarily lead to higher suspended sediment concentration as the reservoir would gradually fill while release flows would be limited by the capacity of the diversion system. **Table 3.11-5** in Section 3.11 shows that peak TSS[4] concentrations associated with reservoir releases would generally attenuate further downstream along Coyote Creek (with the exception of the 2-year inflow under Scenario 3, where TSS concentrations would spike back up over 30,000 mg/L at Milpitas). **Table 3.14-5** summaries the 2-year inflow would result in the following peak TSS concentrations at locations along Coyote Creek. Preliminary FOCP monitoring of suspended sediment concentrations suggests that the URS models overestimate suspended sediment concentrations and therefore adverse suspended sediment impacts described below may be overestimated (Stillwater Sciences 2024).

[2] The sediment transport modeling memoranda (URS 2020, ~~2021~~) considered two scenarios related to the Seismic Retrofit component construction: Scenarios 3 and 4. Under Scenario 3, the water level in the reservoir would be at El. 450 feet and the outlet works would be comprised of the ADTP, capable of releasing 2,000 cfs. This scenario would only last approximately 3 months during Year 1 of construction. Under Scenario 4, the water level in the reservoir would be at elev. 467 feet and the Stage 2 Diversion System would be in place, capable of releasing roughly 6,850 cfs. These conditions would last approximately 4 years during the Seismic Retrofit component construction period. Refer to Appendix K ~~J~~ for detailed description of the scenarios considered in the sediment transport modeling.

[3] Suspended sediment concentration is the concentration of sediment particles suspended in water, usually measured in mg/L. Turbidity is a measure of water clarity (how much light is scattered in a liquid). Turbidity is related to suspended sediment and is usually measured in NTUs. Turbidity is easier to measure in the field and is often used as a proxy for relative levels of suspended sediment concentration.

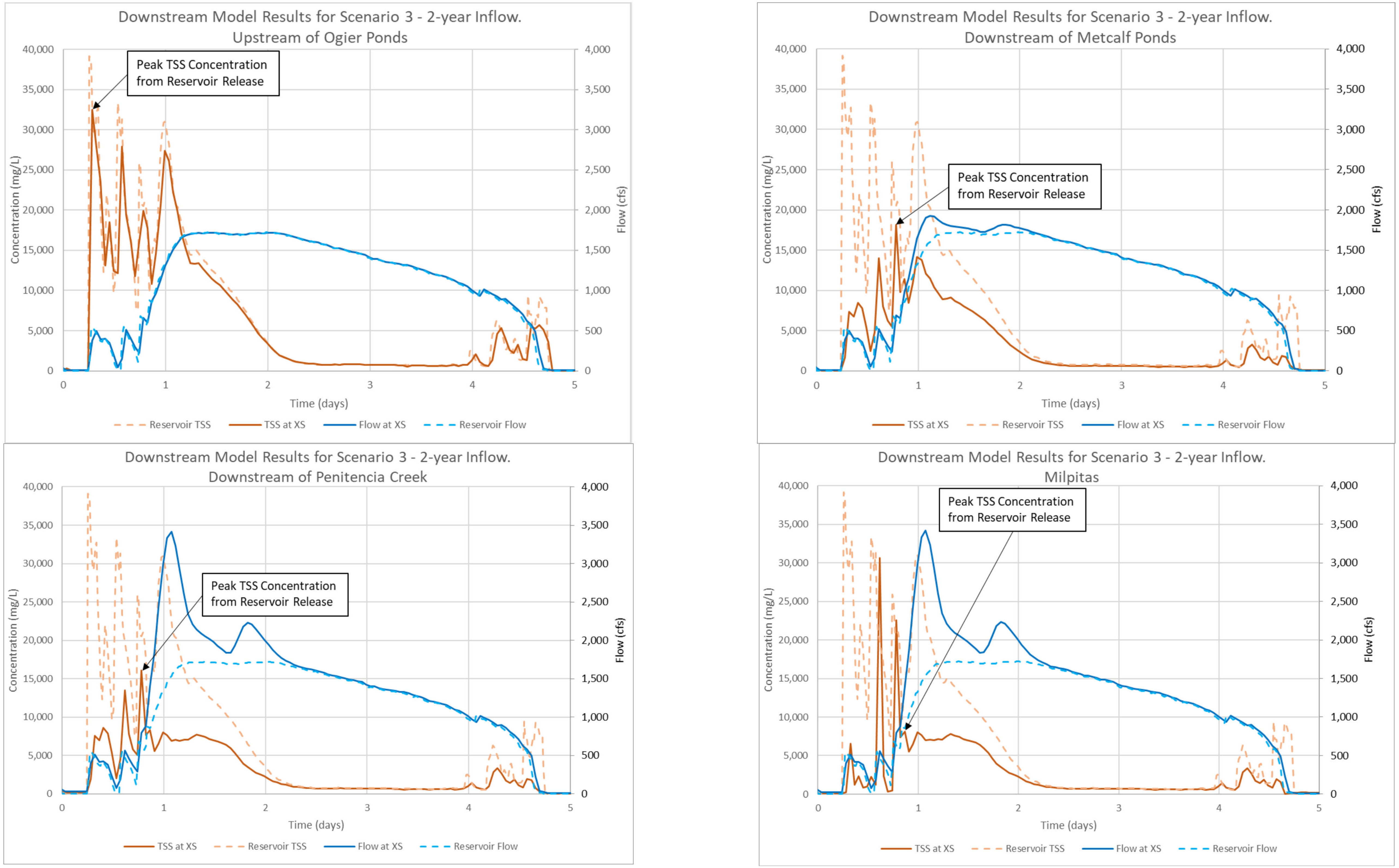
[4] Suspended sediment concentration is a measure of the amount of organic and inorganic particles in water. TSS which is ~~the~~ also a measure of the concentration of ~~all~~ organic and inorganic particles in water is ~~also~~ used sometimes instead of suspended sediment concentration. TSS only measures the weight of solids captured on a filter which can result in larger particles not being measured, therefore suspended sediment concentration is generally considered more accurate. The EIR uses suspended sediment concentration but ~~suspended sediment concentration correlates with~~ TSS also measures particles in water so either one could be used when discussing impacts to fish.

Table 3.14-5. Sediment Releases in 2-Year Flow During Seismic Retrofit Construction

Scenario 3 (Year 1 Construction) Peak TSS from 2-year flow	Scenario 4 - (Years 2 through 6) Peak TSS from 2-year flow
Released from Reservoir: 39,140 mg/L	Released from Reservoir: 30,470 mg/L
Upstream of Ogier Ponds: 32,492 mg/L	Upstream of Ogier Ponds: 26,437 mg/L
Downstream of Metcalf Ponds: 18,117 mg/L	Downstream of Metcalf Ponds: 18,145 mg/L
Near Upper Penitencia Creek Confluence: 16,055 mg/L	Near Upper Penitencia Creek Confluence: 16,521 mg/L
At Milpitas: 30,617 mg/L	At Milpitas: 16,547 mg/L

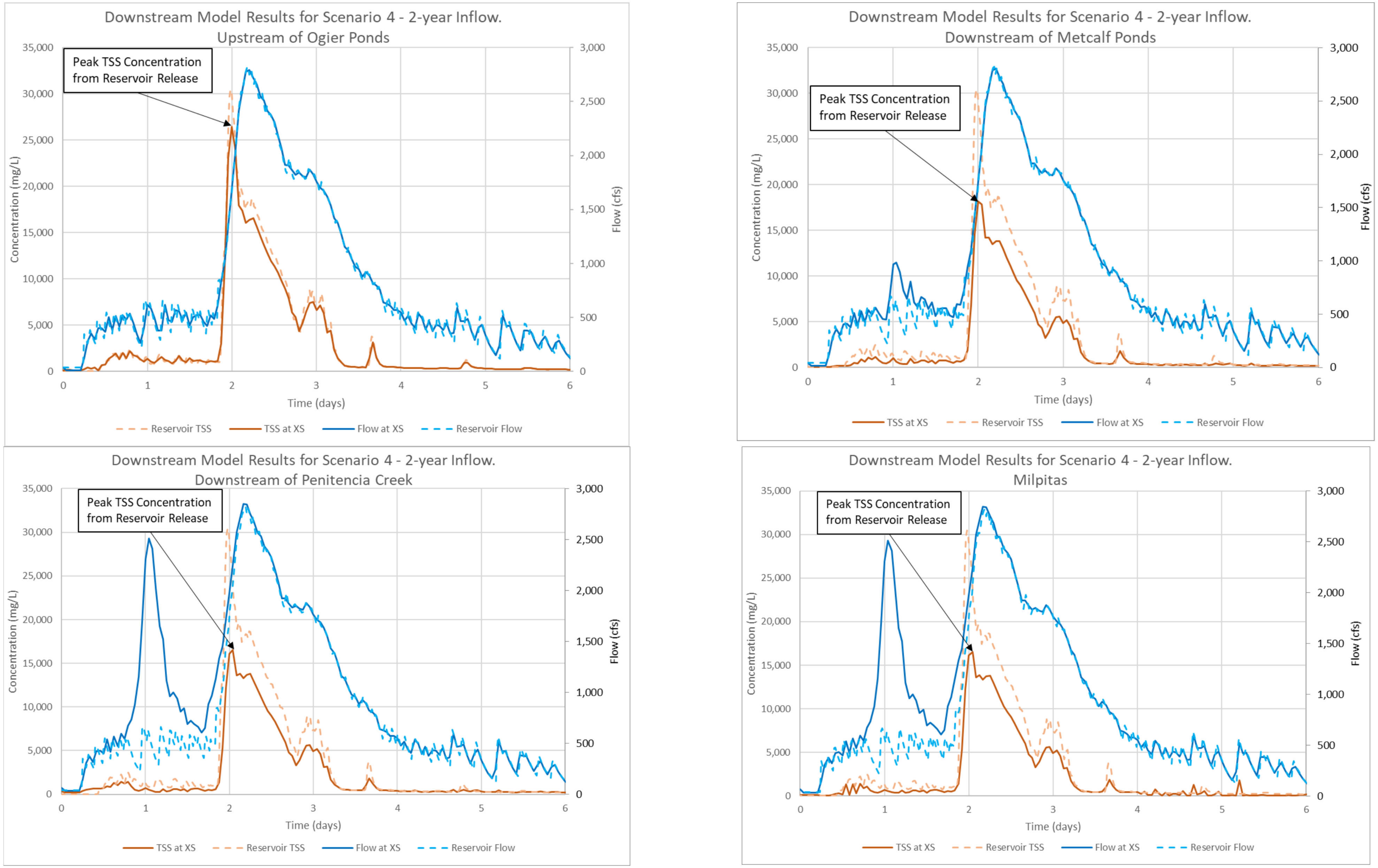
The modeling also shows that the elevated suspended sediment concentration <u>in water releases from the reservoir</u> would be relatively short-lived following the modeled storm events, as shown in **Figure 3.14-3** and **Figure 3.14-4**. Note that only the model results for the 2-year inflow event are shown since these generally result in the highest TSS concentrations; refer to Appendix K for the entirety of the model results, including other storm frequencies modeled (e.g., constant inflow, 5-year inflow, one-half of 2-year inflow). As seen in **Figure 3.14-3**, the elevated TSS levels under Scenario 3 dissipate relatively rapidly and, generally, the concentrations above 10,000 mg/L last for less than 2 days at all modeled locations along Coyote Creek. Based on the flow in the creek and into the reservoir, this may be due to erosion within the reservoir being most pronounced at the beginning of a storm/inflow event; whereas, once the reservoir fills to some degree, the inundation prevents further erosion from occurring and provides an opportunity for entrained sediment to settle out in the reservoir prior to discharge. A similar pattern is observed in **Figure 3.14-4**, where the elevated TSS concentrations at various downstream locations last for a short period following the 2-year storm event. At all locations modeled, the TSS levels over 10,000 mg/L last for less than a day.

Figure 3.14-3. Downstream Sediment Transport Model Results for Locations Along Coyote Creek - Scenario 3, 2-Year Inflow



Source: URS 2020

1 **Figure 3.14-4. Downstream Sediment Transport Model Results for Locations Along Coyote Creek – Scenario 4, 2-Year Inflow**



2 *Source: URS 2020*

Increased suspended sediment and turbidity (which is related to suspended sediment) in Coyote Creek would potentially result in short-term, periodic impacts to multiple beneficial uses of the creek relating to recreation, fishing, and fish habitat. As shown in **Table 3.14-4**, the nontidal portion of Coyote Creek is designated as having existing beneficial uses for GWR, COMM, COLD, fish migration (MIGR), preservation of rare and endangered species (RARE), SPWN, WARM, WILD, water contact recreation (REC-1), and non-contact water recreation (REC-2) (San Francisco Bay RWQCB 2019 ~~2023~~). As described in Section 3.14.2.2, the San Francisco Bay Basin Plan does not include numerical WQOs for sediment, although it indicates that the San Francisco Bay RWQCB is working on developing these. Rather, the Basin Plan provides a narrative WQO for sediment, as follows: "The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance and adversely affect beneficial uses. Another WQO provides that increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 NTU" (San Francisco Bay RWQCB 2019 ~~2023~~). Conversion of suspended sediment concentration or TSS to NTUs, and vice versa, is not completely straightforward and may depend on specific characteristics of the water body and suspended material; nevertheless, TSS levels over 10,000 mg/L, as seen in the sediment transport modeling for the Project, would be well over 50 NTU. As a result, sediment releases during and for a short term after precipitation events are expected to exceed water quality objectives.

The elevated suspended sediment concentration associated with releases from Anderson Reservoir following storms (e.g., greater than 2-year or 5-year events) would potentially temporarily cause nuisance and adversely affect certain beneficial uses for the short-term following precipitation events, thereby resulting in a short-term exceedance of the sediment load and ~~suspended sediment~~ turbidity WQO. For GWR, the issue is with respect to fine sediment deposition, as recharge operations can be limited by excessive suspended sediment or turbidity that can clog the surface of recharge pits, basins, or wells (San Francisco Bay RWQCB 2019 ~~2023~~). The impacts caused by sediment deposition are discussed further below. For recreation (REC-1, REC-2) beneficial uses elevated suspended sediment concentration within the water column would be detrimental for short period of times during and immediately following precipitation events thereby causing an exceedance of the suspended sediment WQO, but recreation during these periods is not consistent with public health and safety.

Sediment releases may result in potential short term adverse effects on fish and aquatic species habitat/protection beneficial uses (COLD, MIGR, RARE, SPWN, WARM, WILD) based on the potential to reduce in egg survival for spawning fish species, including steelhead, thereby resulting in a short-term exceedance of the suspended sediment WQO. As discussed in Section 3.4, *Biological Resources – Fisheries Resources*, the primary adverse effect for fish species resulting from suspended sediment releases during the 2-year, one-half 2-year, or 5-year event (refer to **Table 3.11-5** in Section 3.11, *Hydrology*), would be the potential to harm incubating eggs. Steelhead redds and incubating eggs of other sensitive migratory and winter spawning fish species (e.g., Pacific lamprey) could experience up to 20 percent mortality in response to sediment releases during 2-year and 5-year precipitation events. Overall, the increased suspended sediment concentration during Seismic Retrofit construction would decrease the productivity of the steelhead population in Coyote Creek. Although this impact would not be substantial for the population in the watershed as a whole, this would constitute a temporary adverse effect on the fish species-related beneficial uses that would occur only during certain-sized storm events and constitute an exceedance of the suspended sediment WQO. In terms of direct effects of construction phase sediment releases on beneficial uses (rather than the potential for exceedance of the suspended sediment WQO), effects would be short term (during and following precipitation events exceeding the 2-year event as described above, and may over the long-term, actually be indiscernible or may benefit certain beneficial uses.

Short term adverse effects on recreation beneficial uses (REC-1, REC-2, COMM) would occur, but be less pronounced, since (1) recreationists would be less likely to utilize Coyote Creek when the suspended sediment concentration effects would be most substantial (i.e., during the wet season, during or immediately following storms), and (2) the suspended sediment concentration effects would not pose a risk to human health (e.g., waterborne disease transmission). Within a short time (in most cases predicted by modeling to be less than 1 day) sediment effects within Coyote Creek are not detectable. The increased suspended sediment concentration, particularly following storm events (greater than 2-year and 5-year events), would temporarily adversely affect the aesthetic qualities of the water, which are important for the recreation beneficial uses, but would not result in a longer-term effect that precludes recreation after a sufficient period of time following the storm event. Further, such impacts occur in the existing condition baseline and Pre-FERC Order Baseline.

With respect to ~~Beneficial~~ beneficial uses in the tidally-influenced portion of Coyote Creek (i.e., Coyote Slough) and South San Francisco Bay, the suspended sediment concentration effects associated with reservoir releases during Seismic Retrofit construction would be less substantial. Generally, the elevated suspended sediment concentrations tend ~~tends~~ to attenuate or otherwise become reduced further downstream from Anderson Dam. As shown in **Figure 3.14-3** and **Figure 3.14-4**, TSS concentrations are typically lower at Milpitas than locations further upstream (with the one notable exception being under Scenario 3 for the 2-year inflow, where TSS levels spike at Milpitas from other sources). As indicated in **Table 3.14-4**, Coyote Slough is designated as having the following beneficial uses: estuarine habitat (EST), preservation of RARE, WILD, water contact recreation (REC-1), and non-contact water recreation (REC-2) (San Francisco Bay RWQCB 2019 ~~2023~~). South San Francisco Bay is designated as having all the same beneficial uses, plus industrial service supply (IND), ocean, COMM, shellfish harvesting (SHELL), MIGR, SPWN, and navigation (NAV) (San Francisco Bay RWQCB 2019 ~~2023~~).

For certain beneficial uses in Coyote Slough and South San Francisco Bay, the short-term impacts of elevated suspended sediment concentration on the achievement of the beneficial uses would be limited. For example, for IND, most industrial service supplies have essentially no water quality limitations except for gross constraints, such as freedom from unusual debris (San Francisco Bay RWQCB 2019 ~~2023~~). Thus, elevated suspended sediment concentration (primarily limited to brief periods during or following storms) would not substantially affect such industrial service supplies. Similarly, for the NAV beneficial use, where water is used for shipping, travel, or other transportation by private, military, or commercial vessels, elevated suspended sediment concentrations in the water column would not substantially affect achievement of the use (the potential for sediment deposition to affect NAV is discussed below). For other beneficial uses related to fishing, fish and wildlife protection and habitat, and recreation, elevated suspended sediment concentrations would generally result in similar short-term impacts, similar but greater than occur in the existing baseline and Pre-FERC Order Baseline.

The impacts of elevated suspended sediment on biological resources are discussed further in Section 3.4, *Biological Resources – Fisheries Resources* and Section 3.5, *Biological Resources—Wildlife and Terrestrial and Resources,* As detailed in that section, despite the short-term adverse effects of sediment mobilization and release from Anderson Reservoir during Seismic Retrofit component construction, the transport of this sediment downstream to lower Coyote Creek and San Francisco Bay would be beneficial for these downstream ecosystems and habitats and related beneficial uses because the system has historically been deprived of sediment.

Stormwater accumulating in the downstream excavation area of the dam, at spillway and outlet works construction, and at the BHBA would be collected and pumped to an ATS prior to release into Coyote Creek (Section 2.5.4.2) or used for dust control. In staging areas and stockpile areas located in these areas without access to existing infrastructure, stormwater would be managed using Valley Water's BMPs, as listed in Section 2.11 and included in Appendix A, *Best Management Practices and Santa Clara Valley Habitat Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures*, and also would be managed in accordance with the SWPPP prepared to comply with the Construction General Permit. ~~To reduce the volumes of erosion from active construction areas and stockpiles Valley Water would use an ATS to treat dry season construction site dewatering releases as described in Chapter 2, *Project Description*.~~ However, releases from the reservoir would greatly exceed the volume of runoff that is feasible to treat ~~treated~~ via the ATS following rain events.

Valley Water would implement a Water Quality Sampling Plan and Sediment Monitoring Plan to continuously monitor turbidity and suspended sediment discharges from Anderson Reservoir through completion of Project construction activities, and the Sediment Deposition Monitoring Plan to monitor the effect of releases carrying in-reservoir suspended sediment on Coyote Creek downstream of the dam. The Water Quality Sampling Plan and Sediment Monitoring Plan were ~~was~~ created as part of the FOCP and would continue to be followed during the Seismic Retrofit construction. ~~Monitoring~~ Continuous monitoring would take place at the Madrone Gage (USGS11170000), Edenvale Gage (USGS 11171500), Coyote Ranch Road Gage (USGS 11170450), and Highway 237 Gage (USGS 11172175). ~~Serpentine Trail Pedestrian Bridge , Valley Water Gage Station #50824, Coyote Ranch Road, and USGS Gage Station #11172175.~~ Supplemental turbidity and total suspended sediment concentrations would be collected near the dam outlet following storm events.

The Sediment Monitoring Plan would use monitoring results to inform adaptive management of measures[5] to minimize the discharge of suspended sediment (Valley Water 2021b). However, if sediment is entrained in reservoir releases ~~and is the result of natural conditions~~, adaptive management options to prevent sediment from being released from the reservoir are limited, primarily because the FERC 2020 Interim Flood Risk Reduction Measures prohibit storing and settling storm related runoff behind the dam until the retrofit is complete due to the heightened risk to public health and safety. Therefore, methods that rely on runoff detention to reduce sediment in runoff releases, e.g., sediment curtains, or runoff detention and passive or active treatment to settle sediment out of flow, cannot be deployed. Also, other conventional erosion controls would be inundated and therefore ineffective ~~other than temporarily halting reservoir releases~~ (Valley Water 2021b). Refer to Section 3.11, *Hydrology*, for more detailed discussion.

Implementation of the Water Quality Sampling Plan, Sediment Monitoring Plan, and Sediment Deposition Monitoring Plan would measure impacts to water quality associated with elevated suspended sediment concentration in the water column as a result of releases from Anderson

[5] Note that this is different from the adaptive management that would be implemented in the post-construction Project period as part of the FAHCE AMP.

Dam during Seismic Retrofit component construction. Data derived from the Sediment Monitoring Plan and Sediment Deposition Monitoring Plan would guide implementation of the Live Oak Restoration Reach Maintenance, Ogier Ponds design, and implementation of the Sediment Augmentation Program to restore and enhance habitat to offset any adverse effects and retain habitat benefits of construction phase sediment releases from the reservoir. In addition, construction scheduling of the Ogier Ponds CM, Phase 2 Coyote Percolation Dam CM would allow capture of fine sediments during the reservoir drawdown period. Those Conservation Measures—as well as the Sediment Augmentation Program and Maintenance of the Spawning and Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach—would provide longer-term enhancements for fisheries-related and other beneficial uses.

Given that TSS could be as high as 39,140 mg/L during construction (prior to coffer dam construction, following a 2-year storm event; refer to Section 3.11), the numerical WQO for turbidity of 10 percent greater than background conditions would be temporarily and periodically exceeded, a significant water quality impact. However, the impact on beneficial use impairment would be less than significant given the temporary and periodic nature of the turbidity impact, and the ability of Conservation Measures to minimize and offset this impact over the short- and long-term, and the benefits to habitat complexity and structure provided by sediment releases. Regarding the fisheries-related beneficial uses, Section 3.4, *Biological Resources – Fisheries Resources* demonstrates why temporary increases in turbidity during construction would not cause significant adverse effects on special-status fish populations and habitat.

As discussed in the "Significance Conclusion Summary" below, other options are limited to address erosion and sedimentation that would occur during storms when the reservoir is in a dewatered state. Therefore, the water quality objective violation with respect to suspended sediment discharges to Coyote Creek from the reservoir during Seismic Retrofit construction would be a significant and unavoidable water quality impact.

Sediment Deposition

As described in Section 3.11, *Hydrology*, the reaches of Coyote Creek between Anderson Dam and Ogier Ponds, and between Ogier Ponds and Metcalf Ponds, are net erosional under the scenarios and flow conditions modeled in the *Update to April 30, 2021 Memo on Sediment Deposition in Coyote Creek above Ogier Ponds and Discharge to Estuary* (see Appendix K). A substantial portion of sediment discharged from Anderson Reservoir would settle in Ogier Ponds which would have multiple ponds intentionally filled in, or partially filled in, later in Project construction as part of the Ogier Ponds CM, and a lesser amount in Metcalf Ponds. As shown in **Table 3.11-6** in Section 3.11, *Hydrology*, under Scenario 3, 3.4 inches (27,941 tons) of sediment could be deposited in Ogier Ponds during/following the 2-year inflow event. At Metcalf Ponds (which includes the Coyote Percolation Pond), the most deposition would occur under Scenario 4 during the 5-year event, when 0.5 inches (2,450 tons) could be deposited. The greatest proportion would make its way all the way to the estuary. As shown in **Table 3.11-7** in Section 3.11, up to 147,498 tons of sediment would be discharged to the estuary (representing 88 percent of the total sediment load from Anderson Reservoir) under Scenario 4 during a 5-year event. Lesser amounts would be discharged/deposited under Scenario 4 during a 2-year event (72,091 tons), and under Scenario 3 during a 2-year event (57,723 tons) (URS 2023).

The modeling results shown in **Table 3.11-7** indicate that the reaches of Coyote Creek between Anderson Dam and Ogier Ponds, and between Ogier Ponds and the Coyote Percolation Ponds, would maintain sediment transport conditions during the inflow conditions modeled. Under all scenarios and flow conditions, these reaches would experience a net loss in sediment (i.e., erosion would exceed deposition); refer to Section 3.11, *Hydrology*, for detailed discussion. For the reach of Coyote Creek between the Coyote Percolation Ponds and the estuary, deposition would occur, with up to 14,449 tons of sediment being deposited during the 2-year event under Scenario 4.

Valley Water would implement a Sediment Deposition Monitoring Plan during construction of the Seismic Retrofit components. The Sediment Deposition Monitoring Plan would evaluate data from the Sediment Monitoring Plan together with evaluation of available habitat conditions for steelhead within the Coyote Creek FCWMZ (Valley Water 2020c). This monitoring would be conducted annually and would inform the implementation of the Sediment Augmentation Program~~, which would be maintained during the Seismic Retrofit component~~ following the ADSRP construction period. Valley would also use this information specifically to maintain spawning and rearing habitat immediately downstream of Anderson Dam as part of the Maintenance of Spawning Gravel and Rearing Habitat Improvements in Live Oak Restoration Reach CM. As such, spawning gravels and sediment would be replaced, as needed, based on the monitoring and in accordance with Conservation Measures, thereby minimizing potential impacts on fish habitat. The information would also inform design and construction of the Ogier Ponds CM.

As described in Section 3.12, *Groundwater Resource*, the fine sediment that could be deposited in the Coyote Percolation Ponds could potentially decrease the porosity of the pond bottom (e.g., by filling in interstitial spaces) and thus adversely affect groundwater recharge operations (i.e., the GWR beneficial use). However, continued implementation of Valley Water's existing maintenance program at the Coyote Percolation Ponds, which includes discing or removal of accumulated sediment, as needed to maintain recharge/percolation rates, would minimize this potential effect, and therefore they would be less than significant.

The amount of sediment reaching South San Francisco Bay as a result of Seismic Retrofit construction would represent a small fraction of the total sediment discharged to the Bay in any given year, and would not, on its own, substantially affect achievement of the NAV beneficial use. Nevertheless, the portion of sediment released during Seismic Retrofit component construction that does reach the estuary would likely have the beneficial impact of delivering sediment to marshes, mud flats, and former salt ponds being restored to marshes, making them more resilient to impacts of sea level rise. The long-term effects of sediment releases from Anderson Reservoir during Seismic Retrofit component construction would be largely beneficial. Although deposition of fine sediment within ponds and within the Coyote Creek channel downstream of Coyote Percolation Pond could have temporary adverse effects on fish habitat and groundwater recharge, the movement of trapped sediment behind Anderson Dam to the San Francisco Bay estuary would be beneficial and consistent with goals in planning documents. For example, the San Francisco Estuary Project (of which the San Francisco RWQCB is an active participant), has identified goals for sediment management in its Comprehensive Conservation and Management Plan ("San Francisco Estuary Blueprint"; San Francisco Estuary Partnership 2022). Action 6 of the Plan, which supports Living Resources, Resilience, and Stewardship goals, seeks to "Manage fine and coarse sediments and upland soils on a watershed and regional scale to enhance Estuary habitats and shoreline flood protection efforts through research to inform policy, evaluation of methodology, development of management tools and convening structures, and identification of funding opportunities for regional sediment coordination for beneficial reuse" (San Francisco Estuary Partnership 2022). The Plan further acknowledges:

> "Sediment provides the fundamental building material for estuarine ecosystems, habitat restoration, and shoreline protection. While watersheds naturally transport sediment with stream and river flows, human activities such as channeling, damming, and developing shorelines have led to a dramatic decrease in the Estuary's sediment supply. Moreover, most dredged sediment is not beneficially reused – this critical issue must be resolved for the region to meet its restoration goals and to adapt to sea level rise."

Thus, despite the short-term adverse effects of sediment mobilization and release from Anderson Reservoir during Seismic Retrofit component construction, the transport of this sediment out to the Bay would support wetland ecosystems and help the region adapt to sea level rise over the long run. Overall, the water quality effects of Seismic Retrofit component construction with respect to sediment deposition would be less than significant.

Temperature and Dissolved Oxygen

Based on recent experience with FOCP, and given that Conservation Measures would be implemented, water temperatures during construction of the Seismic Retrofit component released from the reservoir outlet are unlikely to exceed the temperature criterion ~~threshold~~ 71.6 °F/22 °C) established for the FCWMZ and would not differ substantially from the Pre-FERC Order or existing conditions baselines. Additionally, DO levels in reservoir discharges during Seismic Retrofit component construction are unlikely to be substantially reduced relative to the Pre-FERC Order and Existing Conditions Baselines. Water released to the creek, from the reservoir or imported water, is oxygenated when discharged through the outlet. Valley Water has collected temperature and DO data for the first 3 years of FOCP. During that time, temperatures have not become unsuitable for steelhead and only in July and August 2021 (a very warm summer in the middle of a 3-year drought) came close to the upper limit of suitable rearing conditions for juvenile steelhead at the Madrone Gage 5082 in the FCWMZ. Valley Water has also previously documented steelhead successfully rearing through the summer despite times of temperatures above the "suitable" range (Valley Water 2021c, 2021d, 2023). These temperatures were recorded for releases from the dam and/or CDL prior to the installation of the chillers; therefore, Valley Water would have greater ability to manage the temperature of releases to the FCWMZ during the Seismic Retrofit component construction after implementation of chillers is completed.

As described in Chapter 2, *Project Description*, during the Seismic Retrofit component construction, Valley Water would use chillers that were installed as part of the FOCP to reduce the temperature of unsuitably warm imported water to 64 °F/18 °C or less prior to releasing into the FCWMZ in Coyote Creek. In addition to the use of chillers, Valley Water would continue to monitor temperatures and DO at the base of the dam, Madrone Gage 5082, upstream of Ogier Ponds, and downstream of the FCWMZ. The use of chillers would ensure that water temperatures in the FCWMZ associated with Seismic Retrofit component construction flows are not higher than the conditions than the existing conditions or Pre-FERC Order Baselines.

Valley Water would monitor for rearing juveniles between the CDL and Ogier Ponds, migrating adults at the Coyote Percolation Dam, and eDNA in the FCWMZ. This will provide Valley Water with insight on the distribution of steelhead in the reach. According to the Fish Rescue and Relocation Plan Supplement (Stillwater Sciences 2021 ~~2020~~), fish rescue would be initiated if a MWAT of 75 °F (24 °C) is reached in the entire FCWMZ. Other factors, such as DO levels of less than 7 mg/L would also be considered in determining the need for a fish rescue (Stillwater Sciences 2021 ~~2020~~), which is consistent with the WQO for DO in cold water habitat. In general, the water quality data gathered prior to and during the Seismic Retrofit component construction would be used Technical Working Group discussions to balance the risks of capture and relocation with the risks of allowing steelhead to remain in the FCWMZ under suboptimal conditions. Refer to Section 3.4, *Biological Resources – Fisheries Resources*, for detailed discussion of potential impacts to fish from temperature and DO changes brought about by the Project.

Given the distance from Anderson Reservoir and the Coyote Percolation Pond and other tributary waters that join Coyote Creek, and that the Project is not likely to have a substantial effect of temperature or DO against the Pre-FERC Order and existing conditions baselines, as discussed above, Seismic Retrofit components construction would not substantially affect temperature or DO between Coyote Percolation Pond and San Francisco Bay.

Overall, the temperature and DO of waters released from Anderson Reservoir are not expected to differ substantially from the existing conditions baseline or the Pre-FERC Order Baseline. Should increased temperatures be observed from water quality monitoring Coyote Creek flows can be supplemented with chilled imported water during Seismic Retrofit component construction. The water quality impacts of reservoir dewatering activities with respect to water temperature and DO in Coyote Creek would be less than significant.

Seismic Retrofit Construction Work Area Localized Dewatering

Maintaining a dry work area between the cofferdam and Anderson Dam would require ongoing pumping and discharge of natural seepage throughout Seismic Retrofit component construction. Construction of the proposed low- and high-level outlet tunnels would also require pumping and discharge of natural seepage to complete construction work. Excavation and processing of dam fill materials would involve the use of water that would be treated and subsequently discharged from the Project area. The excavation of soils and materials from the dam and placement of fills would also loosen soils that could subsequently be entrained in seepage or runoff water and then be discharged to Coyote Creek. As described in Chapter 2, *Project Description,* the effluent from the dam excavation areas, and any related staging areas and access roads would be treated via an ATS. The ATS would have the ability to treat 6.4 cfs, and would remove sediment, reduce turbidity, and balance pH from these waters prior to release into Coyote Creek, downstream of the dam. Therefore, impacts to water quality from elevated suspended sediment levels and other impairments in dewatering effluent from construction work areas (i.e., dam excavation and fill areas) would be less than significant.

Sediment Discharges via Other Mechanisms Associated with Construction Activities

Apart from reservoir dewatering and releases, construction activities, including construction work area dewatering, may transport sediment ~~may be transported~~ to Coyote Creek by wind erosion, stormwater runoff, or spills from construction vehicles (e.g., pickup trucks hauling fill material). Project grading, excavation, equipment staging, stockpiles, placement of clean fills to support Project improvements, haul roads, and sediment disposal areas would be susceptible to these types of sediment transport. Additionally, uncovered stockpiles of fill material and unpaved haul roads would be susceptible to wind erosion and stormwater runoff.

Surface runoff water, especially during storm events, can pick up soil particles from all work areas, stockpiles, access roads and other Project construction areas, transport them in overland flows, and deposit them into receiving waters. This action can result in the exceedance of WQOs and impact biological resources and supporting habitats in the receiving waters (Anderson Reservoir and Coyote Creek downstream of the dam). This potential impact would occur during the wet season between construction years. Clearing of riparian vegetation for construction of the temporary construction bridge may also result in increased surface runoff water into Coyote Creek.

Blasting for excavation of borrow materials could result in sediment discharges into Coyote Creek and Anderson Reservoir through wind transport or transport in runoff water used for material processing. However, the ATS would be used to treat stormwater accumulating in the BHBA, which would reduce the potential impacts on water quality from these types of discharges.

As described in Section 3.11, *Hydrology*, the Project would disturb greater than one acre of land and therefore would be subject to the Construction General Permit <u>for construction activities outside of the reservoir</u>. This permit requires that an applicant prepare and implement a SWPPP, which would include BMPs to prevent soil erosion and discharge of sediment and other construction-related pollutants to surface waters. Measures may include those to control erosion at the source (e.g., minimizing soil disturbance, preserving existing vegetation where feasible, and stabilizing and revegetating disturbed areas as soon as possible after grading or construction activities) as well as those for sediment control (e.g., perimeter control measures such as installing silt fences or placing straw waddles below slopes). Refer to Section 3.11, *Hydrology*, for additional discussion.

In addition to the SWPPP BMPs, Valley Water would implement <u>applicable Valley Water</u> BMPs, which would serve to reduce potential impacts related to <u>pollutants associated with out-of-reservoir construction activities mobilized via</u> stormwater discharges. Implementation of Valley Water BMPs GEN-21 and WQ-4 will limit water quality impacts from staging areas and stockpiling materials by restricting where staging areas and ~~project~~ <u>Project</u> material stockpiles are located and by controlling runoff from those areas. BMP WQ-5 will protect water quality by ensuring construction entrances and exits are stabilized, reducing the risk of track out and sediment runoff. BMP WQ-9 will protect water quality by ensuring erosion is controlled in all work areas by seeding disturbed areas as soon as is appropriate. WQ-11 will protect water quality by maintaining clean conditions at work sites and helping prevent debris and materials from entering storm drains or waterways. WQ-15 will protect water quality by preventing water pollution and establishing limits on turbidity increases due to activities to construct Project improvements BMP AQ-1 will require dust control measures to minimize the creation of dust that could end up in adjacent water bodies. BMPs GEN-20 and WQ-16 will prevent stormwater pollution by ensuring exposed soils are seeded and stabilized through the use of erosion control measures such as silt fencing, straw bales, sediment basins, etc. Implementation of BMPs WQ-1 and GEN-1 will limit equipment use in channels during the wet season or when flows are present and work can be completed from the top of the bank; decreasing the risk of sediment being resuspended by equipment. Additionally, implementation of BMP VEG-1 will minimize the potential effect of localized erosion by ensuring as much vegetation is left intact in the channel as possible, particularly along the toe of the bank.

VHP Conditions and AMMs, which would be implemented as applicable during construction of the Seismic Retrofit component, would also serve to limit potential impacts. For example, VHP Condition 7 would entail minimizing ground disturbance and vegetation removal, stabilizing soil to avoid erosion and sedimentation, and revegetating with native plants or other appropriate plants. VHP conditions 3, 4, 5, 7, 11, and 12 would reduce the potential for and magnitude of impacts on water quality by minimizing impacts on stream, wetland, and pond habitats. These conditions require implementation of numerous AMMs (summarized in **Table 3.5-8** in the Wildlife and Terrestrial Biology chapter); these AMMs, including AMM-66, 67, 68, 84, and 97, include limiting the footprint of activities, reducing the potential for pollutants to impact these aquatic habitats and avoiding erosion and sediment impacts on these habitats.

Whether included in the SWPPP for out-of-reservoir construction activities pursuant to the Construction General Permit, implemented in accordance with Valley Water's BMP Handbook, or in compliance with the VHP, the Seismic Retrofit construction activities would incorporate erosion and sediment control measures to minimize the prospect of substantial erosion that could affect water quality in the reservoir and Coyote Creek. These measures would assure that the Project's extensive disturbance areas during construction would not cause substantial erosion or siltation, and this impact would be less than significant.

Petroleum Based Products and Hazardous Materials Releases Associated with In-Reservoir and Out-of-Reservoir Construction Activities

As discussed in Section 3.11, *Hydrology*, (refer to Impact HYD-1, subsection iii.), due to the use of petroleum based products and hazardous materials during construction of Seismic Retrofit improvements (e.g., fuel, oil, lubricants, etc. contained in construction equipment) in areas such as the exposed bottom of Anderson Reservoir and lands adjacent to the reservoir and Coyote Creek, there would be the potential for discharge of polluted runoff if such materials were handled, stored, or disposed of improperly and/or if any accidental releases were to occur. Seismic Retrofit construction would require a wide range of equipment, much of which would contain hazardous materials. This equipment could potentially leak during its operation if it is not maintained properly; additionally, hazardous materials could spill during re-fueling or maintenance/servicing activities that may be necessary during the construction period. Hazardous materials stored onsite at staging areas or temporarily at work areas could also spill if proper protocols are not followed and containment measures are not implemented. Refer to Section 3.10, *Hazards and Hazardous Materials,* for additional discussion of these issues.

Such releases of hazardous materials, if they were to occur, could result in transport of pollutants to Anderson Reservoir and Coyote Creek if the spilled materials were not adequately cleaned up prior to a precipitation event. Note that such releases of hazardous materials could also adversely impact groundwater quality (e.g., seepage through the soil to the groundwater aquifer below); however, these impacts are evaluated in Section 3.12, *Groundwater Resources*.

Implementation of the SWPPP for construction activities outside of the reservoir, in compliance with the Construction General Permit, along with applicable Valley Water BMPs, VHP Conditions, and AMMs, would reduce the potential for accidental releases of hazardous materials during Seismic Retrofit component construction, as well as limit the potential for impacts in the event of such releases. The SWPPP would include good housekeeping measures that would likely include secondary containment for any hazardous materials that are stored at the construction site. Additionally, Valley Water ~~BMPs HM-7 and~~ ~~BMP~~ HM-8 reduces the risk of vehicle-related pollutants from impacting water quality by ensuring vehicles and equipment are ~~cleaned in appropriate locations and that they are~~ properly fueled and maintained, reducing the risk of fuel or other leaks entering waterways. BMP WQ-6 limits the impact of concrete, and therefore effects on receiving water pH, near waterways. Implementation of BMPs HM-9 and HM-10 also will protect water resources by ensuring proper management of petroleum based products and hazardous materials and the implementation of spill prevention measures. Additionally, BMPs GEN-26 (Spill Prevention and Response), GEN-33 (Vehicle Maintenance) GEN-31 (Vehicle Cleaning), GEN-32 (Vehicle Fueling), and WQ-11 (Maintain Clean Conditions at Work Sites), as well as VHP AMMs 2, 7, 8, 9, 11, 12, 72, 75, 76, 87, 88, and 100 will also include measures that would reduce potential impacts on water quality from petroleum based products and hazardous materials.

Banned and restricted-use pesticides that contribute to the downstream water quality impairments would not be used. For any legal pesticides that may be needed during the Seismic Retrofit component construction, BMPs HM-1 (Comply with All Pesticide Application Restrictions and Policies), HM-2 (Minimize Use of Pesticides), HM-4 (Comply with All Pesticide Usage Requirements), HM-5 (Comply with Restrictions on Herbicide Use in Upland Areas), and HM-6 (Comply with Restrictions on Herbicide Use in Aquatic Areas) will help protect water quality by ensuring that applicable pesticide application restrictions, usage requirements, and policies are followed (in both upland and aquatic areas) and by evaluating the use of alternative pest control methods and pesticides. These BMPs are taken from the Valley Water DMP and SMP and have been previously evaluated under that DMP EIR and SMP EIR (Valley Water 2012).

~~Compliance~~ Implementation of the SWPPP in compliance with the Construction General Permit for out-of-reservoir construction and implementation of applicable Valley Water BMPs, VHP Conditions, and AMMs would reduce potential impacts during Seismic Retrofit component construction associated with the release of petroleum based products and hazardous materials ~~tso~~ so that they are less than significant. With these measures in place, substantial releases of petroleum-based products, and hazardous materials would not occur during construction activities; however, if minor releases were to occur, spill cleanup materials would be available, and protocols would be in place to limit potential subsequent impacts to water quality.

Use of Imported Water

During Seismic Retrofit construction, the proportion of imported water released to the reaches of Coyote Creek downstream of the dam outfall, the CDL and through the Cross Valley Pipeline Extension may increase, due to the supplementation of local flows with imported water that would be implemented to maintain adequate flow for groundwater recharge and for fish, as described in Chapter 2, *Project Description*. If a greater proportion imported water is used for Coyote Creek flows, it could alter the water quality profile downstream of the discharge point. A rough comparison between **Table 3.14-1** and **Table 3.14-3** shows that imported water from San Luis Reservoir has had similar water quality parameters to Anderson Reservoir (temperature, turbidity, and pH). However, note that the readings in **Table 3.14-1** for Anderson Reservoir are for near-surface samples, which may not be representative of water quality deeper in Anderson Reservoir (especially when the reservoir is stratified, such as during the summer season), where releases to Coyote Creek typically originate. Imported water generally water meets regulatory standards (Valley Water n.d. ~~Undated 2~~); however, water quality problems occasionally occur in

San Luis Reservoir (e.g., blue green algae) (DWR 2022)—at which time Valley Water typically relies on other sources for water supply.

The data for Anderson Reservoir is from 2004-2019, so it is representative of the Pre-FERC Order Conditions Baseline, rather than the Existing Conditions Baseline. Under the Existing Conditions Baseline the reservoir is at deadpool and temperature and turbidity are likely higher. Temperature during the warmer months is likely elevated (due to the reduced water depth and surface area) and turbidity may also be elevated (since there is more erodible sediment exposed in areas outside the deadpool inundation area and there would be less water in the reservoir to allow for settling of suspended sediment), in comparing the Pre-FERC Order Conditions to the existing conditions baseline.

Nevertheless, the data in **Table 3.14-1** and **Table 3.14-3** show that water quality in Anderson Reservoir (under the Pre-FERC Order Conditions Baseline) and San Luis Reservoir is generally similar and acceptable under Basin Plan parameters for turbidity, temperature, pH, and DO. The turbidity of imported water is typically low, as is that in Anderson Reservoir except following large rain events. As mentioned in Chapter 2, the primary concern with the increased use of imported water is temperature, as imported water tends to be warmer than water historically released from lower levels of the reservoir. The ability to use chillers to cool imported water would decrease this impact. The average (2020-2021) temperature of imported water for August (20.3 °C) is lower than the average (2004-2019) for Anderson Reservoir surface water (23.8 °C), but again, this may not be a fair comparison as water from Anderson Reservoir is discharged from lower in the water column which has colder water than the surface. The use of chillers would reduce any temperature effects from imported water.

Overall, the increased use of imported water during Seismic Retrofit component construction to supplement local flows in the reaches of Coyote Creek downstream of the dam, CDL and CVP extension is unlikely to substantially adversely affect water quality and beneficial uses in Coyote Creek. Imported water is used periodically to supplement Coyote Creek flows under the existing conditions baseline and the Pre-FERC Order Conditions Baseline and was also stored in Anderson Reservoir under the Pre-FERC Order Conditions Baseline. Thus, the degree of impact, to the extent that it exists, would only be the difference between the impacts that could be occurring under both baselines) associated with imported water use.

Therefore, given the use of chillers, the increased use of imported water to supplement Coyote Creek flows downstream of Anderson Dam would not impair water quality standards or otherwise substantially adversely affect water quality in Coyote Creek. The water quality impact from increased use of imported water would be less than significant.

Pollutants from Blasting Activities

In addition to particulate matter released from blasting a range of other pollutants including perchlorates and various water-soluble nitrogen-compounds can be released during the use of explosives (DTSC 2005). As described in Chapter 2, *Project Description*, blasting would only be utilized during the excavation of the BHBA. Excavation of BHBA would require drilling and blasting in benches to break up the rock for efficient excavation. Blasting procedures would be developed by a qualified blaster to control noise, air-overpressure, ground vibration, flyrock, and dust. Water would be used before, during, and after the blasting to minimize dust emissions, but not to the point of creating runoff. The risk from perchlorates and other water-soluble nitrogen-compounds is primarily in relation to groundwater. Perchlorate salts are highly soluble in water and sorbs poorly to mineral surfaces and organic material; therefore, it is typically very mobile in surface water and groundwater. It is persistent in the environment and at high enough concentrations can affect thyroid gland functions. The release of substantial amounts of perchlorate to the environment where it can dissolve into surrounding surface or groundwater would be significant impact. Compliance with the General Construction Permit, which requires controls for pollutants from blasting would reduce this impact, but it could still be significant.

With the implementation of **Mitigation Measure GW-2** (Perchlorate Best Management Practices) (refer to Section 3.12), the impact from blasting activities during Seismic Retrofit component construction will not impair beneficial uses of surface waters; violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface water quality; or conflict or obstruct implementation of a water quality control plan. The impact would be less than significant with mitigation.

Summary

Impacts associated with Seismic Retrofit construction include in-reservoir impacts to water quality parameters from drawdown and dewatering, and a resulting ~~a~~ reduced storage volume, the release of substantial sediments and resultant turbidity from the erosion of previously inundated sediments at the bottom of the reservoir during and immediately following large storm events; related sediment deposition in Coyote Creek from storm events; alteration of temperature in Coyote Creek and temperature, turbidity, and DO in Anderson Reservoir from reduced storage in the reservoir; sedimentation in decant water from localized dewatering; erosion from construction equipment and construction activities; potential release of petroleum based products and hazardous materials associated with construction vehicles and equipment; the use of a greater volume of imported water for groundwater recharge in Coyote Creek; and release of pollutants from blasting. With the implementation of the SWPPP for out-of-reservoir construction, applicable Valley Water BMPs, applicable VHP conditions and AMMs, **Mitigation Measure WQ-1** for in-reservoir construction, and **Mitigation Measure GW-2**, the construction of Seismic Retrofit components will have a **less-than-significant impact** on the impairment of beneficial uses of surface waters; violation of any water quality standards or waste discharge requirements, or degradation of surface water quality; or conflict or obstruct implementation of a water quality control plan, with two exceptions.

First, ~~within~~ within the reservoir pool, temperature, DO, and turbidity water quality impacts are ~~significant, and an~~ a **significant and unavoidable** consequence of reservoir dewatering. ~~.~~ Second, the temporary exceedance of the turbidity water quality objective in Coyote Creek during certain-sized storm events due to erosion of exposed sediments while the reservoir is dewatered is a **significant and unavoidable impact**. However, the impact on beneficial uses of Coyote Creek from releases of sediment associated with reservoir drawdown and dewatering impairment would be less than significant given the temporary and periodic nature of the turbidity impact, and the ability of Conservation Measures to minimize this impact over the short- and long-term. Regarding the fisheries-related beneficial uses, Section 3.4, *Biological Resources - Fisheries Resources*, demonstrates why temporary increases in turbidity during construction would not cause significant adverse effects on special-status fish populations and habitat. Despite the short-term adverse effects of sediment mobilization and release from Anderson Reservoir during Seismic Retrofit construction, the transport of this sediment downstream to Coyote Creek and San Francisco Bay would be beneficial for downstream ecosystems and habitats and related beneficial uses because the system has historically been deprived of sediment.

Mitigation Measure WQ-1 would reduce sediment impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. ~~No~~ However, no feasible mitigation exists, beyond **Mitigation Measure WQ-1**, to reduce the impact from sediment release from the reservoir during construction such that the turbidity water quality objective is not violated (even if relatively briefly and episodically) given the large area of the reservoir bottom which would be exposed by the dewatering and amount of accumulated sediment (approximately 2.9 million cy) and threat to public health and safety posed by detaining water behind the dam during construction. For example, it may be feasible to hydroseed portions of the reservoir bottom, but it would not stabilize enough sediment to reduce the sediment mobilization in a meaningful way and stabilization would not function effectively when inundated by reservoir inflow. Similarly, measures to settle sediments within the reservoir, rather than allowing them to move downstream (turbidity curtains or operating the reservoir at a higher level) would not be feasible during construction because they required detention of reservoir inflows, which ~~of the potential to~~ increases risks of the interim dam being overtopped and violates the FERC Order regarding Interim Risk Reduction Measures. Therefore, the impact from sediment release during construction of the Seismic Retrofit component is considered **significant and unavoidable**. Please note that a dredging alternative is considered in this EIR as a potential way to reduce violations of the turbidity water quality objective. Please refer to Chapter 5, *Alternatives*, *Conservation Measures Construction Impacts Analysis*.

Conservation Measure Construction

Ogier Ponds Conservation Measure

While the Ogier Ponds CM would provide substantial benefits to Coyote Creek temperature once complete, the construction of the conservation measure would have short-term impacts to temperature and turbidity during dewatering and diversion activities. Construction activities would involve heavy equipment use in and around the active channel, diesel generators that would be used to pump groundwater from the work area, large quantities of excavation and placement of fill, and storage and staging of equipment, fill dirt, and materials at a staging area and stockpiling area, where pollutants could potentially be mobilized to the Ogier Ponds or Coyote Creek offsite via stormwater runoff.

The heavy equipment needed for the Ogier Ponds CM construction would utilize the same types of hazardous materials that are discussed above with respect to the Seismic Retrofit components of the Project. As such, without preventative measures/protocols in place, these materials could leak from equipment or otherwise be released to the environment and receiving waters, such as by accidental releases due to improper storage. Moreover, work within the channel could disturb sediments and temporarily increase turbidity, as well as directly impact aquatic species and/or create a pathway for hazardous materials to be released to waters. Maintaining a dry work area may be necessary constructing elements of the Ogier Ponds CM. The effluent from dewatering efforts would be treated via an ATS. The ATS would have the ability to remove sediment, reduce turbidity, and balance pH from these waters prior to release into Coyote Creek. Therefore, impacts to water quality from elevated suspended sediment levels and other impairments in dewatering effluent from construction work areas would be less than significant.

As described above with respect to the Seismic Retrofit construction process, many potential impacts to water quality from construction of the Ogier Ponds CM would be avoided or reduced via compliance with the implementation of BMPs and control measures required by the Construction General Permit and implementation of the SWPPP, as well as through implementation of applicable Valley Water BMPs, VHP Conditions, and AMMs. The SWPPP would include good housekeeping measures, including requirements with respect to hazardous materials management, as well as erosion and sediment control BMPs. Implementation of the Valley Water BMPs described above for the Seismic Retrofit construction, such as ~~HM-7,~~ HM-8, HM-9, HM-10, WQ-1, WQ-4, WQ-5, WQ-9, WQ-11, WQ-15, WQ-16, GEN-1, GEN-20, GEN-21, GEN-26, GEN-30, GEN-31, GEN-32, and VEG-1, will also help to minimize potential impacts to water quality from the Ogier Ponds CM construction. Additionally, Valley Water BMP WQ-2 will ensure field personnel use the appropriate equipment for minimizing disturbances to the stream bottom and prevent heavy equipment from operating in a live stream, which will reduce impacts during construction. Similarly, BMPs GEN-35 and WQ-3 will ensure pumps and generators are maintained and operated in a manner that minimizes impacts to water quality. Furthermore, as described above for Seismic Retrofit construction, VHP Conditions and AMMs would be implemented, including AMM-7, AMM-8, AMM-11, AMM-66, AMM-67, AMM-68, AMM-84, and AMM-97, which would reduce the potential for water quality impacts.

Overall, given implementation of the measures described above, construction of the Ogier Ponds CM would not substantially impair beneficial uses, violate water quality objectives, or otherwise substantially degrade water quality, such as to conflict with the San Francisco Bay Basin Plan. The impacts would be less than significant.

Maintenance of the North Channel Reach ~~Extension~~

~~The construction~~ Maintenance of the North Channel Reach ~~Extension~~ could similarly lead to temporary impacts to water quality in the immediate area of Coyote Creek abutting the ~~related to dewatering activities, excavation to expand the channel, and placement of rip-rep that could result in erosion of exposed and disturbed soils during construction~~ work area, though these impacts are anticipated to be minor given the limited extent of Project activities (e.g., minor maintenance). ~~However, construction~~ Project activities in ~~for~~ the North Channel Reach ~~Extension~~ would have ~~more~~ limited potential to impact water quality downstream of the work area because the work area ~~entire North Channel~~ would be dry prior to the start of ~~construction~~ Project activities. However, these activities may require minor and localized dewatering. Implementation of the SWPPP, along with Valley Water BMPs GEN-26, GEN-31, GEN-32, WQ-11, and HM-8, as well as AMM-7, AMM-8, and AMM-11 will minimize pollution from vehicle fluids or other oily, greasy, or sediment-laden materials from entering the North Channel and washing downstream during high flows ~~when the channel is activated~~. These measures would include maintaining clean conditions at work sites, keeping spill kits available onsite to clean up any accidental spills, training personnel to properly use spill kits, fueling and cleaning vehicles and equipment off-site, keeping vehicles maintained and clean, and inspecting vehicles and equipment daily for leaks prior to initiation of work.

~~Maintaining a dry work area may be necessary constructing the North Channel Extension. The effluent from dewatering efforts would be treated via an ATS. The ATS would have the ability to remove sediment, reduce turbidity, and balance pH from these waters prior to release into Coyote Creek. Therefore, impacts to water quality from elevated suspended sediment levels and other impairments in dewatering effluent from construction work areas would be less than significant.~~

Given implementation of these measures, impacts related to violation of water quality standards, impairment of beneficial uses, or degradation of water quality in a manner inconsistent with the San Francisco Bay Basin Plan would be less than significant.

Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach

As described in Section 3.4, *Biological Resources – Fisheries Resources*, continued maintenance of spawning gravel and habitat improvements in the Live Oak Restoration Reach (which will have been implemented as part of FOCP) would have potential to degrade water quality downstream of the work area if fine sediment were to enter the stream at the time of gravel placement. However, gravel would not be placed directly in the channel, but would be placed adjacent to the channel or on benches above the channel. When flows are high enough to mobilize the gravels in the augmentation piles, there would already be elevated background levels of suspended sediment; therefore, additional sediment from the gravel piles would not add substantially to the total sediment that is already suspended during high flows. Another mechanism by which water quality impacts could occur is via staging and stockpiling areas located immediately downstream of the dam, which could introduce sediment to the channel during precipitation events. Pollution could also be introduced from vehicles and equipment in staging and stockpiling areas.

As discussed above for the Seismic Retrofit component and other CMs, implementation of the SWPPP and applicable Valley Water BMPs and VHP Conditions and AMMs would avoid or minimize potential adverse effects. Specifically, BMPs GEN-1, WQ-4, GEN-26, GEN-31, GEN-32, WQ-11, and HM-8, and AMM-66, AMM-67, AMM-68, AMM-84, AMM-97, AMM-7, AMM-8, and AMM-11 will avoid or minimize impacts. Given implementation of these measures, water quality impacts from construction of this CM would be less than significant.

Sediment Augmentation Program

Like the Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach (discussed above), the broader Sediment Augmentation Program would not result in discharge of fine sediment to the stream channel due to placement of gravel adjacent to the channel. Impacts to water quality could potentially occur due to ground disturbance associated with staging and stockpiling of materials, as well as hazardous materials releases from construction equipment. However, implementation of applicable Valley Water BMPs and VHP Conditions and AMMs will avoid or minimize impacts. Specifically, implementation of BMPs GEN-16, WQ-1, GEN-26, GEN-31, GEN-32, WQ-11, and HM-8, and AMM-7, AMM-8, and AMM-11 will avoid or reduce potential impacts. Therefore, water quality impacts would be less than significant.

Phase 2 Coyote Percolation Dam CM

The Phase 2 Coyote Perc Dam CM work could potentially have short-term negative impacts on water quality downstream of the Coyote Percolation Pond during construction via similar mechanisms to those discussed above for the Seismic Retrofit component and other Conservation Measures (e.g., erosion and sedimentation, staging and stockpiling of dirt and materials, dewatering of the work area, releases of hazardous materials from construction equipment) and localized dewatering. Implementation of the SWPPP, as well as Valley Water BMPs and VHP Conditions and AMMs, will avoid or reduce potential impacts on water quality during the Phase 2 Coyote Percolation Dam CM construction. Specifically, implementation of BMPs GEN-20, WQ-16, GEN-26, GEN-31, GEN-32, WQ-11, HM-8, WQ-15, and AMM-66, AMM-84, AMM-97, AMM-7, AMM-8, and AMM-11 will avoid or minimize potential impacts. Given implementation of these measures, impacts related to water quality would be less than significant.

Maintaining a dry work area may be necessary constructing elements of this Conservation Measure. The effluent from dewatering efforts would be treated via an ATS. The ATS would have the ability to remove sediment, reduce turbidity, and balance pH from these waters prior to release into Coyote Creek. Therefore, impacts to water quality from elevated suspended sediment levels and other impairments in dewatering effluent from construction work areas would be less than significant.

Construction Monitoring

Construction monitoring for water quality, fisheries, fish rescue and relocation; juvenile rearing, migration and growth, aquatic species rescue and relocation, suspended sediment, sediment deposition and habitat assessment, groundwater, invasive species, wetland and riparian habitat dryback, *Phytophthora* pathogen, western pond turtle, and milkweed would have little impact on water quality, while helping protect and improve water quality to the extent possible. These monitoring activities would involve small numbers of people visiting monitoring locations throughout the Project Area, which would not involve substantial ground disturbance or use of construction equipment and hazardous materials. Water quality impacts from construction monitoring would therefore be less than significant.

Seismic Retrofit Post-Construction Operations and Maintenance

Operations

Implementation of FAHCE Rule Curves

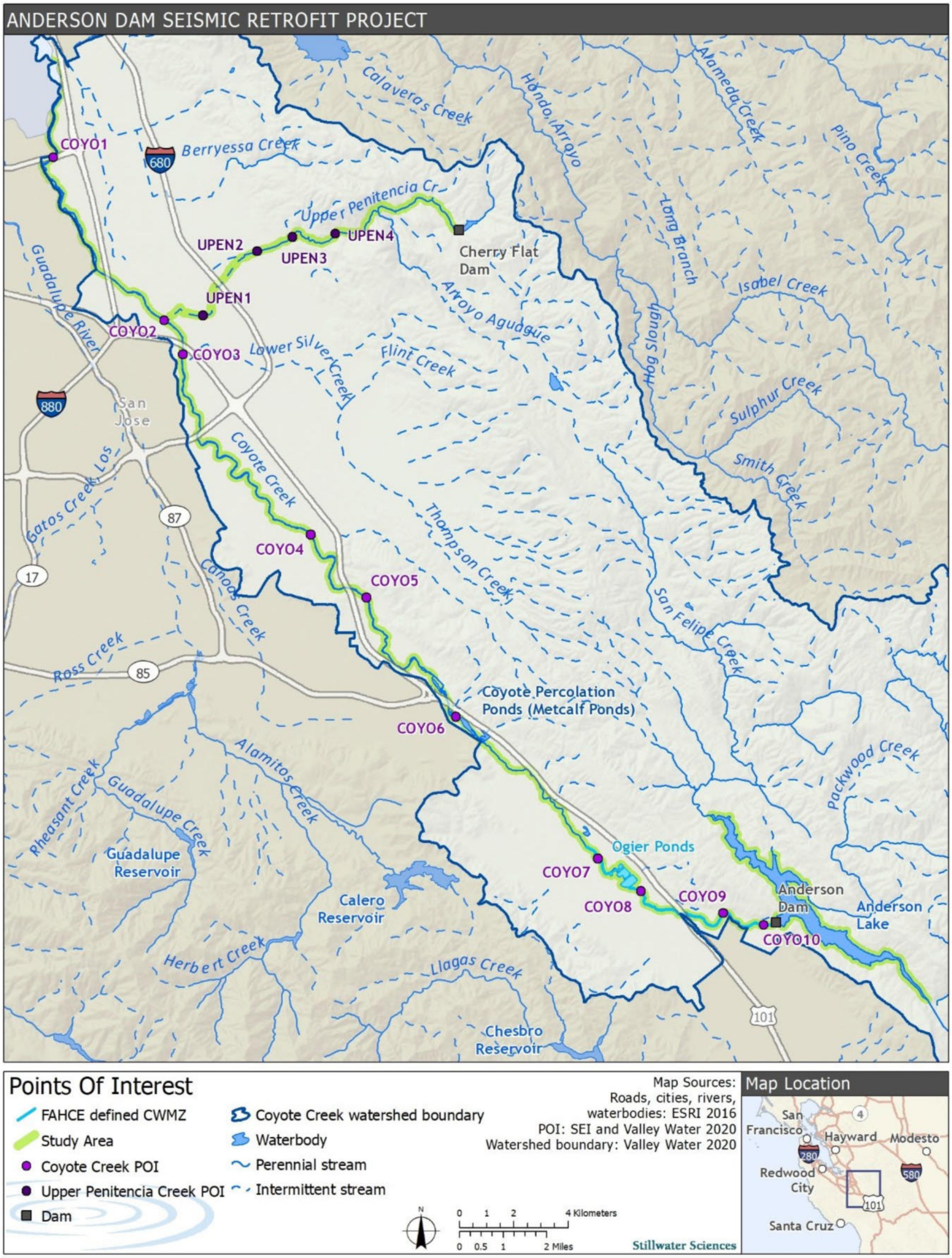
During the post-construction period, releases from Anderson Reservoir would be governed by the FAHCE *Settlement Agreement* rule curves and pulse flows that achieve specific criteria or purposes (e.g., benefits for steelhead and sensitive species fisheries habitat and listed and sensitive fish life stages, sufficient water supply, incidental flood control management). As described in Section 3.11, *Hydrology*, the primary difference under FAHCE compared to the Pre-FERC Order Conditions Baseline would be to introduce “pulse” flows during the winter/spring. Under FAHCE, the pulse flows would be 50 cfs for 5 days, occurring up to two times from February 1 – April 30 if storage thresholds are met. Storage-based winter base rule curves would provide releases of 5, 10, 15, 23, and a highest winter base rule curve which would provide for a minimum release of 26 cfs and up to the amount required for recharge and downstream LSAA flow requirements.

Temperature

For temperature management, annually, Valley Water would calculate the available cold-water pool in Anderson Reservoir and determine a reservoir flow release at a rate to maintain a daily average water temperature not to exceed 18 °C throughout as much of the CWMZ as available cold-water storage will allow during the summer rearing period. In addition, Valley Water would monitor temperatures at the ten FAHCE points of interest (POIs) below the dam as well as the outlet works at the Anderson Dam outlet structures. Releases would be monitored and recorded at just below Anderson Dam, and at streamflow station 5082 (Coyote Creek at Madrone) located approximately 1.2 miles downstream of Anderson Dam (**Figure 3.14-2**). Post-Construction Operations releases may be made from Anderson Reservoir or the CDL, or some combination of both, provided the total required release is made at the required temperature.

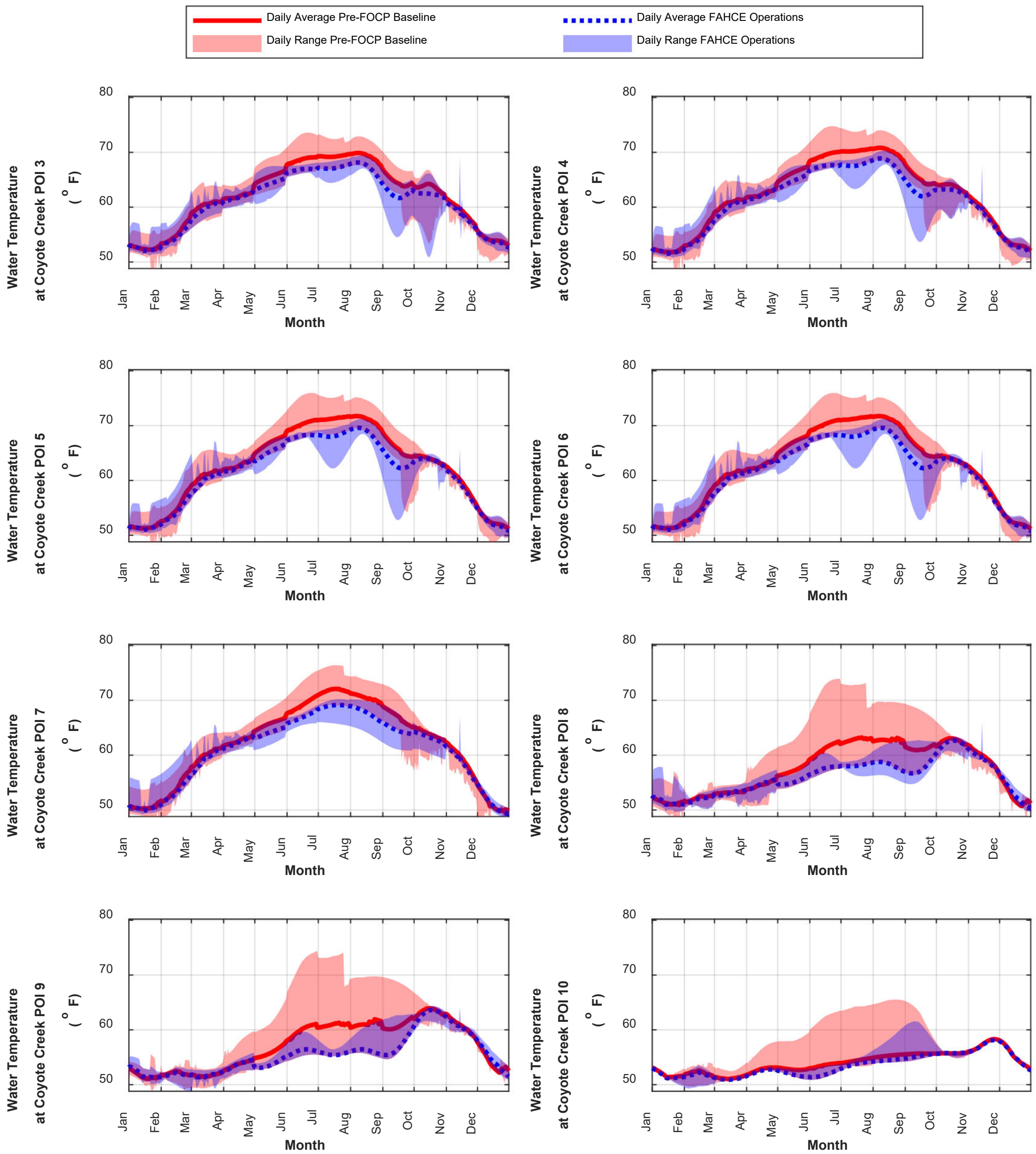
Detailed analysis and modeling of temperature effects as a result of FAHCE implementation during the post-construction period is included in Appendix F, *Biological Resources-Fisheries Technical Report.* As described therein, Valley Water's WEAP model was utilized to model conditions assuming FAHCE operations, as well as for the Pre-FERC Order Conditions Baseline and future conditions baseline. The WEAP model uses hydrology from 20 years in the historical record (1990-2020) to simulate temperature and other factors at the FAHCE POIs along Coyote Creek downstream of Anderson Dam. Refer to Appendix F for detailed discussion of the WEAP model and POIs; however, for reference, the FAHCE POIs are shown on **Figure 3.14-5**. **Figure 3.14-6** shows the WEAP modeling results for the Project (assuming FAHCE implementation), as compared to the Pre-FERC Order Conditions Baseline. **Figure 3.14-7** then shows results for the Project compared to the future conditions baseline (~~Stockholm Environment Institute and~~ Valley Water 2019 ~~2020~~).

1 **Figure 3.14-5. Points of Interest in Coyote Creek and Upper Penitencia Creek**



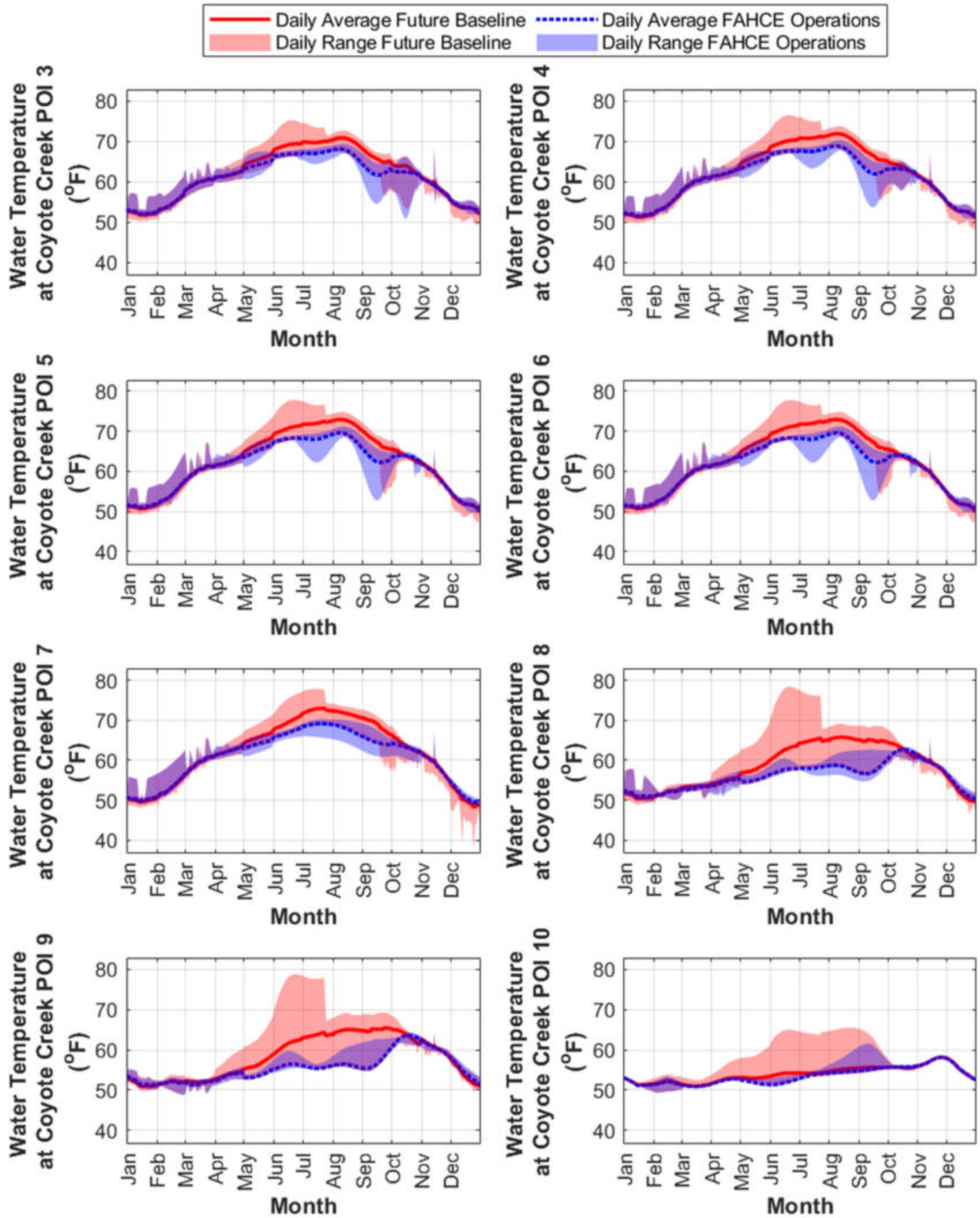
2

Figure 3.14-6. Modeled Daily Average Water Temperature at Coyote Creek Points of Interest – Project vs. Pre-FERC Order Conditions Baseline



Note: Colored bands show the range of the daily average water temperature during the 20-year modeling period (1991-2020) under each scenario. No modeled water temperature results are available for the POIs not shown.

Figure 3.14-7. Modeled Daily Average Water Temperature at Coyote Creek Points of Interest; Project vs. Future Conditions Baseline



Note: Colored bands show the range of the daily average water temperature during the 20-year modeling period (1991-2020) under each scenario. No modeled water temperature results are available for the POIs not shown.

As shown in **Figure 3.14-6** and **Figure 3.14-7**, water temperatures in Coyote Creek under FAHCE operations would be generally lower in every month at every point of interest compared to both the Pre-FERC Order Conditions Baseline and the future conditions baseline. In particular, from roughly April to October, daily average temperature and the daily range in temperature would be substantially lower under FAHCE relative to the two baselines. Most importantly, at POIs COYO 8, 9, and 10, (which are the only POIs within the CWMZ), the temperature would remain under roughly 65 °F (even accounting for the upper end of the range) throughout the year under the FAHCE scenario. By contrast, under both the Pre-FERC Order Conditions Baseline and the future conditions baseline scenarios, the range of daily average water temperature during the 20-year modeling period (1990-2010) would extend well above 65 °F at POIs COYO 8 and 9. At points below the CWMZ, further downstream along Coyote Creek (e.g., POIs 3-7), water temperatures would exceed 65°F during the summer season in all the scenarios modeled, although temperatures would still generally be lower under FAHCE. There are instances when modeled temperature would be higher under the FAHCE but are always less than the 71.6 °F (22 °C) criterion ~~threshold~~.

Given that the WEAP modeling shows water temperatures under FAHCE would remain below 71.6 °F in the CWMZ from May 1 to October 31, and thus in compliance with the Settlement Agreement, the impacts with respect to water temperature during the post-construction period would be less than significant. As shown in **Figure 3.14-6** and **Figure 3.14-7**, the water temperatures at POIs COYO 10, 9, and 8 would be substantially lower under the FAHCE operations scenario than under both the Pre-FERC Order Conditions Baseline and future conditions baseline scenarios.

Generally, the colder water in the CWMZ as a result of Project operations would be beneficial for several beneficial uses (especially those related to fish and aquatic resources) designated for nontidal Coyote Creek in the San Francisco Bay Basin Plan. Relative to the Pre-FERC Order Conditions Baseline and future conditions baseline, the FAHCE operations would an improvement for the COMM, COLD, MIGR, RARE, SPWN, and WILD beneficial uses. Other beneficial uses, such as GWR, REC-1, and REC-2, would not be affected when it comes to temperature changes.

The further down Coyote Creek from Anderson Dam the more the temperature effects associated with releases from the reservoir moderate. This is generally reflected in the WEAP modeling results shown in **Figure 3.14-6** and **Figure 3.14-7** (see the difference between FAHCE operations scenario and Pre-FERC Order Conditions/future conditions baseline scenarios); although, modeling results are not available for POIs COYO 1 and 2, which are the furthest POIs downstream. The WARM beneficial use would not be substantially adversely affected by temperature changes in the lower reaches of Coyote Creek. Warm water favors predators of sensitive and listed species which are the focus of post-construction habitat improvements associated with the Project.

Modeling results are not available for any points that would be within the tidally-influenced portion of Coyote Creek or San Francisco Bay. Nevertheless, the slightly colder conditions that could result from implementation of FAHCE operations would likely be a benefit to the majority of beneficial uses designated for Coyote Slough and South San Francisco Bay, including COMM, SHELL, EST, MIGR, RARE, SPWN, and WILD. Other beneficial uses in these waterbodies would not be adversely affected by small decreases in temperature.

After the completion of the Seismic Retrofit construction Anderson Reservoir would be allowed to start storing water up to its full capacity with no seismic restrictions. Operations would be similar to the Pre-FERC Order Baseline with water stored in the winter and spring and released in the summer and fall for groundwater recharge and habitat benefit. Releases would be based on the FAHCE rule curves are discussed in the section above. The reservoir would again support a cold-water pool at the bottom of the reservoir as it stratifies in the summer and fall as in Pre-FERC Conditions. As in-reservoir temperatures would be similar to the Pre-FERC Order Baseline, the impact is less than significant.

Based on the above analysis, overall, the impacts of Seismic Retrofit post-construction operations with respect to water temperature would be less than significant and largely beneficial.

Dissolved Oxygen

In the post-construction period, with implementation of the FAHCE rule curves, DO levels in Coyote Creek downstream of Anderson Dam would likely be similar or better (i.e., higher) relative to the Pre-FERC Order Conditions Baseline. As described above, the primary difference between FAHCE operations and the Pre-FERC Order reservoir operations would be to introduce pulse flows during the winter and spring, although summer base flows could change modestly as well. WEAP modeling included in Appendix F, *Biological Resources Fisheries-Technical Report,* shows that daily average flow in the upstream portion of the FCWMZ (POI COYO 10) would be elevated for much of the year (in particular, May to October) under the FAHCE operations scenario relative to both the Pre-FERC Order Conditions Baseline and future conditions baseline scenarios (refer to **Figure 2** in Appendix F). By contrast, and somewhat counterintuitively, daily average flow in the downstream portion of the FCWMZ (POI COYO 9) would be slightly reduced during the same period under the FAHCE operations scenario relative to Pre-FERC Order Conditions Baseline and future conditions baseline scenarios.

Regardless, changes in Coyote Creek flows as a result of FAHCE rule curves would not be dramatic enough to result in substantial changes in water surface-to-air mixing and oxygenation within the water column.

Additionally, the improvements to the Coyote Creek channel made as part of the Project Conservation Measures would also likely improve mixing and oxygenation within the creek. For example, ~~the North Channel Extension,~~ Maintenance of Spawning Gravel and Rearing Habitat Improvements in the Live Oak Restoration Reach, Sediment Augmentation Program, and Phase 2 Coyote Percolation Dam CM would each generally increase channel roughness (e.g., due to the presence of coarse gravel/cobble and other channel features [logs, snags]) which would likely increase turbulence and interaction with the air (thus increasing DO) (USEPA 2023b). The Ogier Ponds CM would disconnect the existing Ogier Ponds from Coyote Creek, which would likely have the effect of increasing water velocity and turbulence in this area, such as to increase DO. Under the Pre-FERC Order Conditions Baseline, the Ogier Ponds were a location where Coyote Creek flows would slow substantially, allowing for low DO conditions to develop (USEPA 2023b).

Finally, the lower water temperatures in Coyote Creek that would be achieved with FAHCE operations (see discussion above, and **Figure 3.14-6** and **Figure 3.14-7**) would potentially result in increased DO, since high temperatures reduce the solubility of oxygen in water (i.e., warm water holds less DO than cold water) (USEPA 2023b). For all these reasons, impacts related to

DO during the post-construction period from Seismic Retrofit component operations would be less than significant.

Following Seismic Retrofit construction, given that the surface area of Anderson Reservoir would be restored to Pre-FERC Order levels due to the increased storage capacity, there would be more opportunity for mixing with the air and oxygenation of water within the reservoir, potentially leading to higher DO levels near the surface. However, there may also be increased opportunity for stratification and for low DO levels to occur at lower depths in the reservoir. This is similar to the Pre-FERC Order Baseline where DO in the reservoir would stratify during the summer and fall. Post construction operation would include the ability to release from different outlets that would allow greater flexibility in controlling the DO of releases. As in-reservoir DO levels would be similar to the Pre-FERC Order Baseline, the impact is less than significant.

Sediment and Turbidity

The temporary and periodic erosion and sedimentation impacts during Seismic Retrofit construction would not be an issue during the post-construction period. After the reservoir is allowed to refill to full capacity, there would no longer be exposed, formerly inundated areas of sediment that has collected within the reservoir that would be especially susceptible to erosion. Thus, precipitation events that occur during the post-construction period would not result in substantial erosion within the lakebed, nor impacts to downstream waterbodies. Suspended sediment concentration and turbidity within the reservoir and dam releases, associated with precipitation events (e.g., upstream erosion and inflow of sediment), would likely be similar in the post-construction period to the Pre-FERC Order Conditions Baseline and the Future Baseline.

As noted above, implementation of the FAHCE rule curves would result in higher flows during certain times of the year and based on certain conditions, relative to the Pre-FERC Order Conditions Baseline and future baseline. Additionally, the new outlet works to be installed as part of the Seismic Retrofit component would have a substantially greater capacity (total combined [LLOW and HLOW] capacity of 6,720 cfs) compared to the outlet works during the Pre-FERC Order period (maximum capacity of 500 cfs). Thus, Valley Water could potentially release substantially more water during post-construction operations relative to the Pre-FERC Order Conditions Baseline.

Section 3.11, *Hydrology*, analyzes the frequency of high flows under the Project (FAHCE) as compared to the Pre-FERC Order Conditions Baseline and summarizes information from the *Potential Flood Impacts for ADSRP Memorandum* (Valley Water 2023d ~~2023a~~) (see Appendix K). This issue is also discussed in Section 3.18, *Recreation*. As shown in **Table 3.11-8** in Section 3.11, flood flows (i.e., releases from Anderson Dam during precipitation events) would generally be lower under the Project (2032 FAHCE scenario) compared to the Pre-FERC Order Conditions Baseline (2017 DSOD scenario). However, **Table 3.11-9** shows that moderately high flows (e.g., greater than or equal to 500 cfs and greater than or equal to 1,000 cfs) would occur more frequently under post-construction conditions compared to the Pre-FERC Order Conditions Baseline. Specifically, the modeling shows that over the study period considered (1973-2022), there would be 309.7 days with flows over 500 and 1,000 cfs under the post-Project FAHCE scenario, compared to 162.9 days and 25.8 days with flows over 500 cfs and 1,000 cfs, respectively, under the Pre-FERC Order (Valley Water 2022a). This is likely due to higher flows being enabled under routine operations with completion of the Seismic Retrofit component (greater capacity outlet works); whereas, under the Pre-FERC Order Conditions Baseline, flows over 500 cfs could only be realized through an uncontrolled spill from the reservoir.

As discussed in Section 3.11, *Hydrology*, Valley Water implemented flood management measures as part of FOCP to accommodate the higher flows that were enabled with construction of ADTP (with a capacity of 2,500 cfs), including constructing floodwalls, levees, and berms at select locations along Coyote Creek, as well as elevation or property acquisition of 10 residential properties (Valley Water 2020c ~~2020d~~). Additionally, prior to Seismic Retrofit component construction, Valley Water would implement additional flood management measures along Coyote Creek to accommodate the even higher flows that will be made possible with construction of the LLOW and HLOW, thereby limiting potential flooding impacts. Thus, the more frequent, moderately high flows that would result from implementation of the Project would not result in substantial flooding along Coyote Creek such as to impact adjacent properties and structures.

There would be potential, however, for the higher flows (e.g., greater than or equal to 500 cfs and greater than or equal to 1,000 cfs) to result in increased suspended sediment concentration and turbidity in Coyote Creek, since the larger volume of water would generally have greater erosive power and thus could increase erosion along the streambed and banks. As noted above, elevated suspended sediment concentration and turbidity are generally detrimental for a number of beneficial uses, including COMM, COLD, MIGR, RARE, SPWN, WARM, WILD, REC-1, REC-2, EST, and SHELL. Given the infrequency of such moderately higher flows (300 days over the course of the 49-year study period [or an average of roughly 6 days per year], based on the flood modeling), these impacts would not be significant. Relative to the Pre-FERC Order Conditions Baseline, the increase in flows of 500 cfs or greater under FAHCE (or future conditions baseline) would be equivalent to an average of roughly 2.8 days per year; for flows of 1,000 cfs or greater, the increase would equate to an average of roughly 5.59 days per year. These higher flows would also likely be occurring during a time of the year (winter season, during storms) when elevated suspended sediment concentration and turbidity would be natural and expected. For flows of 2,000 cfs or higher, as can be seen in **Table 3.11-9** in Section 3.11, *Hydrology*, these flows would become less common under the Project (2032 FAHCE) relative to the Pre-FERC Order Conditions Baseline (2017 DSOD). Presumably, this would be due to the larger outlet works following Seismic Retrofit construction being utilized to avoid uncontrolled spills from the reservoir.

Overall, any changes in suspended sediment concentration and turbidity in nontidal Coyote Creek, as well as further downstream in Coyote Slough and South San Francisco Bay, associated with more frequent, moderately high flows under FAHCE, would likely be modest and would not represent a substantial change from the Pre-FERC Order Baseline Conditions. Additionally, continued implementation of the Sediment Augmentation Program during the post-construction period would act to reduce potential adverse effects, as the replacement of fine sediment with more coarse gravel would reduce susceptibility to erosion during higher flows. Improvements associated with other CMs, such as the Ogier Ponds CM and Phase 2 Coyote Percolation Dam CM, (e.g., reconstructed channel segments with improved features [coarse gravel, rocks, logs]), would also likely improve the health and resilience of the stream channel in these areas, potentially reducing suspended sediment concentration and turbidity effects during higher flows. Relatedly, the more frequent higher flows under FAHCE would not result in substantially increased sediment deposition such as to affect fish habitat and/or beneficial uses.

Based on the above analysis, sedimentation and turbidity impacts from Seismic Retrofit post-construction operations would be less than significant.

Fish Habitat and Fish Passage

As described in Section 3.4, *Biological Resources – Fisheries Resources*, implementation of the FAHCE rule curves is predicted to increase overall incubation and spawning habitat, fry and juvenile rearing habitat, adult upstream passage conditions, and juvenile downstream migration conditions in Coyote Creek downstream of Anderson Dam for steelhead, Chinook salmon, and Pacific lamprey. The analysis is nuanced, and different effects are predicted for different life stages of various listed and sensitive fish, and some results vary by location; refer to Section 3.4 and Appendix F, *Biological Resources-Fisheries Technical Report* for detailed analysis and discussion.

In short, WEAP modeling generally shows that implementation of FAHCE rule curves would increase steelhead and other special status fish habitat relative to the Pre-FERC Order Baseline and Future Conditions Baseline, both by increasing the wetted area of the channel in certain locations and at key times of the year (e.g., during the spawning and incubation period) and expanding the suitable habitat conditions within the creek beyond the FCWMZ through cold-water releases. Additionally, although not reflected in the WEAP modeling, the Live Oak Restoration Project would have expanded habitat immediately downstream of the dam as part of FOCP, and continued maintenance of the Live Oak habitat as a component of the Project will provide continued habitat benefits for fisheries within that reach of Coyote Creek. Ogier Ponds CM, Phase 2 Coyote Percolation Dam CM, and broader Sediment Augmentation Program would also substantially increase fisheries habitat for all the different steelhead and sensitive fish life stages. Additionally, the Ogier Ponds CM would improve adult upstream passage opportunities by disconnecting Coyote Creek from the ponds, while the Phase 2 Coyote Percolation Dam CM would generally improve upstream and downstream passage conditions at the Coyote Percolation Dam area.

These changes as a result of FAHCE post-construction operations and the CMs would be beneficial to fish and aquatic species in general, but especially for the special-status, anadromous fish species in Coyote Creek. With respect to the San Francisco Bay Basin Plan, these effects would be positive for beneficial uses in nontidal Coyote Creek, such as COMM, COLD, MIGR, RARE, SPWN, WARM, and WILD. As such, the impacts would be less than significant and largely beneficial.

Salinity

Changes in freshwater releases from Anderson Reservoir could potentially impact salinity levels where Coyote Creek enters the South San Francisco Bay compared to the Pre-FERC Order Baseline and future baseline. This could directly affect beneficial uses in Coyote Slough and South San Francisco Bay by changing salinity levels. Additionally, if freshwater releases/flows in Coyote Creek were to be substantially reduced as a result of FAHCE rule curve implementation, this could increase encroachment of saltwater upstream and landward. This could potentially result in impacts on the freshwater Coyote Creek surface system (e.g., beneficial uses designated for nontidal Coyote Creek), as well as impacts on the groundwater basin if additional saltwater intrusion were to occur. Valley Water conducted an analysis of salinity impacts due to changes in releases associated with the FAHCE project. This qualitative volumetric analysis used

WEAP model outputs, the Bay Area Aquatic Resources Inventory geospatial dataset, and a USGS Report on salinity in the South San Francisco Bay (see Appendix K). For all creeks studied (Guadalupe, Stevens, and Coyote), changes in releases due to FAHCE were relatively small compared to typical flows following storm events. For Coyote Creek, the largest increase in releases associated with FAHCE would be about 14 cfs during March and April, while storm flows commonly exceed 500 or 1,000 cfs. The greatest decrease in flows would occur in November, with a reduction of 3.4 cfs (or 8.2 percent). The results of the flow analyses are shown in **Table 3.14-6** and **Table 3.14-7**.

Table 3.14-6. FAHCE Changes to Coyote Creek Freshwater Flows to San Francisco Bay

	Monthly Average Change in Flow, Coyote Creek	
	cfs	%
Jan	1.7	0.9%
Feb	1.2	0.5%
Mar	14.2	10.5%
Apr	14.3	21.7%
May	-0.9	-2.2%
Jun	-0.9	-2.9%
Jul	-0.8	-3.4%
Aug	-0.7	-3.3%
Sep	-0.6	-3.1%
Oct	-0.5	-2.1%
Nov	-3.4	-8.2%
Dec	1.9	2.2%
Overall Avg.	2.1	2.9%

Source: Valley Water 2022b

Table 3.14-7. Average Change in Coyote Creek Freshwater Flow Due to FAHCE by Water Year Type

	% Change in Flow
Above Normal	5.9%
Below Normal	3.7%
Critical Dry	0.6%
Dry	2.9%
Wet	2.2%
Overall Avg.	2.9%

Source: Valley Water 2022b

The greatest increase in flows due to FAHCE rule curve implementation for Coyote Creek of 14.3 cfs (see **Table 3.14-6)** would translate to approximately 17,632 cubic meters (m^3) per day (Valley Water 2022b), whereas the greatest decrease in flows of 3.4 cfs would translate to approximately 4,192 m^3 per day. By contrast, the total volume of the South Bay Estuary at mean sea level is roughly 86 million m^3 (Valley Water 2022b). Thus, the potential increment of change due to the Project would not be of a sufficient magnitude to meaningfully affect the salinity dynamics in the South Bay Estuary and the Coyote Creek system. More importantly, a USGS study on Bay salinity indicates that salinity changes are driven by large storm events, and less so by reservoir releases (Valley Water 2022b). Given the minor role that reservoir releases have on salinity in the south San Francisco Bay, the impacts of FAHCE rule curves with respect to salinity would be less than significant.

Summary of FAHCE Rule Curve Implementation Impacts

In summary, compared to the Pre-FERC Order Conditions Baseline and future conditions baseline, implementation of FAHCE rule curves would, over the long term, have positive impacts on beneficial uses and water quality in Anderson Reservoir and Coyote Creek. WEAP modeling shows that implementation of FAHCE rule curves would result in water temperatures remaining below fish health-based thresholds within the CWMZ, and adverse effects due to FAHCE would not occur for DO, suspended sediment concentrations and turbidity, and salinity. Longer-term benefits include reinvigorating a more dynamic channel, with geomorphic processes that help create new instream habitats. The pulse flows, and other periodic high flows enabled through FAHCE and the increased outlet capacity provided by the Project, while potentially leading to temporary spikes in turbidity and suspended sediment (which are not significant), would provide more frequent "channel-forming flows". The increase in these dynamic geomorphic processes is beneficial to instream habitat and water quality. Overall, the impacts from FAHCE rule curves implementation would be less than significant and largely beneficial. FAHCE rule curves would not impair beneficial uses of surface waters; violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface water quality; or conflict or obstruct implementation of a water quality control plan.

Within-Reservoir Effects

With respect to the impacts on water quality within the reservoir itself, the filling of the reservoir following Seismic Retrofit component construction would allow for the full restoration of beneficial uses associated with the reservoir including habitat related uses: COLD, SPWN, WARM, and WILD; water supply benefits: Municipal and Domestic Supply and GWR; and once the reservoir is again opened to the public COMM, Non-contact Water Recreation (REC-2), and Water Contact Recreation (REC-1). The operation of the reservoir at its full capacity would be a beneficial impact against both the existing conditions baseline, when the reservoir is restricted to deadpool, and the Pre-FERC Order Baseline, when the reservoir had a ~~seismic~~ restriction limiting storage to about half of the capacity.

Higher Flows During Normal Operating Conditions and Emergency Drawdown

The Seismic Retrofit components of the Project would greatly increase the capacity of the dam's outlet works and could thus provide the ability to release substantially greater volumes of water, resulting in higher flows downstream in Coyote Creek. As opposed to the dam's outlet works prior to the FOCP, which had a maximum capacity of 500 cfs, the Seismic Retrofit would establish new outlet works with a total combined capacity of 6,840 cfs. This would include the LLOW, which would have a maximum capacity of 1,540 cfs, but would operate up to 1,400 cfs under most operations The HLOW, which would have a capacity of 5,300 cfs, and would be used during emergencies that require a DSOD-mandated drawdown of the reservoir (i.e., to respond to an earthquake emergency). The new spillway constructed as part of the Seismic Retrofit would be able to safely convey the PMF, which is estimated to be approximately 98,000 cfs, but would be utilized less frequently due to the new larger LLOW. The new dam release facilities constructed as part of the Seismic Retrofit would enable higher flows during operation, which could cause erosion downstream if substantially higher than existing flows.

While the FAHCE rule curves would govern releases most of the time during Project operation, the reservoir may need to be lowered quickly during emergency situations, such as responding to a DSOD mandate to draw down the reservoir after an earthquake. This would potentially result in very high flows for short periods of time. The seismic retrofit would greatly increase the capacity of the dam's outlet works, thereby making a quick drawdown of the reservoir's water level possible in an impending emergency situation. This would comply with DSOD requirements as described in Chapter 2, *Project Description,* to provide a new outlet works at Anderson Reservoir to be capable of lowering the reservoir's maximum storage depth by 10 percent within 7 days and draining its full content within 90 days (DSOD 2018 ~~2017~~). Between the LLOW and HLOW, the reconstructed Anderson Dam would be able to release up to 6,840 cfs. Relative to the dam's maximum discharge capacity via its outlet works of 500 cfs under the Pre-FERC Order Conditions Baseline, this would represent a substantial increase in the potential peak controlled releases/flows from the dam. Under the Pre-FERC Order Conditions Baseline very high flows would pass over the spillway when the reservoir was filled and the volume of water coming into the reservoir was greater than the capacity of the outlet to release water (500 cfs). Under post-construction operations high flows may still pass over the spillway when the reservoir is filled; however, this would be less likely given the ability to release greater volumes of water prior to a large storm (Valley Water 2023d ~~2023a~~).

Similar to uncontrolled releases observed in the Pre-FERC Order Condition (i.e., 2017 spill event resulted in flows of 7,400 cfs at the Madrone Gage), controlled releases of high flows can increase potential for erosion downstream, as greater volumes of water traveling at greater velocities would increase the erosive power of the flows. Given the infrequency of emergency drawdown scenarios, these effects would also be infrequent and would occur in the context of necessary dam operations for the protection of life and property. In this respect, the effects would be less of a concern, although single, extreme events can cause a large amount of erosion and siltation and sedimentation that can be damaging to the ecosystem. Refer to *Hydrology* Section 3.11 for a discussion of potential effects related to flooding caused by the higher releases made possible by the seismic retrofit elements of the Project.

Many of the Project features described above would serve to minimize potential adverse effects associated with peak flows in the event of an emergency. ~~For example, the reconstructed North Channel would enable Valley Water to split high flows between the North and South Channels of Coyote Creek, thereby minimizing the concentration of flows and the erosive power.~~ The ongoing sediment augmentation activities, as part of the Sediment Augmentation Program, would also help to replenish sediment that may have been washed out during a high flow event. As noted above, the existing and Pre-FERC Order Baseline Conditions include very high flows during and after large winter storms that inundate the floodplain and carry large amounts of sediment downstream. As the volume of peak flows would be reduced as would the number of uncontrolled releases when measured against the Pre-FERC Order Baseline impacts from higher flows and emergency drawdown would be less than significant.

Use of Imported Water

During post-construction operations the reservoir would be allowed to fill to its full capacity. This would allow for more water captured in the reservoir to be released to Coyote Creek and a greater volume of cold water to support downstream fisheries. The amount of imported water needed to support groundwater recharge and supplement flows would be reduced. Imported water could still be used to supplement supplies from Anderson Reservoir, but it would not be chilled prior to release. Imported water is typically warmer than water released from the reservoir, but not warm enough to exceed the 22 °C criterion ~~threshold~~. However, imported water would not be needed to provide cold water as cold water would be supplied by the cold-water pool in the reservoir.

The Cross Valley Pipeline Extension could also still be used, but only in situations where releases from the reservoir do not extend past the CWMZ. This could happen in dry years with limited storage in the reservoir. Cold water releases (about 10 cfs) from the reservoir would be reserved for the CWMZ. A 10 cfs release only keeps the creek wetted through the CWMZ. Releases from the Cross Valley Pipeline Extension would then support groundwater recharge below the CWMZ.

Overall, the use of imported water would be reduced against both the Pre-FERC Order Baseline ~~(when storage was at deadpool)~~ and the existing conditions baseline (when capacity was limited to approximately 50 percent). The use of imported water would not impair water quality standards or otherwise substantially adversely affect water quality in Coyote Creek. The water quality impact from use of imported water would be less than significant.

Discharges of Pollutants from Impervious Surfaces

As described in Section 3.11, *Hydrology*, the Seismic Retrofit component would result in additional impervious surface area in the area of Anderson Dam due to widening of several roadways and other modifications. In total, this would result in approximately 2.14 acres of additional impervious surface area relative to the Pre-FERC Order Conditions Baseline. In general, impervious surfaces increase the amount of water runoff following storms, as no portion of the precipitation falling on these areas is able to infiltrate into the soil and groundwater. Rather, the water flows directly off the surface and at a higher velocity compared to “natural” ground conditions. This can lead to increased erosion and sedimentation, as the higher velocity runoff has greater erosive power, and can also potentially lead to discharges of other types of pollutants (e.g., fuel, oil, grease, etc.) that are associated with vehicle use of the impervious surface areas.

The permanent roadway modifications installed as part of the Project would be designed to drain runoff into a stormwater system that would discharge runoff to Coyote Creek in a controlled manner or flow directly to the surrounding pervious lands. Given these factors, the additional impervious surface that would be created via the Seismic Retrofit components would not substantially discharge polluted water to Coyote Creek. The Project would also comply with applicable provisions of the Municipal Regional Stormwater NPDES permit. Impacts of pollutant discharges from impervious surfaces would therefore be less than significant.

Dam Maintenance

Post-construction Anderson Dam facilities maintenance may include vegetation management, burrowing rodent control, access road and boat ramp work, erosion control/bank stabilization/drainage, embankment repair (cracking and slumping), and trash and debris removal. Additionally, maintenance could be performed on various types of dam appurtenances and equipment, such as inlets/outlets, valve systems and hydraulic systems, sediment removal around intake structures and hydraulic lines; concrete structure repairs, replacement and cleaning (including weep holes); seepage systems (weirs and piping), and other appurtenances. Maintenance could also include inspections and exploratory field investigations (e.g., drilling), as well as reservoir dewatering to provide access and refurbish dam appurtenances located in wetted areas. Additionally, repair and replacement of various types of pipelines, pump stations, blow offs, turnouts and vaults associated with Anderson Dam may be required during the post-construction period.

These maintenance activities would be covered under the DMP and PMP Water quality impacts associated with dam facility maintenance will be minimized through implementation of BMPs HM-1 and HM-4 through HM-8, and DMP Mitigation Measures Water Quality-1 and Wildlife-4 as discussed under Hazardous Materials Releases during Seismic Retrofit construction. Considering the extensive BMPs for these programs, the maintenance activities would have short-term, less-than-significant impacts on water quality.

Seismic Retrofit Operations and Maintenance Summary

Operations of the Seismic Retrofit components would have positive impacts on beneficial uses and water quality in Anderson Reservoir and Coyote Creek through refilling of the reservoir and use of the FAHCE rule curves. Maintenance activities impacts would be less than significant. Overall, the impacts from operation and maintenance would not impair beneficial uses of surface waters; violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface water quality; or conflict or obstruct implementation of a water quality control plan, and impacts would therefore be less than significant.

Conservation Measures Post-Construction Operations and Maintenance

Operations

The Conservation Measures would have beneficial effects on water quality over the long-term, during the post-construction period.

The placement of spawning gravel and rearing habitat improvements in the Live Oak Restoration Reach would create improved spawning habitat during all post-construction operational conditions within this upper reach of Coyote Creek. The improvement in habitat would have a beneficial impact on rare and endangered species and fish, spawning and related beneficial uses, as it would replace coarse gravel lost due to dam operations; refer to Section 3.4, *Biological Resources – Fisheries Resources*, for detailed discussion of fish habitat effects.

The Ogier Ponds CM would benefit water temperatures in Coyote Creek in the long-term by avoiding the ponds and reducing surface area exposed to solar radiation which increases the temperature of flows in the Pre-FERC Order and existing conditions baselines. The created channel (approximately 6,500 feet in length) would restore the historic (1970's) channel alignment. At the end of construction, the channel would be devoid of mature vegetation; however, as riparian vegetation is established and grows to maturity temperature benefits would increase. The Ogier Ponds CM would increase water velocity and turbulence in this area, such as to increase DO. Under the Pre-FERC Order Conditions Baseline, the Ogier Ponds were a location where Coyote Creek flows would slow substantially allowing for low DO conditions to develop (USEPA 2023b). Ogier Ponds CM would also improve the health and resilience of the stream channel reducing suspended sediment concentration and turbidity effects during higher flows.

Monthly inspections would be conducted at Ogier Ponds to monitor water quality changes. To maintain or improve DO in the ponds and wetland during normal conditions in the absence of creek flow-through, solar powered floating aerators would be installed to maintain or improve DO as compared to existing conditions. Other water quality best management practices may be deployed if necessary, as indicated by pond water quality monitoring results to maintain or improve upon existing water quality conditions in the ponds. ~~The North Channel Extension would split high flows slowing the water down in a manner that minimizes the potential for erosion and entrapment of steelhead and other sensitive fish. This splitting of flows and slowing of water velocity would occur in the wintertime when warming is unlikely; thus, impacts on water temperature are unlikely The North Channel Extension would also generally increase channel roughness (e.g., due to the presence of coarse gravel/cobble and other channel features [logs, snags]) which would increase turbulence and interaction with the air (thus increasing DO) (USEPA 2023b).~~

The Sediment Augmentation Program places gravels in areas along Coyote Creek to improve habitat conditions and by extension would improve the beneficial uses of the creek. Increased channel roughness (e.g., due to the presence of coarse gravel/cobble and other channel features [logs, snags]) would increase turbulence and interaction with the air (thus increasing DO) (USEPA 2023b), and the replacement of fine sediment with more coarse gravel and would reduce susceptibility to erosion during higher flows.

The Phase 2 Coyote Percolation Dam CM would be operated consistent with existing requirements for water supply and fish passage. Operation of the facility would not alter water quality parameters from the existing conditions baseline. As a result, no significant changes to water quality as a result of the operation of the facility are likely. The roughened channel would generally increase channel roughness which would increase turbulence and interaction with the air (thus increasing DO) (USEPA 2023b) and improve the health and resilience of the stream channel reducing suspended sediment concentration and turbidity effects during higher flows. Within 13 months of completion of the Phase 2 Coyote Percolation Dam design (completion of design anticipated ~~in~~ prior to Year 1 ~~-4~~), Valley Water will prepare a Phase 2 Coyote Percolation Dam Operations Plan in coordination with the regulatory agencies. The objectives of the Operations Plan will be to continue to provide sufficient groundwater recharge, while improving conditions for smolt migration.

Sediment augmentation activities would improve geomorphic processes that create and maintain steelhead habitat (sediments and spawning gravels) and reduce channel incision that is typical in Lower Coyote Creek downstream of the dam. Valley Water would collect the data and conduct analysis from the sediment deposition monitoring, sediment transport modeling, and long-term spawning habitat assessment monitoring. Valley Water would share this data and information and work in coordination with the regulatory agencies composing the AMT to agree, based upon such data and analysis, upon appropriate sediment volume, composition, and frequency of sediment augmentation required to benefit over the long-term spawning gravel habitat and geomorphic conditions within the CWMZ without increasing flood risk or damage to infrastructure. Valley Water would conduct annual monitoring to determine the degree suitable steelhead spawning and rearing habitat remains within the CWMZ. At least every 5 years, Valley Water ~~will~~ would replenish spawning gravels within the Live Oak Restoration Reach and/or the Ogier Ponds CM restoration reach by placing up to the 500 cy of sediment (composition to be determined) within the reach using the methods similar to the construction activities described for the Sediment Augmentation Program.

The improvements to the Coyote Creek channel made as part of the Conservation Measures would likely improve mixing and oxygenation within the creek.

Overall, operation of the Conservation Measures would have beneficial impacts on water quality parameters including temperature, DO, and turbidity and beneficial uses in Coyote Creek.

Maintenance

Post-construction maintenance activities for the North Channel Reach ~~Extension~~, the Live Oak Restoration Reach, Ogier Ponds ~~ponds~~, and Coyote Percolation Pond, would result in the same types of impacts as described previously for construction activities. However, the magnitude of those impacts would be much lower for operations and maintenance, as repairs and maintenance would be necessary infrequently and in more limited, localized areas than the initial construction. Furthermore, these activities would be necessary to allow these facilities to continue to operate effectively, benefiting water quality and protecting related beneficial uses.

The maintenance of spawning gravel and rearing habitat improvements in the Live Oak Restoration Reach would have a beneficial impact on rare and endangered species and fish spawning beneficial uses, as it would replace coarse gravel lost due to dam operations; refer to Section 3.4, *Biological Resources – Fisheries Resources*, for detailed discussion of fish habitat effects. Maintenance would include placing 5 to 500 cy of spawning gravels or sediments within Coyote Creek adjacent to the channel within the CWMZ as dictated by on-going monitoring of the creek. In addition, culverts and low-flow crossings between the Anderson Dam and Coyote Percolation Ponds would be maintained as needed.

Ogier Ponds CM maintenance would include vegetation management and replanting or other efforts to establish native vegetation. Berms, spillways, fish screens, in-channel bio-engineered habitat enhancements, rock slope protection, and stormwater outfalls would be inspected and repaired, as necessary. Additional maintenance activities would include trash removal, inspection and graffiti abatement at floodwalls, access road inspections, and road maintenance.

North Channel Reach maintenance would include maintaining the constructed wetland bench, maintaining design flow capacity through the North Channel, and replacing restoration plantings, as needed. ~~North Channel Extension maintenance would include debris and/or vegetation removal from the channel or may require the dewatering and grading of channel bottom and banks to ensure the improvements maintain their proper capacity and slope to convey flows from the reservoir.~~

Phase 2 Coyote Percolation Dam CM maintenance would include periodic removal of sediment deposited in the restored channel, vegetation management, replacing roughness elements and/or repair of in-channel bio-engineered habitat enhancements, and enhancing rock slope protection as needed.

Maintenance activities for all these Conservation Measure facilities have potential to result in minor erosion and siltation on- or offsite with the use of equipment and vegetation removal. The use of hazardous materials in equipment and herbicides in vegetation maintenance could result in water quality impacts if these materials were spilled. All Conservation Measures will be subject to appropriate BMPs to avoid and minimize water quality impacts. BMPs will include HM-1 through HM-6 which establish appropriate use and handling of herbicides; ~~HM-7~~ HM-8 through HM-10 which ensure hazardous materials are only used in appropriate locations and are used properly; and WQ-1 through WQ-9 which minimize erosion through proper maintenance techniques. Considering the extensive BMPs for these activities, the maintenance of the Conservation Measure components will have short-term less-than-significant impacts on water quality.

Conservation Measure Operations and Maintenance Summary

Operations of the Conservation Measure components would have positive impacts on beneficial uses and water quality in Coyote Creek through improved flow conditions through Ogier Ponds and the Coyote Percolation Pond, and habitat enhancement that support many of the assigned beneficial uses. Maintenance activities impacts would be less than significant. Overall, the impacts from operation and maintenance would not impair beneficial uses of surface waters; violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface water quality; or conflict or obstruct implementation of a water quality control plan.

Post-Construction Project and FAHCE Adaptive Management

Water quality impacts of monitoring activities during AMP implementation would be less than significant, and similar to those of construction monitoring. Adaptive management measures may refine Anderson Dam post-construction FAHCE flow releases and implemented habitat restoration Conservation Measures after they meet their project-specific success criteria when they are not functioning over the long-term as intended or are not meeting measurable objectives. Refinements would likely have impacts similar to those discussed for post-construction operation of Anderson dam and Conservation Measure construction. As noted above these are considered here at a programmatic level, and future CEQA evaluation may be undertaken in the as necessary when specific projects are proposed, and project-specific details are available.

Significance Conclusion Summary

Adverse water quality impacts of the Project result from construction of the Seismic Retrofit components. Construction activities with the potential to affect water quality ~~include~~ are a consequence of dewatering of the reservoir which would ~~reduce the quality of habitat~~ potentially increase water temperature and turbidity and reduce DO within the reservoir pool. ~~and~~ Dewatering would also expose a high volume of sediments on the bottom of the reservoir that would be subject to erosion, especially in larger storm events, that would temporarily cause high levels of sedimentation and turbidity in Coyote Creek ~~for the days~~ during and for a short time following storms. **Mitigation Measure WQ-1** requires implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of

BMPs to control sediment associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

The excavation of material, placement of fill to construct seismic retrofit improvements, stockpiling of materials, and construction equipment can create turbidity in Coyote Creek through erosion during construction and maintenance activities at the dam or Conservation Measures sites. For conventional out-of-reservoir construction activities, Valley Water would implement a SWPPP~~, comply~~ in compliance with the Construction General Permit ~~BMPs~~. Valley Water would also implement applicable VHP AMMs, VHP conditions, and Valley Water BMPs ~~;and~~ for in-reservoir and out-of-reservoir construction activities. In addition, Valley Water would implement a Water Quality Sampling Plan, a Sediment Monitoring Plan, and a Sediment Deposition Monitoring Plan, as well as ~~suspended sediment and sediment deposition monitoring~~, rearing juvenile steelhead monitoring, an active treatment system within constructed elements of the Seismic Retrofit downstream of the Stage 1 Diversion System and Stage 2 Diversion System, and use a chiller for the discharge of imported water if needed to maintain cold water conditions in the FCWMZ. These measures would ~~to~~ minimize adverse water quality impacts during construction activities. General construction water quality impacts would be **less than significant**. While not required to reduce general water quality impacts to less than significant, Valley Water would implement **Mitigation Measure WQ-1** which would further reduce general water quality impacts by requiring implementation of a WQMPP for in-reservoir construction, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Perchlorate impacts from blasting would be significant, but less than significant with implementation of **Mitigation Measure GW-2** (Perchlorate Best Management Practices).

After mitigation, impacts of Project construction would be less than significant, with two exceptions caused by drawdown and dewatering of the reservoir associated with Seismic Retrofit construction. First, within the reservoir pool, water quality impacts related to temperature, DO and turbidity are ~~significant, and an~~ a **significant and unavoidable** consequence of reservoir dewatering. Second, the temporary exceedance of the turbidity water quality objective in Coyote Creek during certain-sized storm events due to erosion of exposed sediments while the reservoir is dewatered is a **significant and unavoidable** impact. However, the impact on beneficial uses ~~impairment~~ in Coyote Creek from releases of sediment associated with in-reservoir construction dewatering would be **less than significant** given the temporary and periodic nature of the turbidity impact, and the ability of Conservation Measures to minimize this impact over the short- and long-term. Regarding the fisheries-related beneficial uses, Section 3.4, *Biological Resources – Fisheries Resources*, demonstrates why temporary increases in turbidity during construction would not cause significant adverse effects on special-status fish populations and habitat. Despite the short-term adverse effects of sediment mobilization and release from Anderson Reservoir during Seismic Retrofit construction, the transport of this sediment downstream to Coyote Creek and San Francisco Bay would be beneficial for downstream ecosystems and habitats and related beneficial uses because the system has historically been deprived of sediment. Therefore, impacts on beneficial uses would be **less than significant**. ~~No~~ However, no feasible mitigation exists to reduce the impact such that the turbidity water quality objective is not violated and impacts would be **significant and unavoidable**.

Conservation Measure construction would not result ~~in~~ in significant water quality impacts, given implementation of a SWWPP complying with Construction General Permit BMPs, VHP AMMs, and Valley Water BMPs.

The FAHCE rule curves were developed to improve fisheries habitat quality in Coyote Creek including a primary biological feature of that habitat, namely water quality parameters, and particularly temperature. Conservation Measures, including the North Channel Extension, Ogier Ponds CM, Sediment Augmentation Program, and Phase 2 Coyote Percolation Dam would also be operated in manner that improves habitat conditions and related ~~, including~~ water quality parameters and beneficial uses.

In summary, the Project ~~conventional construction activities~~ would result in short-term, construction-related impacts to the beneficial uses of Anderson Reservoir and Coyote Creek, sedimentation and turbidity, and could introduce petroleum products and hazardous material through use of heavy equipment; however, these impacts are generally short-term and/or minimized through the implementation of the SWPPP, Mitigation Measure WQ-1 and the WQMPP, Valley Water BMPs, VHP Conditions and AMMs, and the construction monitoring that is part of the Project. Over the long-term, the Project would have beneficial impacts on water quality parameters including temperature, DO, and turbidity and enhance Coyote Creek habitat in support of fisheries related beneficial uses. Therefore, water quality impacts from in-reservoir and out-of-reservoir construction activities would be **less than significant**.

Adverse water quality impacts resulting from construction related drawdown and dewatering of the reservoir are, however, considered **significant and unavoidable** due to significant and unavoidable in-reservoir water quality impacts and the temporary exceedance of the Coyote Creek turbidity water quality objective during certain-sized storm events while the reservoir is dewatered.

Mitigation Measures

GW-2 Perchlorate Best Management Practices

WQ-1 Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan

Prior to construction, Valley Water will prepare and submit to the State Water Resources Control Board for approval a site- and discharge-specific Water Quality Monitoring and Protection Plan (WQMPP) for stormwater discharges associated with in-reservoir construction-related activities. The WQMPP will specify water quality control measures to minimize release of construction-related pollutants and associated water quality impacts to Coyote Creek downstream of Anderson Dam in accordance with the Clean Water Act and Porter Cologne Water Quality Control Act, taking into account fundamental differences in ADSRP in-reservoir construction areas and activities as compared to typical construction sites and activities.

The WQMPP will be implemented through Year 8 of construction when the reservoir is refilled and restrictions on impoundment within the reservoir are lifted. The WQMPP will include, at a minimum, the following elements:

- A detailed description of site conditions and the proposed in-reservoir construction activities and areas of disturbance.

- Detailed descriptions, design drawings, and specific locations of water quality control measures (Best Management Practices [BMPs]) that can feasibly be implemented to control pollutants in stormwater discharges associated with in-reservoir construction activities given unique characteristics of those construction activities and areas. Control measures may include, but not be limited to the following BMPs:
    - Limiting impacts from construction related staging and stockpiles.
    - Maintaining clean conditions at the work site.
    - Implementing spill prevention and response controls, including secondary containment.
    - Limiting locations for vehicle cleaning, fueling and maintenance to areas where unintentional spills do not threaten a discharge to waters;
- A technical demonstration that the BMPs satisfy Clean Water Act requirements for fundamentally different construction activities (including 33 USC sections 1342(p)(3) and 40 CFR sections 125.30-125.32)
- Ongoing evaluation and consideration during ADSRP construction of monitoring data collected and reported pursuant to the water quality monitoring program described in Final EIR section 2.7.1, including temperature, DO, pH and turbidity data collected pursuant to the Water Quality Sampling Plan, turbidity and TSS data collected pursuant to the Sediment Monitoring Plan, and sediment data collected pursuant to the Sediment Deposition Monitoring Plan. This mitigation measure may also rely on other data collected pursuant to existing FOCP and/or other water quality monitoring plans when appropriate to avoid duplicative data collection.

The WQMPP will be kept up to date to reflect any changes in site conditions and project activities, and to address controllable water quality factors in response to monitoring data.

3.14.5 Cumulative Impacts

The geographic study area for the cumulative impact analysis for Water Quality is areas around Anderson Reservoir and the Coyote Creek Watershed downstream of the reservoir to San Fransico Bay.

This section describes the Project's contribution to cumulative water quality impacts, as summarized in **Table 3.14-8**.

Table 3.14-8. Summary of Project Impact Contribution to Cumulative Water Quality Impacts

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact WQ-1: Impair beneficial uses of surface waters OR violate any applicable surface water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality OR conflict or obstruct implementation of a water quality control plan	Yes	Yes	CC	MM WQ-1 MM GW-2	Yes

Key: CC = cumulatively considerable

***Cumulative Impact WQ-1: Impair beneficial uses of surface waters OR violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality OR conflict or obstruct implementation of a water quality control plan* (Cumulatively Considerable)**

~~Project construction activities would involve drawdown of the reservoir for the seven years of construction.~~ Localized dewatering of nuisance groundwater would occur in areas associated with construction of improvements. The excavation of soils within or near the reservoir and creek, placement of fill within or near the reservoir or creek to construct dam improvements and Conservation Measures, vehicle travel on unpaved access and haul roads, exposed unvegetated work sites and staging areas, uncovered stockpiles, and mining activities could result in erosion of surface soils. Resultant erosion may cause turbidity and sedimentation, and impact beneficial uses tied to water availability and water quality. Construction and maintenance activities would also involve the use of hazardous materials and herbicides, which could accidentally be released into the environment, resulting in adverse effects on water quality. ~~General~~ However, general construction impacts would be **less than significant** with implementation of a SWPPP for out-of-reservoir construction, and implementation of applicable Valley Water BMPs and VHP conditions and AMMs during in-reservoir and out-of-reservoir construction.

Project construction activities would involve drawdown of the reservoir during construction. Dewatering during Seismic Retrofit construction would exacerbate adverse effects of water quality within the reservoir. The further lowering of water levels within the reservoir would increase water temperature~~,~~ and turbidity and reduce DO in the reservoir ~~(especially following storms)~~, and potentially concentrate other pollutants that would be present within the water column. This impact would be **significant and unavoidable**.

Reservoir dewatering would result in temporary and episodic, but substantial, discharges of sediment as storm runoff travels over previously inundated sediments at the bottom of the reservoir exposed during reservoir drawdown. Because of the threat presented to public health and safety, ~~and~~ there is only limited water storage allowed behind the dam due to FERC's Order to implement Interim Risk Reduction Measures, so there is no detention capacity to settle out sediments ~~from~~ upstream prior to release to Coyote Creek~~. ; and could increase water temperatures in Coyote Creek downstream.~~ Sediment discharged from the reservoir during storms would deposit in Ogier Ponds, Coyote Percolation Pond, Coyote Creek downstream of Coyote Percolation Pond, and San Francisco Bay. The temporary exceedance of the turbidity water quality objective during certain-sized storm events while the reservoir is dewatered is a **significant and unavoidable** impact. However, the impact on beneficial use impairment would be **less than significant** given the temporary and periodic nature of the turbidity impact~~, and the ability of Conservation Measures to minimize this impact over the short- and long-term~~. Despite the short-term adverse effects of sediment mobilization and release from Anderson Reservoir during Seismic Retrofit component construction, the transport of this sediment downstream to Coyote Creek and San Francisco Bay would be beneficial for downstream ecosystems and habitats and related beneficial uses because the system has historically been deprived of sediment.

The Project would create approximately two acres of new impervious surface which could result in a greater volume of polluted runoff. However, the Project would also generate substantial beneficial impacts to water quality and beneficial uses. The new reservoir outlet would allow for greater flexibility in releases that would allow greater use of the reservoir's cold water pool and reduce the potential for uncontrolled reservoir spills. The Live Oak Restoration Project, the Ogier Ponds CM, Sediment Augment Program, ~~North Channel Extension,~~ and Phase 2 Coyote Percolation CM would all provide water quality benefits and habitat enhancements that support beneficial uses.

The Project could impact surface and groundwater quality using explosives that contain perchlorate and other nitrogen-based chemicals which could degrade water quality at the Project level. ~~Perchlorate impacts from blasting would be significant, but less than significant with implementation of **Mitigation Measure GW-2** (Perchlorate Best Management Practices).~~

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction, restoration, or operation could impair beneficial uses of surface waters; or violate any water quality standards or waste discharge requirements; or otherwise substantially degrade surface water quality; or conflict or obstruct implementation of a water quality control plan in Anderson Reservoir or Coyote Creek.

Cumulative Effects of Project with the FOCP

The FOCP lowered the storage behind Anderson Reservoir to deadpool. The reservoir levels would be further lowered during construction of the ADSRP. This exposes exposed previously inundated sediment that had accumulated behind the dam to erosion as flows from upstream run through the footprint of the reservoir. At the same time, the reduction of stored water reduces the reservoir's ability to settle out sediment being carried down from upstream sources. This greatly increases the volume of sediments released downstream to Coyote Creek during storm events. Construction of new access and haul roads, as well as removal of Coyote Road, during site mobilization involved substantial ground disturbance and operation of heavy equipment. This could result in erosion and subsequent transport/runoff of eroded materials to Anderson Reservoir and Coyote Creek.

The Project could impact surface and groundwater quality using explosives that contain perchlorate and other nitrogen-based chemicals which could degrade water quality at the Project level. The FOCP does not require ~~could also potentially~~ use explosives ~~in constructing the outlet tunnel~~ that may contain perchlorate or other nitrogen-based chemicals.

The cumulative risk to exceedance of the water quality objectives ~~degradation~~ is significant and the Project's contribution is cumulatively considerable. Both projects involve an extended period of reservoir dewatering that could increase erosion of sediments deposited in the reservoir when they are exposed by drawdown, particularly in connection with ADSRP construction where the reservoir must be drawn down to a lower elevation than deadpool. ~~Both projects involve construction activities that could increase erosion and involve the use of hazardous material during construction and maintenance that could impact Coyote Creek and the~~ The Project extends the period that Anderson ~~Andreson~~ Reservoir storage is lowered which greatly increases the potential for erosion of sediments on the bottom of the reservoir, and for temporary and episodic exceedances of the Coyote Creek turbidity water quality objective. Drawdown of the reservoir would also increase water temperature and turbidity and reduce DO within the reservoir. The Project's construction phase impacts when added to the FOCP's impacts on water quality are cumulatively significant, and the Project's contribution is **cumulatively considerabl**e. However, the long-term effects of sediment releases from Anderson Reservoir during Seismic Retrofit component construction would have beneficial effects on the San Francisco Bay estuary where sediment is needed by marshes to keep up with sea level rise.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Other probable future projects that could impact water quality in Coyote Creek include the SMP, VHP, DMP, Coyote Creek Flood Protection Project, Santa Clara County Parks Planning Projects and Natural Resource Management, as well as development projects in the Coyote Creek Watershed. These other projects involve construction and maintenance activities that could result in erosion and subsequent transport and runoff of eroded materials, the increase of impervious surfaces that can degrade water quality, and the use hazardous material in construction equipment.

All construction projects over one acre in size must comply with the Construction General Permit and implementation of a SWPPP which requires erosion control measures and BMPs to avoid and reduce the risk of erosion of materials to adjacent water bodies. The Project would implement a SWPPP in compliance with the Construction General Permit for out-of-reservoir construction activities. In addition, this Project and other Valley Water projects~~,~~ implement as appropriate the Valley Water erosion control BMPs to further reduce this risk such as: BMP AQ-1 (Use Dust Control Measures), BMP WQ-4 (Limit Impacts From Staging and Stockpiling Materials), BMP WQ-1 (Conduct Work from Top of Bank), BMP WQ-2 (Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms), BMP WQ-5 (Stabilize Construction Entrances and Exits), BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-10 (Prevent Scour Downstream of Sediment Removal), BMP WQ-11 (Maintain Clean Conditions at Work Sites), and BMP WQ-16 (Prevent Stormwater Pollution).

The implementation of the SWPPP BMPs for construction activities outside the reservoir along with applicable Valley Water BMPs and VHP conditions and AMMs would also reduce the potential for accidental releases of petroleum based products and hazardous materials during construction and maintenance, as well as limit the potential for impacts in the event of such releases. The SWPPP would include good housekeeping measures that would likely include secondary containment for any hazardous materials that are stored at the construction site. Additionally, Valley Water BMP HM-8 ~~BMPs HM-7 and HM-8~~ reduces the risk of vehicle-related pollutants from impacting water quality by ensuring vehicles and equipment ~~are cleaned in appropriate locations and that they~~ are properly fueled and maintained, reducing the risk of fuel or other leaks entering waterways. BMP WQ-6 limits the impact of concrete near waterways. Implementation of BMPs HM-9 and HM-10 also would protect water resources by ensuring proper management of hazardous materials and the implementation of spill prevention measures.

Banned and restricted-use pesticides that contribute to the downstream water quality impairments would not be used. For any legal herbicides that may be needed during construction and maintenance, BMPs HM-1 (Comply with All Pesticide Application Restrictions and Policies), HM-2 (Minimize Use of Pesticides), HM-4 (Comply with All Pesticide Usage Requirements), HM-5 (Comply with Restrictions on Herbicide Use in Upland Areas), and HM-6 (Comply with Restrictions on Herbicide Use in Aquatic Areas) would help protect water quality by ensuring that applicable pesticide application restrictions, usage requirements, and policies are followed (in both upland and aquatic areas) and by evaluating the use of alternative pest control methods and pesticides.

The cumulative effect of general construction and maintenance activities for the Project together with other projects with the implementation of SWPPPs for construction activities outside the reservoir and applicable BMPs for in-reservoir and out-of-reservoir construction is not cumulatively significant, and the Project's contribution is **not cumulatively considerable**.

The Project's sediment impacts due to erosion from the exposure of sediments on the bottom of Anderson Reservoir extends the period that these sediments are vulnerable to erosion during storms. The impact related to exceedance of the Coyote Creek turbidity objective is cumulatively significant when added to turbidity impacts of other probable future projects. Based on the severity of the Project's drawdown related sediment impacts, and the Project's contribution to adverse sediment effects is **cumulatively considerable**. The long-term effects of sediment releases from Anderson Reservoir during Seismic Retrofit component construction would have beneficial effects on the San Francisco Bay estuary where sediment is needed by marshes to keep up with sea level rise.

After construction, the proposed Project would not contribute excessive sediments or other pollutants to Anderson Reservoir or Coyote Creek. Existing water quality conditions in the Project area would not change as a result of proposed Project operations. Project operation would not affect implementation of TMDLs established in the future. The proposed Project would result in a more secure dam and would provide operational flexibility to protect against flooding damage, and associated water quality impacts from flooding, in the future. Impacts from Project operations of the seismic retrofit and Conservation Measures when added with the impacts of other probable future projects' impacts are not cumulatively significant, and the Project's impacts are **not cumulatively considerable**.

Significance Conclusion Summary

The Project, FOCP, and most other probable projects are largely construction projects over one acre in size and must comply with the Construction General Permit and implementation of a SWPPP for out-of-reservoir construction activities. The Project, and other Valley Water projects, also implement applicable Valley Water ~~erosion control~~ BMPs and VHP conditions and AMMs. The cumulative effect of general construction and maintenance activities from the Project's activities with the FOCP and other probable projects with the implementation of a SWPPP for construction activities outside of the reservoir and applicable Valley Water BMPs and VHP conditions and AMMs for all construction activities is not cumulatively significant, and the Project's impacts are **not cumulatively considerable**. While not required to reduce water quality impacts from general construction activities to less than significant, **Mitigation Measure WQ-1** would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control water quality pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

The Project ~~and FOCP~~ could ~~both~~ pollute water resources through the introduction of perchlorates or other nitrogen-based chemicals by blasting activities. The FOCP does not require use explosives that may contain perchlorate or other nitrogen-based chemicals. ~~The cumulative impact with FOCP would be significant, and the Project's contribution would be cumulatively considerable.~~ Implementation of **Mitigation Measure GW-2** (Perchlorate Best Management Practices) would ensure that risks to water quality are minimized, and the Project's contribution is **not cumulatively considerable**.

The ~~Project's~~ Project in combination with FOCP extends the period of reservoir dewatering, and dewaters the reservoir to a lower elevation than FOCP, creating cumulatively considerable water quality impact related to in-reservoir temperature, turbidity and DO, and erosion ~~from the exposure~~ of sediments exposed on the bottom of Anderson Reservoir after certain storm events ~~extends the period that these sediments are vulnerable to erosion during storms~~. The mobilization of this sediment following certain storm events is likely to result in an ~~impact related to~~ exceedance of the Coyote Creek turbidity objective during the combined duration of FOCP and ADSRP and therefore is cumulatively significant with the FOCP and other projects, and the Project's temporary impacts are **cumulatively considerable** even with implementation of **Mitigation Measure WQ-1** requiring implementation of a WQMPP for construction activities within the reservoir. Despite the short-term adverse effects of sediment mobilization and release from Anderson Reservoir during Seismic Retrofit component construction, the transport of this sediment downstream to Coyote Creek and San Francisco Bay would be beneficial for downstream ecosystems and habitats and related beneficial uses because the system has historically been deprived of sediment. The long-term effects of sediment releases from Anderson Reservoir during Seismic Retrofit component construction would have beneficial effects on the San Francisco Bay estuary where sediment is needed by marshes to keep up with sea level rise. Therefore, impacts on beneficial uses would **not be cumulatively considerable**.

No additional feasible mitigation beyond **Mitigation Measure WQ-1** is available to address ~~short-term turbidity and sedimentation~~ the increases in turbidity that are a significant, and an unavoidable consequence of reservoir dewatering. The Project's construction phase temporary exceedances of the turbidity water quality objective in Coyote Creek during certain-sized storm events due to erosion of exposed sediments while the reservoir remains. No feasible mitigation exists to reduce the impact such that the turbidity water quality objective is not violated (even if relatively briefly and episodically) when the reservoir is dewatered, given the massive area of the reservoir bottom which would be exposed by the dewatering and amount of accumulated sediment (approximately 2.9 million cy) and the limitation on BMPs that can be implemented in-reservoir. For example, it may be feasible to hydroseed portions of the reservoir bottom, but it would not stabilize enough sediment to reduce the sediment mobilization in a meaningful way and stabilization would not function effectively when inundated by reservoir inflow. Similarly, measures to settle sediments within the reservoir, rather than allowing them to move downstream (turbidity curtains or operating the reservoir at a higher level) would not be feasible during construction because they require detention of reservoir inflows, which ~~of the potential to~~ increases risks of the interim dam being overtopped. The Project's impacts when added to the impacts of the FOCP and other probable future projects on exceedance of the turbidity water quality objective is cumulatively significant, and the Project's impact is **cumulatively considerable**.

Mitigation Measures

GW-2 Perchlorate Best Management Practices

WQ-1 Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan

3.14.6 References

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3.15 Land Use

This section evaluates the Project's impacts on the study area that has been defined for land use and planning. The *CEQA Guidelines* significance criteria for land use and planning address impacts related to consistency with land use plans, policies, or regulations adopted for the of purpose of avoiding or mitigating an environmental effect. Land use policies pertain to the type, location, and physical form of new development. For this analysis, policies "adopted for the purpose of avoiding or mitigating an environmental effect" are those that, if implemented and adhered to, would avoid or mitigate physical impacts on the environment. Other policies that relate to avoiding or mitigating an environmental effect are considered in other environmental resource evaluations in Chapter 3, *Regulatory and Environmental Setting and Impact Analysis*.

The study area that was defined to assess impacts related to land use and planning focuses on the portions of the county, San José, and Morgan Hill that comprise the Project Area, including the construction limits of the Seismic Retrofit and Conservation Measures components.

3.15.1 Environmental Setting

3.15.1.1 Regional Setting

Morgan Hill is largely comprised of single-family residential neighborhoods interspersed with multi-family residential uses and commercial areas. Land uses surrounding Morgan Hill consist of rural residential development, agricultural lands, and open space. Specifically, these land uses include nurseries, orchards, and vineyards. Lands to the east and west of Morgan Hill predominantly include undeveloped hillsides, open space areas and reservoirs, including Anderson Reservoir, Anderson Lake County Park, and Coyote Reservoir to the east, and Uvas Reservoir and Chesbro Reservoir to the west (City of Morgan Hill 2017 ~~2016~~).

San José is characterized by an urban environment adjacent to large open spaces. Historically, development patterns in San José focused on preserving its surrounding hillsides as open space, parklands, or natural habitat, providing San José's residents with a visual reminder of the nearby natural environment, and developing parklands and trails along the city's riparian corridors (City of San José 2023 ~~2011~~).

Unincorporated Santa Clara County is characterized by regional parks, trails, agriculture, agriculture ranchlands, hillside, and large open spaces. The southern portion of Anderson Reservoir is located in unincorporated areas of the county. Land uses in the unincorporated county within the Project Area include hillside, agriculture ranchlands, rural residential, and open space.

The Project Area includes lands in the immediate vicinity of Anderson Reservoir owned by Valley Water and the County, as well as portions of the Cochrane Road and Coyote Road rights-of-way. Existing land uses within and adjacent to the Project Area include vast areas of parkland. Anderson Lake County Park surrounds Anderson Reservoir and has many features, including the Anderson Reservoir boat ramp, multiple picnic areas, Anderson Lake County Park Visitor's Center, Serpentine Trail, Lakeview Trail, and Rancho Laguna Seca Trail (refer to **Figure 3.18-2** in Section 3.18 *Recreation*). Other land uses around the reservoir include grazing lands and single-family residences (both rural and suburban). The Santa Clara County Justice Training Center and the William F. James Boys Ranch are also located just downstream of the dam.

Approximately 1 mile downstream of Anderson Dam, Anderson Lake County Park adjoins the Coyote Creek Parkway. The Coyote Creek Parkway contains multi-use trails and a variety of recreational amenities, including picnic and rest areas, Ogier Ponds, a model airplane field, and the Coyote Percolation Pond. Coyote Creek Parkway includes the Coyote Creek Trail that runs adjacent to Coyote Creek and extends from the San Francisco Bay to the northern end of Morgan Hill. This area is also comprised of orchard lands.

3.15.1.2 Land Uses Designations and Zoning

General Plan land use designations within the Project Area include the following: Existing Regional Parks/Recreation, Open Space/ Hillsides/ Ranchland, Agricultural, Single-Family Residential, and Utility. A general description of the primary land use designations is included below. **Figure 3.15-1** shows the land use designations for the Project Area.

Table 3.15-1 provides lists the parcels within the Project Area, including jurisdiction, zoning, land use designations, and the Project's uses for the affected properties. **Figure 3.15-2** shows the zoning district for the Project Area. Zoning districts are generally consistent with the land use designations as described above.

Existing Regional Parks/Recreation

Much of the land within the Project Area is designated as existing regional parks (park lands of the county and cities) and is used for recreational purposes. The Seismic Retrofit component is located within Anderson Lake County Park which offers opportunities for hiking, bicycling, horseback riding, picnicking, fishing, and power and non-power boating. The Conservation Measures components located downstream of the dam along Coyote Creek are located within Coyote Creek Parkway, which also provides a wide range of recreational uses, including hiking, bicycling, horseback riding, picnicking, and fishing. See Section 3.18, *Recreation*, for a detailed discussion of recreational facilities within the Project Area. Parcels with this land use designation are within San José and the county.

Open Space/Hillsides/Ranchland

A majority of the Project Area around Anderson Reservoir and in the vicinity of Ogier Ponds and Metcalf Ponds is surrounded by open space, designated as hillsides and ranchlands. These areas are generally hilly, remote, and are unsuitable or not planned for urban development due to the topography and/or limited public access. Parcels with this land use designation are within San José and Morgan Hill.

Agricultural

Adjacent, privately-owned properties on Cochrane Road downstream of the dam are designated for agricultural activity. Some contain single-family residential structures, which are consistent with agricultural land uses. In addition, Ogier Ponds is surrounded by agricultural lands, which are protected and preserved within the county. Refer to Section 3.2, *Agricultural Resources* for a discussion on farmland and agricultural uses. Parcels with this land use designation are within San José, Morgan Hill, and the county.

Single-Family Residential

Several single-family residences are located to the west of the downstream dam embankment along Cochrane Road in Morgan Hill. Additional parcels within the northern half of the Project Area within San José are designated as single-family residential uses. Generally, the northern portion of the Project Area is more urbanized and consists of residential neighborhoods in proximity to Metcalf Pond. Parcels with this land use designation are within Morgan Hill.

Utility

Within the Project Area, both Anderson Dam and Coyote Percolation Dam serve multiple purposes, but the primary use is utility. Water resource facilities within the Seismic Retrofit component footprint include the dam and outlet works, reservoir, and spillway. These facilities are owned and operated by Valley Water. Further downstream, Valley Water owns and operates the Coyote Percolation Dam at Metcalf Ponds. Parcels with this land use designation are within San José.

1 **Table 3.15-1 Properties Affected by Project Components**

APN	Jurisdiction	Zoning Designation	Land Use General Plan Designation[1]	Project's Use of Property
Seismic Retrofit Component				
627-14-026	City of San José	Agriculture (A)	Open Hillside	Materials handling in reservoir
627-14-009	City of San José	Agriculture (A)	Open Hillside	Materials handling in reservoir
627-14-010	City of San José	Agriculture (A)	Ranchlands	Materials handling in reservoir
627-14-020	City of San José	Agriculture (A)	Ranchlands	Materials handling in reservoir
728-25-017	City of Morgan Hill	Agricultural (A-20Ac d1)	Agriculture	Dam replacement
728-25-018	City of Morgan Hill	Agricultural (A-20Ac d1)	Agriculture	Dam replacement
728-34-010	City of Morgan Hill	Agricultural (A-20Ac d1)	Agriculture	Dam replacement
728-34-011	City of Morgan Hill	Agricultural (A-20Ac d1)	Agriculture	Dam replacement
728-34-015	Santa Clara County	Hillside (HS-sr)	Agriculture	Dam replacement
728-34-016	Santa Clara County	Hillside (HS-sr)	Agriculture	Dam replacement
728-34-017	Santa Clara County	Hillside (HS-d1)	Regional Park (Anderson Lake County Park)/Open Space/Rural County/Utility	Dam replacement; Construction staging; Basalt Hill Borrow Area
728-34-018	City of Morgan Hill	Agriculture (A-20Ac)	Agriculture	Dam replacement
728-34-019	City of Morgan Hill	Open space	Open Space/Anderson Lake County Park	Construction staging; South Channel improvements
728-34-020	City of Morgan Hill	Open space	Open Space/Anderson Lake County Park	Construction staging~~; North Channel improvements~~
728-34-021	City of Morgan Hill	Open Space	Open Space/Anderson Lake County Park	Construction staging~~; North Channel improvements~~
728-35-001	City of Morgan Hill	Open Space	Open Space	Construction staging~~; North Channel improvements~~
729-37-016	City of Morgan Hill	Hillside (HS)	Hillside	Seismic Retrofit component
729-37-017	City of Morgan Hill	Hillside (HS)	Hillside	Seismic Retrofit component
729-37-018	City of Morgan Hill	Hillside (HS)	Hillside	Seismic Retrofit component
729-37-019	City of Morgan Hill	Hillside (HS)	Hillside	Seismic Retrofit component

APN	Jurisdiction	Zoning Designation	Land Use General Plan Designation[1]	Project's Use of Property
729-37-021	City of Morgan Hill	Hillside (HS)	Hillside	Seismic Retrofit component
729-37-022	City of Morgan Hill	Hillside (HS)	Hillside	Seismic Retrofit component
729-37-029	City of Morgan Hill	Hillside (HS)	Hillside	Seismic Retrofit component
729-37-030	City of Morgan Hill	Hillside (HS)	Hillside	Seismic Retrofit component
729-39-017	City of Morgan Hill	Hillside (HS)	Hillside	Seismic Retrofit component
729-43-022	City of Morgan Hill	Residential Detached Low Density	Residential Detached Low Density (up to 4 du/ac)	Seismic Retrofit component
729-43-023	City of Morgan Hill	Residential Detached Low Density	Residential Detached Low Density (up to 4 du/ac)	Seismic Retrofit component
729-43-026	City of Morgan Hill	Residential Detached Low Density	Residential Detached Low Density (up to 4 du/ac)	Seismic Retrofit component
729-43-027	City of Morgan Hill	Residential Detached Low Density	Residential Detached Low Density (up to 4 du/ac)	Seismic Retrofit component
729-43-032	City of Morgan Hill	Residential Detached Low Density	Residential Detached Low Density (up to 4 du/ac)	Seismic Retrofit component
729-44-006	City of Morgan Hill	Residential Detached Low Density	Residential Detached Low Density (up to 4 du/ac)	Seismic Retrofit component
729-45-017	City of Morgan Hill	Residential Detached Low Density	Residential Detached Low Density (up to 4 du/ac)	Seismic Retrofit component
729-46-001	Santa Clara County	Hillside (HS-sr)	Regional Parks/Open Space/Anderson Lake County Park/Utility	Grading along reservoir rim to support materials handling in reservoir
729-46-010	Santa Clara County	Hillside (HS-sr)	Regional Parks/Open Space/Anderson Lake County Park/Utility	Materials handling in reservoir; Basalt Hill Borrow Area; Boat ramp
729-48-001	City of San José	Single-family residential	Open Hillside/Anderson Lake County Park/Utility	Dam and spillway replacement
729-48-002	City of San José	Single-family residential/Agricultural	Open Hillside/Utility	Grading along reservoir rim to support materials handling in reservoir
729-48-003	City of San José	Agricultural (A)	Open Hillside	Materials handling in reservoir

APN	Jurisdiction	Zoning Designation	Land Use General Plan Designation[1]	Project's Use of Property
729-48-004	City of San José	Single-Family Residential (Up to One du/ac)	Open Hillside	Materials handling in reservoir
729-48-005	City of San José	Single-Family Residential (Up to One du/ac)	Open Hillside	Grading for spillway replacement ~~and North Channel improvements~~
729-48-006	City of San José	Single-Family Residential (Up to One du/ac)	Open Hillside	Grading along reservoir rim to support materials handling in reservoir
729-52-030	City of San José	Single-Family Residential (Up to One du/ac)	Open Hillside	Grading along reservoir rim to support materials handling in reservoir
865-06-008	Santa Clara County	Rural District/Supplemental Development Standards/Scenic Road Combining District (HS-sr)	Regional Parks, Existing	Grading
865-06-010	City of San José	Agricultural Ranchlands (AR)	Regional Parks, Existing, Open Space	Grading
Conservation Measure Components				
678-02-009	City of San José	R-1-1; Single-Family Residential (Up to One du/ac)	Open Space, Parklands and Habitat	Phase 2 Coyote Percolation Dam CM
678-02-029	City of San José	Agriculture	Open Space, Parklands and Habitat	Phase 2 Coyote Percolation CM
678-02-030	City of San José	n/a	n/a	Phase 2 Coyote Percolation Dam CM
678-02-031	City of San José	Agriculture	Open Space, Parklands and Habitat	Phase 2 Coyote Percolation Dam CM
678-02-032	City of San José	Agriculture	Open Space, Parklands and Habitat	Phase 2 Coyote Percolation Dam CM
678-02-034	City of San José	n/a	Ranchlands	Phase 2 Coyote Percolation Dam CM
725-03-002	City of San José	Agriculture	Agriculture	Ogier Ponds CM
725-03-003	Santa Clara County	Hillside/Agriculture	Regional Parks, Existing	Ogier Ponds CM
725-04-002	Santa Clara County	Coyote Valley Climate Resilience Combining Zone (A-40Ac-cv)	Agriculture, Large Scale	Ogier Ponds CM
725-04-003	Morgan Hill	Scenic Road Combining District/Coyote Valley Climate Resilience Combining Zone (A-20s-sr-cv)	Regional Parks, Existing	Ogier Ponds CM

APN	Jurisdiction	Zoning Designation	Land Use General Plan Designation[1]	Project's Use of Property
725-05-002	Santa Clara County	Scenic Road Combining District/Coyote Valley Climate Resilience Combining Zone (A-20s-sr-cv)	Regional Parks, Existing	Ogier Ponds CM
725-05-005	Morgan Hill	Coyote Valley Climate Resilience Combining Zone (A-40Ac-cv)	Agriculture, Large Scale	Ogier Ponds CM
725-05-006	Morgan Hill	Coyote Valley Climate Resilience Combining Zone (A-40Ac-cv)	Agriculture, Large Scale	Ogier Ponds CM
725-05-011	Morgan Hill	Roadside Services	Roadside Services	Ogier Ponds CM
725-05-014	Morgan Hill	Coyote Valley Climate Resilience Combining Zone (A-40Ac-cv)	Agriculture, Large Scale	Ogier Ponds CM
725-05-015	Morgan Hill	Coyote Valley Climate Resilience Combining Zone (A-40Ac-cv)	Agriculture, Large Scale	Ogier Ponds CM
725-05-016	Morgan Hill	Coyote Valley Climate Resilience Combining Zone (A-40Ac-cv)	Agriculture, Large Scale	Ogier Ponds CM
725-06-004	Morgan Hill	Coyote Valley Climate Resilience Combining Zone (A-40Ac-cv)	Agriculture, Large Scale	Ogier Ponds CM
725-06-008	Morgan Hill	Scenic Road Combining District/Coyote Valley Climate Resilience Combining Zone (A-20s-sr-cv)	Regional Parks, Existing	Ogier Ponds CM
725-07-004	City of San José	Scenic Road Combining District/Coyote Valley Climate Resilience Combining Zone (A-20s-sr-cv)	Regional Parks, Existing	Ogier Ponds CM

APN	Jurisdiction	Zoning Designation	Land Use General Plan Designation[1]	Project's Use of Property
725-08-001	Morgan Hill	Scenic Road Combining District/Coyote Valley Climate Resilience Combining Zone (A-20s-sr-cv)	Agriculture, Large Scale	Ogier Ponds CM
725-08-003	City of San José	Planned Development	Agriculture, Large Scale	Ogier Ponds CM
729-50-001	Morgan Hill	R-1-1; Single-Family Residential (Up to One du/ac)	Regional Parks, Existing	Ogier Ponds CM
729-50-002	Morgan Hill	Rural District/Supplemental Development Standards/Scenic Road Combining District (HS-sr)	Regional Parks, Existing	Ogier Ponds CM
729-50-004	City of San José	Rural District/Supplemental Development Standards/Scenic Road Combining District (HS-sr)	Agriculture, Large Scale	Ogier Ponds CM
728-34-019	Valley Water	n/a	n/a	Maintenance of the North Channel Reach ~~Extension~~
728-34-020	County of Santa Clara	n/a	n/a	Maintenance of the North Channel Reach ~~Extension~~, Maintenance Activities at the Live Oak Restoration Reach, and Sediment Augmentation Program
728-34-021	County of Santa Clara	n/a	n/a	Maintenance of the North Channel Reach ~~Extension~~, Maintenance Activities at the Live Oak Restoration Reach, and Sediment Augmentation Program
728-35-001	County of Santa Clara	n/a	n/a	Maintenance of the North Channel Reach ~~Extension~~, Maintenance Activities at the Live Oak Restoration Reach, and Sediment Augmentation Program
728-35-022	Sullivan	n/a	n/a	Maintenance of the North Channel Reach ~~Extension~~

APN	Jurisdiction	Zoning Designation	Land Use General Plan Designation[1]	Project's Use of Property
728-35-031	Valley Water	n/a	n/a	Maintenance of the North Channel Reach ~~Extension~~
728-45-046	Valley Water	n/a	n/a	Maintenance of the North Channel Reach ~~Extension~~
729-48-005	Anderson Lake Ranch	n/a	Hillsides, Ranchlands	Maintenance of the North Channel Reach ~~Extension~~

Sources: City of Morgan Hill 2017 ~~2016~~, 2019; Santa Clara County 2011; City of San José 2023 ~~2011~~

Note:

[1] Utility has been added where Anderson Dam and the reservoir facilities are located.

Key: APN = Assessor's Parcel Number; du/ac = dwelling unit per acre

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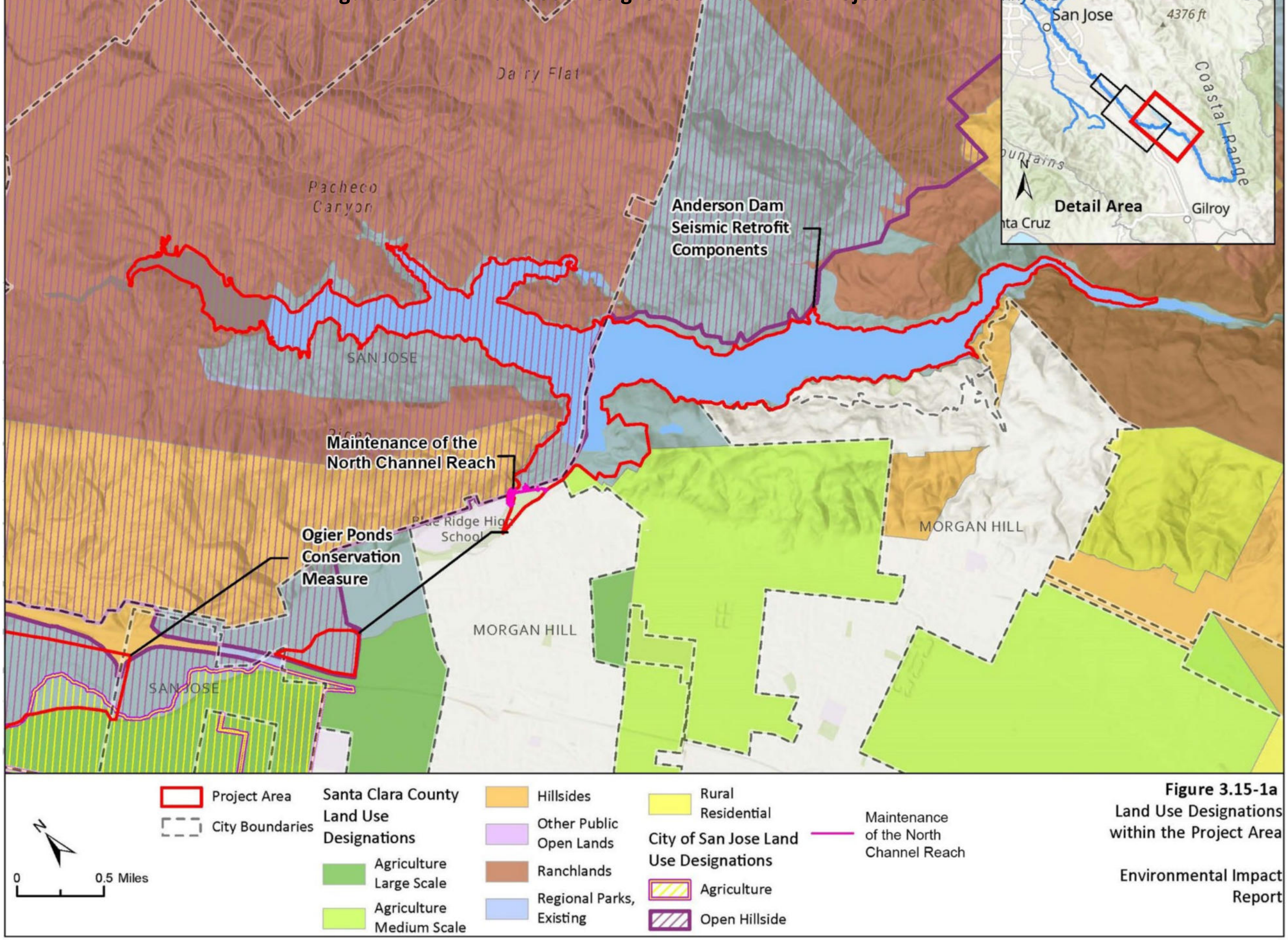
Figure 3.15-1a. Land Use Designations within the Project Area



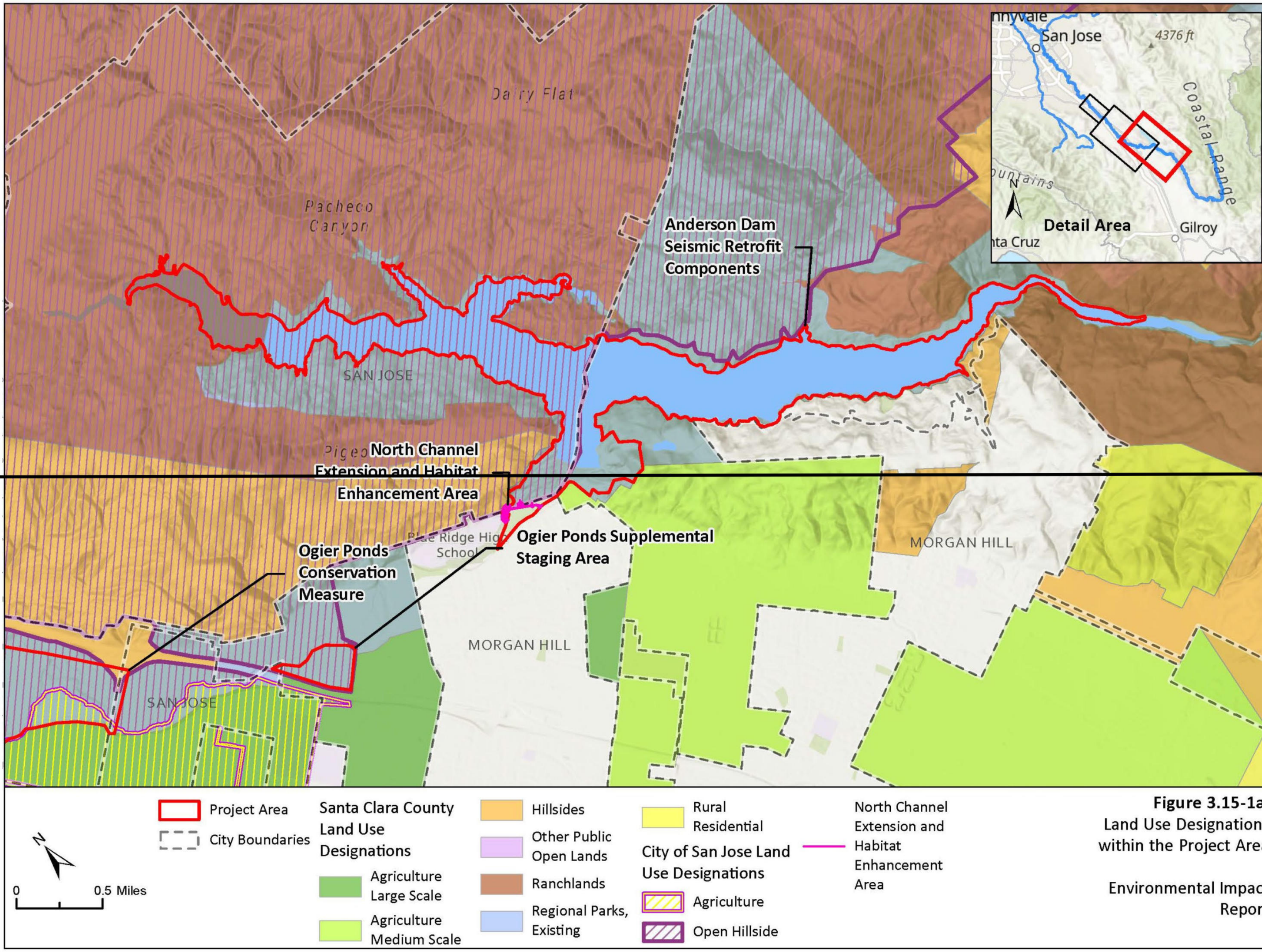
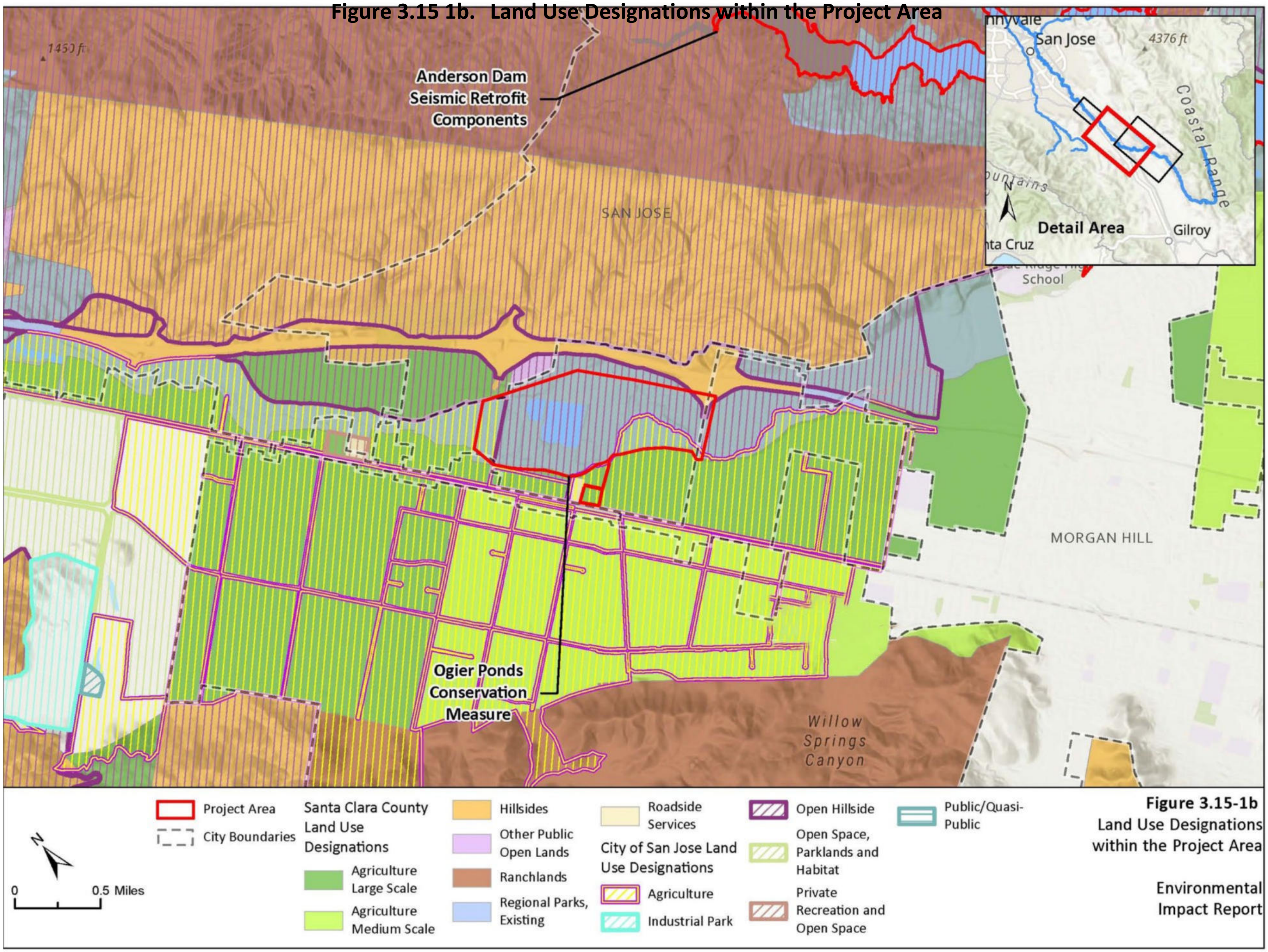


Figure 3.15-1a
Land Use Designations within the Project Area

Figure 3.15 1b. Land Use Designations within the Project Area



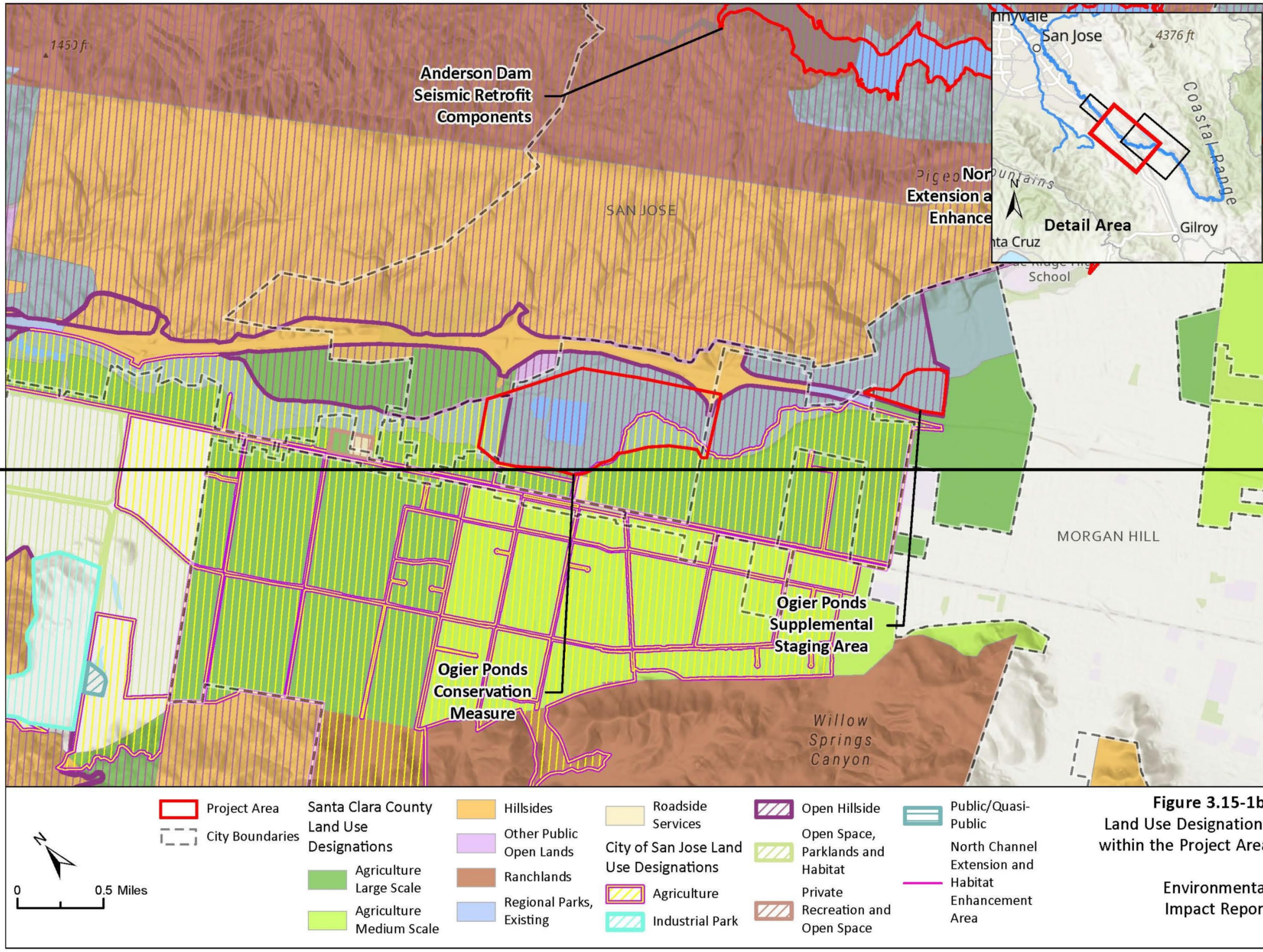


Figure 3.15-1b
Land Use Designations within the Project Area

Figure 3.15 1c. Land Use Designations within the Project Area

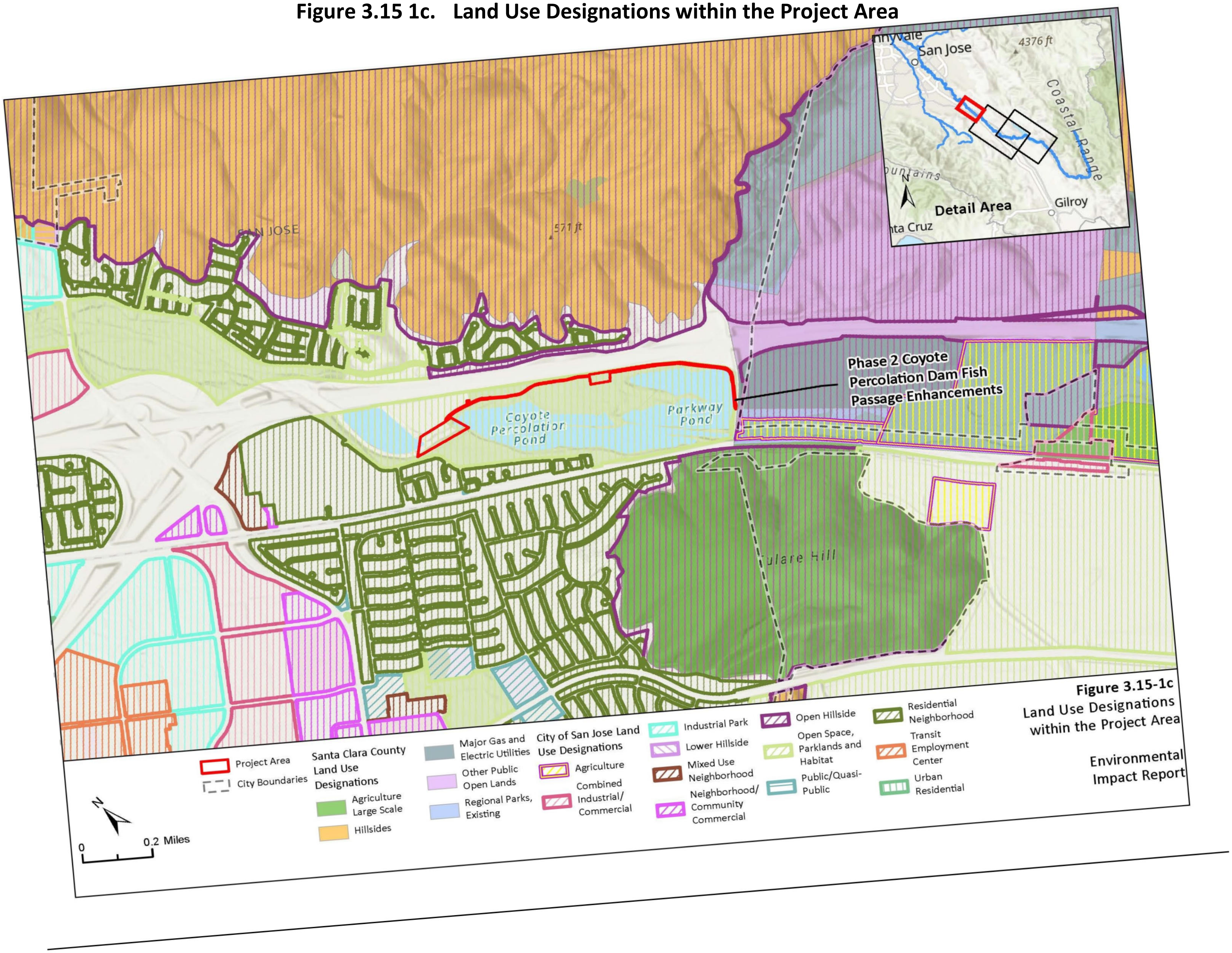
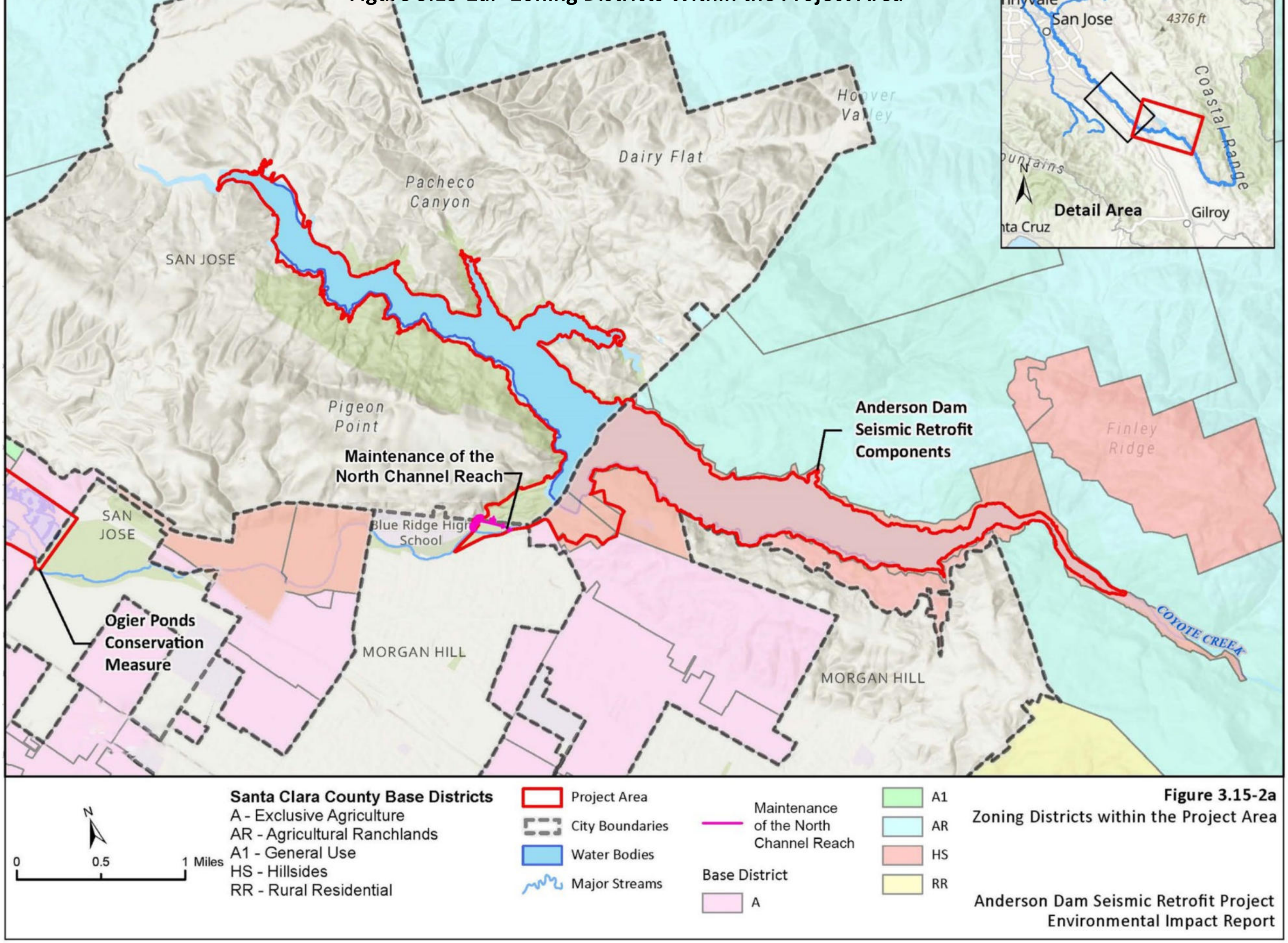


Figure 3.15-2a. Zoning Districts Within the Project Area



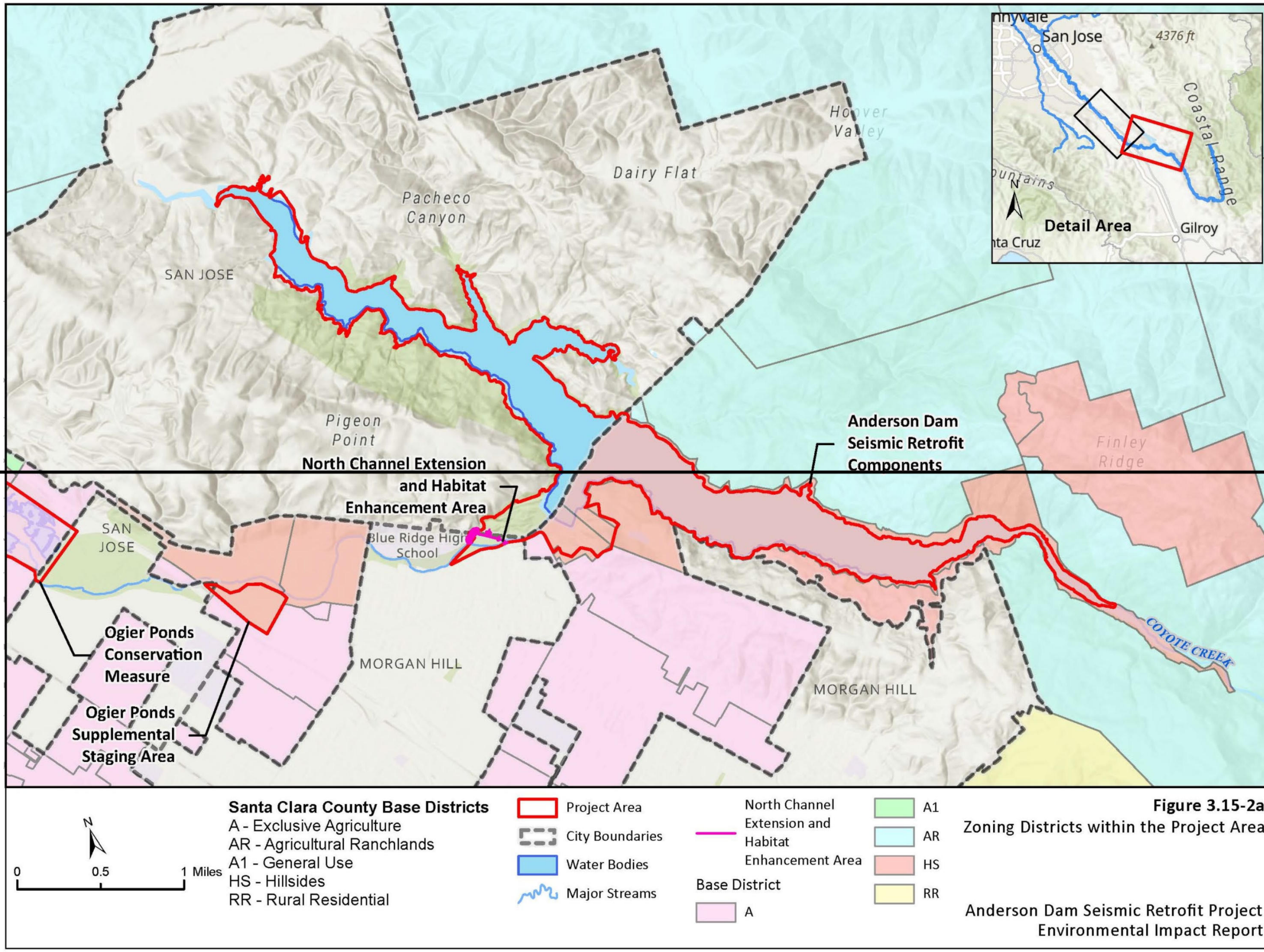
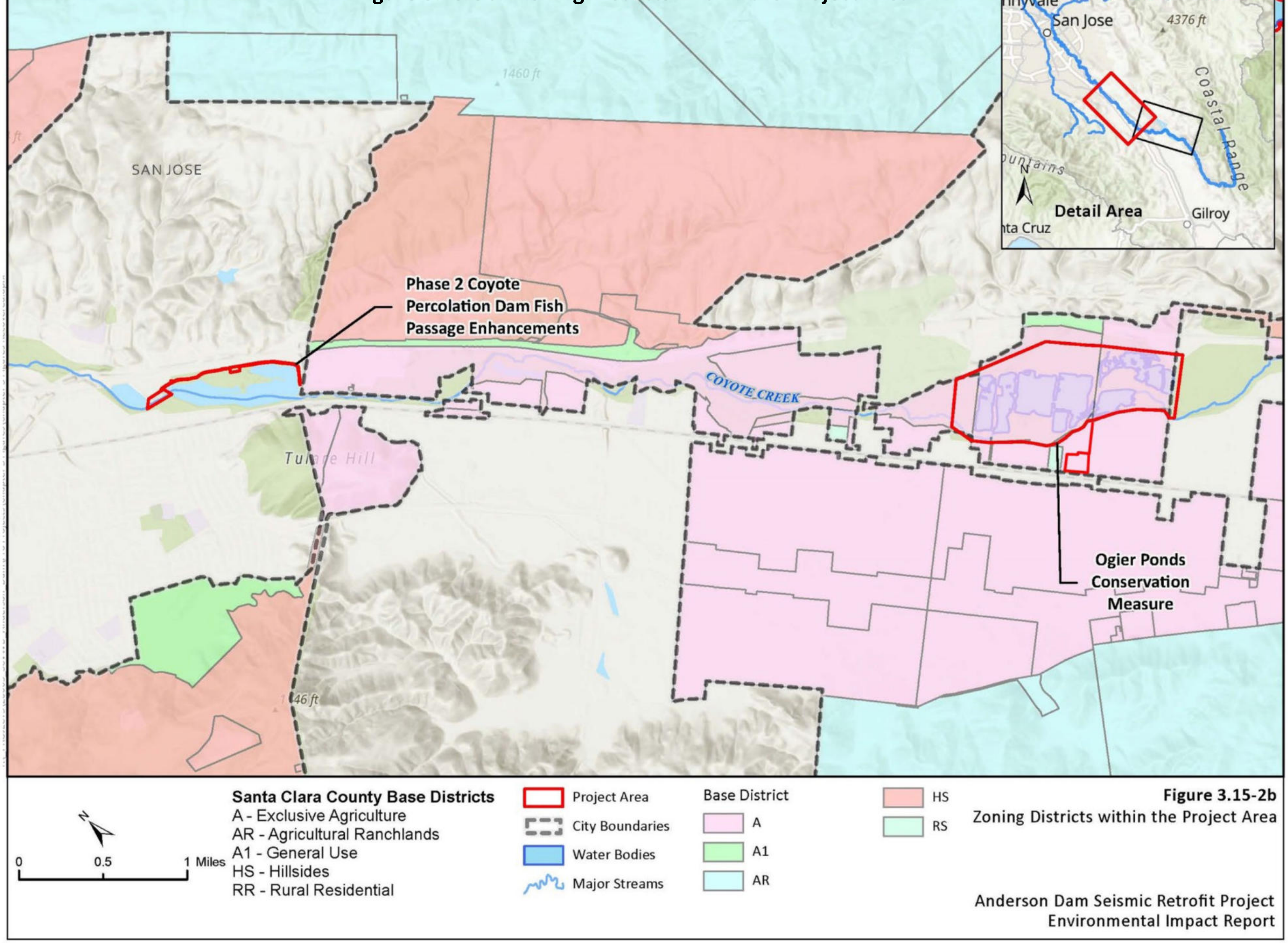


Figure 3.15-2a
Zoning Districts within the Project Area

Figure 3.15-3b. Zoning Districts Within the Project Area



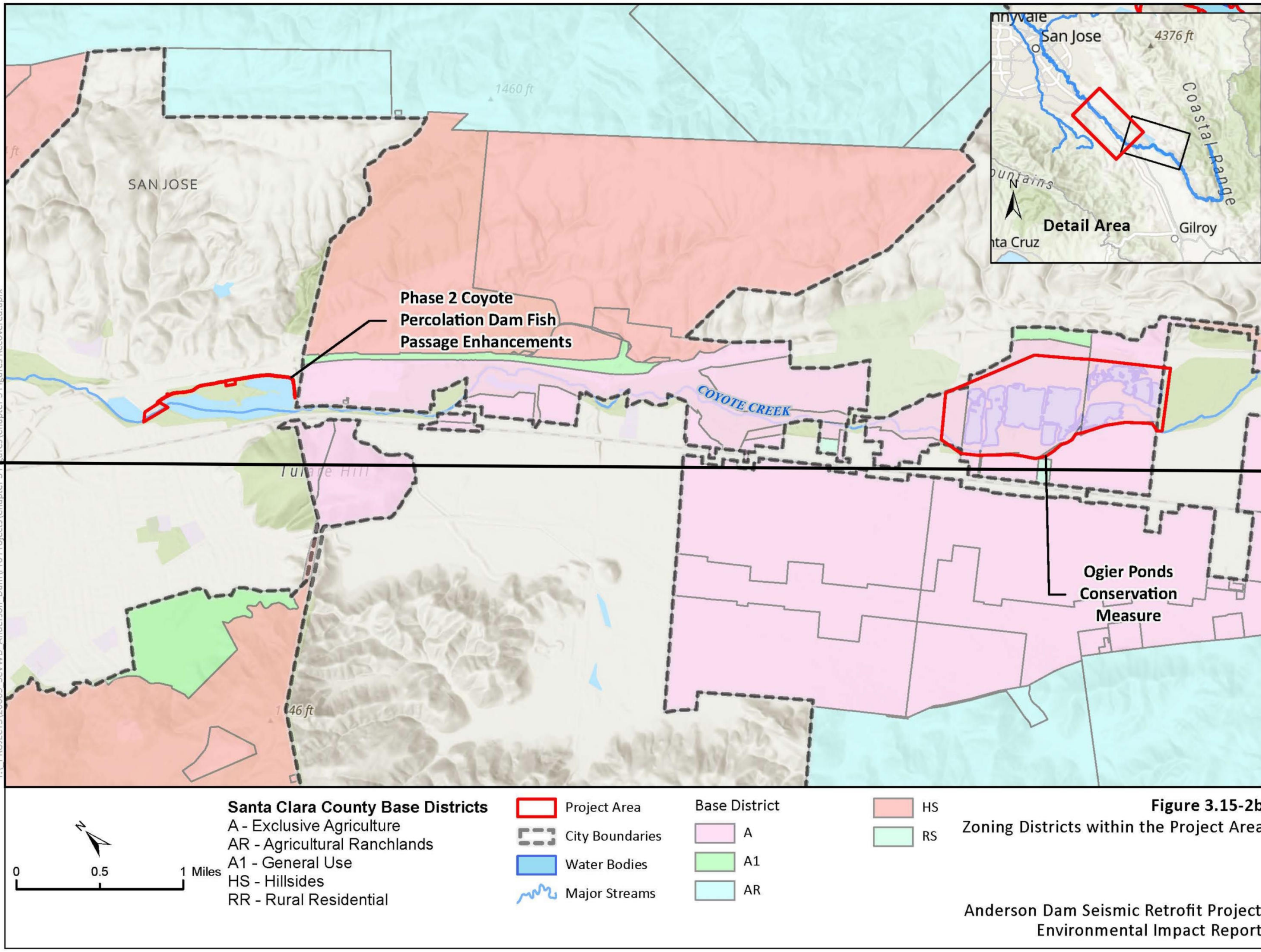


Figure 3.15-2b
Zoning Districts within the Project Area

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

3.15.2 Regulatory Setting

This section summarizes State, regional, and local laws, regulations, policies, and plans pertinent to the evaluation of the Project's impacts on land use and planning. No specific federal laws, regulations, or policies related to land use are applicable to the Project.

3.15.2.1 State Laws, Regulations and Policies

California Government Code

The California Government Code Title 5, Division 2, Part 1, Chapter 1, Article 5 establishes certain exemptions for water and electric energy facilities from local zoning ordinances. Section 53091(e), states:

> Zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, or for the production or generation of electrical energy, facilities that are subject to Section 12808.5 of the Public Utilities Code, or electrical substations in an electrical transmission system that receives electricity at less than 100,000 volts. Zoning ordinances of a county or city shall apply to the location or construction of facilities for the storage or transmission of electrical energy by a local agency, if the zoning ordinances make provision for those facilities.

3.15.2.2 Regional and Local Laws, Regulations, and Policies

Santa Clara County General Plan

The following land use and planning policies from the Santa Clara County General Plan (County 1994) are relevant to the Project.

Resource Conservation

The Resource Conservation Element of the Santa Clara County General Plan addresses the County's overall strategy for the preservation and conservation of natural resources. For each type of resource, there is a set of strategies tailored to indicate the general approach taken to manage each resource. However, each of these strategies share some aspects in common. These serve in an introductory way as an "overall strategy" for resource conservation on the local and regional levels which incorporates the major principles of stewardship for the county.

> **Policy C-RC 7:** Countywide land use and growth management planning should be coordinated with overall water supply planning by the SCVWD [Santa Clara Valley Water District] in order to maximize dependability of long-term water supply resources.
>
> **Policy C-RC 16:** Seismic safety considerations for new and existing reservoirs should be addressed in order to ensure water supply and public safety in the event of earthquake.
>
> **Policy C-RC 19:** The strategies for maintaining and improving water quality on a countywide basis, in addition to ongoing point source regulation, should include:
>
> a. effective non-point source pollution control;

b. restoration of wetlands, riparian areas, and other habitats which serve to improve Bay water quality; and,

c. comprehensive Watershed Management Plans and "best management practices" (BMPs).

Policy C-RC 58: The general approach to scenic resource preservation on a countywide basis should include the following strategies:

- conserving scenic natural resources through long range, inter-jurisdictional growth management and open space planning;
- minimizing development impacts on highly significant scenic resources; and, maintaining and enhancing scenic urban settings, such as parks and open space, civic places, and major public commons areas.

Policy R-RC 35: Flood control modifications to be made in streams that have substantial existing natural areas should employ flood control designs which enhance riparian resources and avoid to the maximum extent possible significant alteration of the stream, its hydrology, and its environs.

Safety and Noise

The Safety and Noise Element of the Santa Clara County General Plan addresses a range of countywide public health and safety issues. This element includes policies that minimize the risk of human or environmental injury and property damage through the appropriate siting of development.

Policy R-HS 48: To enhance the effectiveness of each agency's efforts to protect local surface and groundwater quality, the County should encourage cooperation between the regional and local water agencies, sharing of information, and appropriate ongoing water quality monitoring efforts.

South County Joint Area Plan

The South County Joint Area Plan is an integrated policy framework within which the County, City of Morgan Hill, and City of Gilroy adopt and review more specific General Plan amendments, ordinance revisions, administrative procedures, project review, and contractual agreements between the jurisdictions. It is intended to achieve cooperation among the three jurisdictions, and consistency between their adopted policies.

Policy SC 15.8: Natural streamside and riparian areas should be left in their natural state, in order to preserve their value as percolation and recharge areas, natural habitat, scenic resources, recreation corridors and for bank stabilization. If flood control projects needed to protect presently existing development make this infeasible, disruption should be minimized, maintaining slow flow and stable banks through design and other appropriate mitigation measures.

Santa Clara County Countywide Trails Master Plan Update

The Santa Clara County Countywide Trails Master Plan Update (Santa Clara County Parks and Recreation Department [SCCPRD] 1995) and its accompanied Supplemental EIR were adopted by the Santa Clara County Board of Supervisors in 1995 and serve as a guide for trail system development to improve trail connectivity throughout the region. The purpose of the Countywide Trails Mater Plan Update is to build a trail system that meets the needs of residents, respects private property rights in planning and designing trails, provides responsible trail management and teaches trail users to respect adjacent land uses, accepts responsibility for any liability arising from the public's use of County trails, and implements trails involving private property only when the landowner is a willing participant in the process (SCCPRD 1995).

The plan proposes approximately 535 miles of off-street trail routes and over 120 miles of on-street bicycle-only routes as part of a countywide trail system. Trails within the plan fall into three different categories: (1) Regional Trails that are of national, state, or regional significance; (2) Sub-Regional Trails that provide continuity between cities and link two or more Regional Trails; and (3) Connector Trails that provide urban access to Regional or Sub-Regional Trails or that connect county parks. An updated trail status map (SCCPRD 2015) shows existing and proposed trail routes throughout the county, including several proposed segments of the Bay Area Ridge Trail, (which is considered a Regional Trail) around Anderson Lake and the proposed and existing Coyote Creek Trail segments that follow Coyote Creek and intersect with several Project components (which is considered a Sub-Regional Trail). No other trails of regional or sub-regional significance are indicated in the trails master plan update and map (SCCPRD 2015). The following policy is relevant to the Project.

> **Policy PR-TS 6.3:** Public improvement projects, such as road widenings, bridge construction, and flood control projects that may impact existing or proposed trails should be designed to facilitate provision of shared use.

City of Morgan Hill General Plan

The City of Morgan Hill General Plan (City of Morgan Hill 2017 ~~2016~~) represents the community's collective vision for Morgan Hill through 2035. The City of Morgan Hill General Plan contains the following goals and policies relevant to the Project.

Natural Resources and Environment

The Natural Resources and Environment Element of the City of Morgan Hill General Plan addresses preserving open space, agricultural uses, hillsides, riparian areas, wildlife habitat and other natural features. Policies seek to establish a greenbelt around the city, preserve El Toro Mountain, conserve resources, and protect the city's cultural heritage to help Morgan Hill retain its rural atmosphere as it continues to grow.

> **Policy NRE-5.3:** Natural State of Streamside and Riparian Areas. Retain natural streamside and riparian areas in their natural state in order to preserve their value as percolation and recharge areas, natural habitat, scenic resources, and recreation corridors, and to stabilize banks. (South County Joint Area Plan 15.08)

> **Policy NRE-5.4:** Development Impacts in Riparian Areas. Consider development impacts upon wildlife in riparian areas and mitigate those environmental impacts.

> **Policy NRE-5.6:** Stream Channel Protection. Protect existing stream channels and riparian vegetation by requiring buffering or landscaped setbacks and storm runoff interception as specified in **Table NRE-1** and consistent with the Santa Clara Valley Habitat Plan.

Table NRE-1. Required Stream Setback Distances

Slope	Category 1 Streams (Water Present Year-Round During Normal Rain Years)		Category 2 Streams (Water Present During the Wet Season Only During Normal Rain Years)
	Inside Urban Service Area	Outside Urban Service Area	Inside/Outside Urban Service Area
0-30%	100 feet	150 feet	35 feet
>30%	150 feet	200 feet	

Source: City of Morgan Hill 2017 ~~2016~~

Policy NRE-9.1: Interjurisdictional Coordination. Maintain close coordination with the following agencies and organizations which share jurisdiction and interest relative to South County's water supply and water quality: Regional Water Quality Control Boards, Santa Clara Valley Water District (Valley Water), Santa Clara County, City of Gilroy Planning Department, and San Martin Planning Committee. (South County Joint Area Plan 10.02)

Safety, Services, and Infrastructure

The Safety, Services, and Infrastructure Element of the City of Morgan Hill General Plan addresses protecting people from detrimental impacts associated with development, including noise impacts, by requiring the proper siting of new development, avoiding hazardous areas and materials and/or provide adequate mitigation.

Policy SSI-2.4: Code Requirements for Critical Structures. Design and construct critical structures above and beyond the applicable engineering and building standards, where such measures are deemed necessary from available geologic and engineering data. Critical structures are those structures:

- needed after a disaster (e.g., emergency communications, fire stations, hospitals, bridges and overpasses);
- whose continued functioning is critical (e.g., major power lines and stations, water lines, and other public utilities); or
- whose failure might be catastrophic (e.g., large dams).

Policy SSI-2.5: Design of Critical Structures. Design and construct critical structures to resist minor earthquakes without damage, resist moderate earthquakes without structural damage, and resist major earthquakes of the intensity or severity of the strongest experienced in California without collapse.

Policy SSI-6.6: Flood Management Design. Encourage flood management designs that respect the natural topography and vegetation of waterways while retaining dynamic flow and functional integrity.

Policy SSI-14.7: Water District Programs. Encourage the Santa Clara Valley Water District to continue developing programs to assure effective management of water resources, such as well monitoring, percolation of imported water, reclamation, and conservation. (South County Joint Area Plan 7.07)

Envision San José General Plan

The Envision San José 2040 General Plan (City of San José 2023 ~~2011~~) adopted in 2011 and last amended on May 12, 2023 ~~November 3, 2022~~, plans for future growth, development, and the provision of municipal services for the City of San José. Land use policies in the General Plan emphasize growing jobs and housing in areas served by transit and other City services to minimize the environmental and fiscal impacts of new growth. The Envision San José 2040 General Plan contains the following goals and policies relevant to the Project.

Environmental Considerations

The City of San José's Sphere of Influence includes many areas subject to varying degrees of naturally occurring hazards. Historically, as land becomes scarce, there is increased pressure to develop vacant land with a higher hazard potential. Development in hazardous areas, however, can result in significant costs to the community, including major property damage as well as loss of life. For new development, the emphasis of the Envision San José 2040 General Plan policies is to regulate construction and minimize identifiable risks.

Goal EC-3: Minimize the risk of injury, loss of life, property damage, and community disruption from seismic shaking, fault rupture, ground failure (liquefaction and lateral spreading), earthquake-induced landslides, and other earthquake-induced ground deformation.

> **Policy EC-3.5:** Locate, design and construct vital public utilities, communication infrastructure, and transportation facilities in a manner that maximizes risk reduction and functionality during and after an earthquake.

Goal EC-5: Protect the community from flooding and inundation and preserve the natural attributes of local floodplains and floodways.

> **Policy EC-5.10:** Encourage the preservation and restoration of urban creeks and rivers to maintain existing floodplain storage. When in-channel work is proposed, engineering techniques which include the use of plant materials (bio-engineering) are encouraged.

Environmental Resources

The goals and policies in the Environmental Resources Element protect the City of San José's terrestrial and aquatic assets, as well as the flora and fauna these natural resources support. They also provide for the protection of San José's archaeological and extractive resources.

Goal ER-9: Protect water resources because they are vital to the ecological and economic health of the region and its residents.

> **Policy ER-9.4:** Work with Valley Water to preserve water quality by establishing appropriate public access and recreational uses on land adjacent to rivers, creeks, wetlands, and other significant water courses.

Santa Clara Valley Habitat Plan

The vast majority of Project activities are considered covered activities under the VHP. Valley Water will obtain VHP coverage of eligible activities and comply with all applicable VHP conditions. See Section 3.4, *Biological Resources – Fisheries Resources* for a description.

Santa Clara County Zoning Ordinance

The Santa Clara County Zoning Ordinance establishes the location and boundaries of various zoning districts and sets forth regulations for the development of land within each zoning district. The Project Area within the unincorporated county has the following zoning designations: Hillside (HS), Exclusive Agriculture (A), Agricultural Ranchlands (AR), Rural Residential (RR), and A1 (General Use).

The Project is exempt from local zoning regulations under Government Code Section 53091(e), which states that local government building and zoning ordinances do not apply to the construction of facilities for water storage or transmission. In addition, zoning ordinance **Table 2.20-2**, Non-Residential Uses in Rural Base Districts, Note #16 recognizes that utility structures and facilities may be exempt from local zoning regulations if they are established by a government agency (County 2020).

City of Morgan Hill Zoning Ordinance

The City of Morgan Hill Zoning Code, Title 18 of the Morgan Hill Municipal Code, regulates land uses within Morgan Hill. The Zoning Code identifies allowable uses and sets standards such as minimum lot size, maximum building height, and minimum front yard depth. The Project Area within Morgan Hill has the following zoning designations: Open Space, Scenic Road Combining District/Coyote Valley Climate Resilience Combining Zone (A-20s-sr-cv), Roadside Services, and Single-family Residential (R-1-1).

City of San José Zoning Ordinance

The City of San José Zoning Code, Title 20 of the San José Municipal Code, is a set of regulations that guide and regulate future growth and development in the city and promote compliance with the goals and policies of Envision San José 2040 General Plan. The Project Area within San José has the following zoning designations: Agriculture, Single-family Residential, Scenic Road Combining District/Coyote Valley Climate Resilience Combining Zone (A-20s-sr-cv), Planned Development, and Rural District (HS).

3.15.3 Methodology and Approach to Impact Analysis

This impact analysis considers whether construction and operations of the Project would conflict with a land use plan, policy, or regulation, resulting in significant environmental impacts. The analysis evaluates impacts on these resources that would occur as a result of the following activities:

- Seismic Retrofit components construction
- Conservation Measures components construction
- Post-construction Anderson Dam facilities operations and maintenance
- Post-construction Conservation Measures components operations and maintenance
- Post-construction FAHCE adaptive management

The analysis focuses on reasonably foreseeable effects of the Project on existing land use conditions based on a review of City and County General Plan land use and zoning designations and desktop evaluations performed using a geographic information systems analysis of existing land uses within and surrounding the Project Area. The analysis considers temporary impacts, or short-term impacts, that may occur during the 7-year construction period, as well as permanent impacts, or impacts considered to be long term and/or that would result from ongoing facility operations and maintenance.

The direct impacts of the Project are described and evaluated according to significance criteria derived from Appendix G of the *CEQA Guidelines*, discussed in "Thresholds of Significance" below.

The assessment of impacts for the purposes of this section has been divided into construction-related impacts and operation-related impacts by Project component, as identified and described in **Table 2-1** of Chapter 2, *Project Description*. Additional information on impact assessment approach by Project ~~project~~ component is provided below.

3.15.3.1 Seismic Retrofit Construction

As described in Section 3.0, *Introduction*, the baseline for evaluating Seismic Retrofit components construction effects is the existing conditions at the time of EIR preparation modified by FOCP implementation (referred to as the existing conditions baseline).

3.15.3.2 Conservation Measures Construction

As described in Section 3.0, *Introduction*, the baseline for evaluating conservation measure construction effects is the existing conditions at the time of EIR preparation modified by FOCP implementation (existing conditions baseline). Conservation Measures components requiring construction activities that are evaluated in the impact analysis include:

- Ogier Ponds CM
- Maintenance of the North Channel Reach ~~Extension~~
- Maintenance Activities at the Live Oak Restoration Reach
- Sediment Augmentation Program
- Phase 2 Coyote Percolation Dam CM

3.15.3.3 Construction Monitoring

Construction monitoring activities are not considered in the impact analysis, as monitoring would involve data and information collection and assessment and would not result in direct or indirect impacts related to land use and planning. Thus, construction monitoring is not discussed further in this section.

3.15.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

This analysis considers the land use impacts that could result from operational changes proposed for nonemergency flow releases following completion of the Anderson Dam facility upgrades and improvements, as described in Chapter 2, *Project Description*.

As described in Section 3.0, *Introduction*, the baseline for evaluating post-construction operation effects to land use and planning is the existing conditions at the time of EIR preparation modified by FOCP implementation (existing conditions baseline).

Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Maintenance of the Anderson Dam facilities was previously evaluated in the Final DPM EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012), which concluded that the DMP would not result in activities that would impact land use. Impacts related to land use associated with post-construction maintenance activities would not differ substantially from those impacts identified in the DMP EIR. Furthermore, previously identified DMP impacts would not be exacerbated with implementation of the Project. For these reasons, post-construction dam facility maintenance activities are not discussed further in this section.

3.15.3.5 Post-Construction Conservation Measures Operations and Maintenance

The Conservation Measures component focuses on improving fish habitat (e.g., sediment augmentation, separation of Coyote Creek from Ogier Ponds, fish passage enhancement). Operations and maintenance of those components, including Maintenance Activities at the Live Oak Restoration Reach, would not result in activities that have the potential to substantially affect land uses. Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain Coyote Percolation Dam per Valley Water's existing DMP. Maintenance of Coyote Percolation Dam facilities were previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). Although temporary disturbances to recreational users may occur during operations and maintenance (e.g., operation of maintenance equipment near a trail that could generate noise temporarily affecting recreationalists), all work would be temporary and would not conflict with existing land use plans, policies, or regulations.

Also, the activity of data collection and assessment would not result in any conflict with existing land use designations associated with the Conservation Measures components sites. Furthermore, post-construction Conservation Measures components operations would not result in a land use change nor would it result in a conflict with existing land use designations.

Therefore, operations and maintenance of Conservation Measures components would not result in an impact regarding land uses, and impacts associated with the operation and maintenance of Conservation Measures components are not discussed further in this section.

3.15.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because the activities are unlikely to result in a land use change or conflict with existing land use designations.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts of these adaptive actions are not evaluated in the impact analysis because the activities are unlikely to result in a land use change or conflict with existing land use designations. These impacts are considered here at a programmatic level because the detailed characteristics, timing, and/or locations of the proposed adaptive measures are not known at the time of EIR preparation. Project-specific CEQA review would be undertaken in the future, as necessary, when specific projects are proposed and project-specific details are available.)

3.15.3.7 Applicable Best Management Practices and VHP Conditions

As noted in Chapter 2, *Project Description*, Valley Water would incorporate a range of BMPs, including conditions and avoidance and minimization measures from the VHP, to avoid and minimize adverse effects on the environment that could result from the Project. All relevant BMPs and AMMs for the Project are included in Appendix A, *Best Management Practices and Santa Clara Valley Habitat Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures* ~~*Incorporated in the Proposed Project*~~. ~~BMPs have been customized for the Project, as necessary, to help achieve the intended goal is achieved.~~ BMPs relevant to the land use analysis include the following:

GEN-36: Public Outreach – Would specify measures to notify the public of Proposed Project measures and allow for public to adjust recreational use to other area facilities.

GEN-37: Implement Public Safety Measures – Would specify public safety measures to notify and warn the recreating public of Project measures and mitigate public safety at recreational facilities and trails.

GEN-39: Planning for Pedestrians, Traffic Flow, and Safety Measures – Would schedule bicycle and pedestrian facility closures outside the peak morning and afternoon periods to minimize the impact of Project measures on recreational access and use.

AQ-1: Use Dust Control Measures – Would require dust and air quality management measures, including implementation of the BAAQMD's [Bay Area Air Quality Management District's] BMPs for dust suppression, relevant when considering impacts on recreationists that may be present in the vicinity of the Project.

AQ-2: Avoid Stockpiling Odorous Materials – Would avoid stockpiling odorous materials (for example, reservoir sediment containing high levels of hydrogen sulfide) within 1,000 feet of residential areas or other odor sensitive land uses, including recreational areas.

TR-1: Incorporate Public Safety Measures – Would requires installation of signs, safety fencing, and access to detours (if feasible) that provide adequate warning to the public of the construction work area.

There are no relevant VHP conditions that would apply to land use.

3.15.3.8 Thresholds of Significance

For the purposes of this analysis, the Project would result in a significant land use impact if it would:

LU-1: Physically divide an established community (criterion a); or

LU-2: 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 (criterion b).

Issues Dismissed from Further Review

CEQA Guidelines Appendix G suggests that projects may have a significant effect on land use if they would physically divide an established community (criterion a). This criterion was dismissed from further analysis because the Project would be confined to the existing footprint of the Anderson Dam and Reservoir, as well as portions of Coyote Creek downstream of the dam, including at Ogier Ponds and the Coyote Percolation Pond. The established communities that surround the Project Area would not be divided by activities or construction of Project features. Project construction activities would primarily occur on property owned by either Valley Water or the County and, thus, would not divide established communities. For these reasons, the Project would not result in physical division of an established community and this criterion is not discussed further.

Additionally, construction of the Project would not conflict with any policies or preclude implementation of actions associated with the VHP, and therefore potential VHP conflicts are not analyzed in this section. For additional discussion of the VHP, refer to Section 3.5, *Biological Resources - Wildlife and Terrestrial Resources.*

3.15.4 Impact Analysis

***Impact LU-1: 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* (Less than Significant)**

The criterion for determining significant environmental impacts is whether the Project would conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. This criterion recognizes that an inconsistency with an individual plan, policy, or regulation does not necessarily equate to a significant environmental impact.

As described above in the *Regulatory Setting*, Valley Water is not subject to the local government building and zoning ordinances of a City or County for projects involving the construction of facilities for water production, generation, storage, treatment, or transmission pursuant to Government Code Section 53091(e). In addition, utility structures and facilities may be exempt from local zoning regulations if they are established by a government agency per the County Zoning Ordinance. Nevertheless, potential conflicts with land use plans, policies, or regulations are discussed here.

Seismic Retrofit Construction

Land Use Compatibility Discussion

As discussed above and shown in **Table 3.15-1** and on **Figure 3.15-1**, existing land uses within the Seismic Retrofit area consist of open space, hillside areas, ranchlands, single-family residential, utility, and recreational. Project activities would consist of site mobilization and preparation, including clearing and preparing staging and stockpile areas, reservoir dewatering and cofferdam construction, construction of the temporary water diversion system, dam excavation and fill (including excavation of embankment materials from borrow areas and disposal of excess materials at disposal areas), construction of the new outlet works and spillway, construction other ancillary facilities, the decommission of the hydroelectric facility, and site restoration. Completion of Seismic Retrofit component would not require a land use designation change or amendment and the proposed activities are not prohibited under these listed land use designations. Thus, it would not result in a substantial land use conflict with an any land use plan, policy, or regulation intended to avoid or minimize environmental effects.

The Seismic Retrofit component area includes seven parcels that are designated as single-family residential. The construction of the Seismic Retrofit component would not require the demolition of any existing structures and would not construct any nonresidential structures. Implementation of the Seismic Retrofit component would not require a general plan amendment, nor would it result in activities on these seven parcels that would conflict with allowable land uses onsite. Thus, it would not result in a substantial land use conflict related to any land use plan, policy, or regulation intended to avoid or minimize environmental effects.

The majority of the parcels within the Seismic Retrofit component area are designated as recreational. The baseline for evaluating Seismic Retrofit components construction effects on recreational land uses is the existing conditions at the time of EIR preparation modified by FOCP implementation. This includes the closure of some Anderson Lake County Park recreational amenities. These areas would be closed for all or portions of ~~remain closed through the duration of the~~ Seismic Retrofit construction for approximately 7 years, or for a total of 10 years for both projects combined. Thus, the baseline conditions used for the analysis has precluded the use of portions of the Anderson Lake County Park for recreation and open space as they are closed for implementation of the FOCP. With regards to the Seismic Retrofit components of the Project, construction would require temporary recreational closures of additional trails in the Rosendin Park Area, picnic areas, including the Live Oak Picnic Area, and parking spaces at Anderson Lake County Park, while these areas are being used for various aspects of construction, modified from their existing design to accommodate structures related to the Seismic Retrofit components, and/or otherwise closed to protect public safety.

Temporary closures of recreational facilities during Seismic Retrofit components construction would be incompatible with the recreation and open space land use designations for these areas. However, during construction, temporary impacts on the use and quality of recreational land use would be reduced through the implementation of BMPs. Implementation of BMP AQ-1 (Use Dust Control Measures) and BMP AQ-2 (Avoid Stockpiling Odorous Materials) will minimize dust and odors from construction; implementation of BMP TR-1 (Incorporate Public Safety Measures) will provide the public with construction warning signs, safety fencing, and access to detours during construction; and implementation of BMPs GEN-36 (Public Outreach), GEN-37 (Implement Public Safety Measures), and GEN-39 (Planning for Pedestrians, Traffic Flow, and Safety Measures) will require the advance notification to the public of recreational closures. These BMPs will minimize the level of disruption and impairment of recreational activities from construction activities. Over the long-term, once completed the Seismic Retrofit component would be consistent with applicable recreation land use designations.

Policies Compatibility Discussion

Construction of the Seismic Retrofit components would be consistent with land use policies listed above that have been adopted for the purpose of avoiding or mitigating an environmental effect.

The Resource Conservation Element of the Santa Clara County General Plan emphasizes local agency coordination with Valley Water to maximize dependability of water supply resources (Policy C-RC 7) and consideration of seismic safety in new and existing reservoirs (Policy C-RC 16). The purpose and objectives of the Project are consistent with these policies. The completion of the Seismic Retrofit component would increase future water supply dependability within a seismically active area.

The Safety and Noise Element of the Santa Clara County General Plan emphasizes local agency coordination with Valley Water to protect local surface and groundwater quality (Policy R-HS 48). The purpose and objectives of the Project are consistent with this policy. The completion of the Seismic Retrofit component would increase future water supply dependability within a seismically active area.

The Santa Clara County Countywide Trails Master Plan Update states that public improvement projects that may affect existing or proposed trails should be designed to facilitate shared use. The construction of the Seismic Retrofit components has the potential to conflict with public use of countywide trails (Grey Pine, Rancho Laguna Seca, Lakeview ~~Lake View~~, and Serpentine Trails). Implementation of BMPs GEN-36 (Public Outreach), GEN-37 (Implement Public Safety Measures), and GEN-39 (Planning for Pedestrians, Traffic Flow, and Safety Measures) will require the advance notification to the public of recreational closures. These BMPs would minimize the level of disruption and impairment of recreational activities from construction activities. Over the long term, the Seismic Retrofit components would be consistent with applicable county trails policies. The Project would improve and replace existing trails (Grey Pine, Rancho Laguna Seca, Lakeview ~~Lake View~~, and Serpentine Trails), improve the Live Oak Picnic area with additional park infrastructure (picnic facilities, bathrooms~~, bridges for public access across Coyote Creek~~), additional and improved parking at the Boat Launch Parking area, and improved bathrooms at the Boat Launch Parking area.

The Natural Resources and Environment Element of the City of Morgan Hill General Plan encourages interjurisdictional coordination regarding water supply considerations (Policy NRE-

9.1). The Safety, Services, and Infrastructure Element prioritizes engineering and design for critical structures, including those “whose failure might be catastrophic (e.g., large dams)” (Policy SSI-2.4), particularly with regard to seismic standards (Policy SSI-2.5). Valley Water is specifically encouraged to “continue developing programs to assure effective management of water resources” (Policy SSI-14.7). The Seismic Retrofit components of the Project is consistent with these policies. The completion of the Seismic Retrofit components would increase future water supply dependability within a seismically active area.

The Environmental Considerations Element of the Envision San José 2040 General Plan emphasizes design and construction of vital public utilities to maximize risk reduction and functionality during and after an earthquake (Policy EC-3.5). The Environmental Resources Element indicates that Valley Water should “preserve water quality by establishing appropriate public access and recreational uses” adjacent to water bodies (Policy ER-9.4). Through the extensive design and planning process, construction of the Seismic Retrofit components of the Project is consistent with these policies. The completion of the Seismic Retrofit components would increase future water supply dependability within a seismically active area.

In summary, construction of the Seismic Retrofit components would result in short-term incompatibility with certain County policies related to recreation and open space access. However, local jurisdictions have additional policies that prioritize the types of improvements and activities that comprise the Seismic Retrofit, such as seismic safety improvements to critical structures. Over the long-term, once completed the Seismic Retrofit component would be consistent with applicable policies. Overall, the Seismic Retrofit components would not conflict with the jurisdictions’ land use policies intended to avoid or minimize environmental effects.

Summary ~~Determination~~

Following Seismic Retrofit construction, both land-based and water-based recreational opportunities would be restored to prior conditions before Anderson Reservoir was seismically restricted (pre-FOCP) or replaced, allowing for these areas to revert back to historic land uses and continue to align with local land use plans, policies, and regulations. Because impacts to land use from construction would be temporary and land within the Seismic Retrofit area would be returned to uses consistent with land use plans, policies, and regulations after construction, construction of Seismic Retrofit components would not result in significant environmental impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Conservation Measure Construction

As shown in **Table 3.15-1** above, existing land uses affected by the implementation of the Conservation Measures consist of recreational/existing parks, agriculture, open space/hillside areas/ranchlands, residential and utility (refer to **Figure 3.15-1b** and **Figure 3.15-1c**).

Ogier Ponds CM

Land uses included within the Ogier Ponds CM site, including ~~and~~ staging and stockpiling areas, consist of agricultural, recreational, and hillside. The majority of land uses impacted by the Ogier Ponds CM consist of recreational land uses. Similar to construction-related impacts resulting from Seismic Retrofit components, construction of Conservation Measures, which are located within Anderson Lake County Park and Coyote Creek Parkway, would result in temporary closures of recreational facilities, which would be incompatible with recreational land use designations due to lack of access and use of recreational lands. Specifically, construction work within Ogier Ponds and the Coyote Creek Parkway related to the Ogier Ponds CM would require temporary closure while the area is modified from the existing conditions baseline. Closures would be temporary and would result in temporary impacts to recreational land uses. Refer to the recreation land use discussion below.

The Ogier Ponds CM would also occur on land designated for agricultural land uses. The continued use of the site for recreational activities as described in Chapter 2, *Project Description*, along with the separation of Coyote Creek and the Ogier Ponds would not preclude the site from future agricultural use. The realignment of the creek onsite would not require a change in land use designation, nor would it result in a prohibited use of the site under the agricultural land use designation. Temporary use of the Barnhart Avenue Stockpiling Area would not preclude the area from agricultural use following construction. Thus, it would not result in a substantial land use conflict related to any land use plan, policy, or regulation intended to avoid or minimize environmental effects.

The Ogier Ponds CM staging area consists of a hillside land use designation. The staging area was previously disturbed during past mining activities and would be used for office and equipment trailers, equipment and materials storage, equipment maintenance facilities, fuel pumps and fuel storage tanks, construction vehicle parking, and laydown. The temporary use of this site for staging would not result a permanent change in land use and the hillside land use designation does not prohibit the use of the area for temporary construction staging. Thus, it would not result in a substantial land use conflict related to any land use plan, policy, or regulation intended to avoid or minimize environmental effect.

Phase 2 Coyote Percolation Dam CM

Land uses included within the Phase 2 Coyote Percolation Dam CM site consist of open space, recreational, and ranchlands. Similar to the Ogier Ponds CM, the majority of land uses that would be impacted by the implementation of Phase 2 Coyote Percolation Dam CM would be recreational land uses. Construction of the Conservation Measure component would result in temporary closures of existing recreational facilities, which would be incompatible with recreational land use designations due to lack of access and use of recreational lands. The Phase 2 Coyote Percolation Dam Fish CMs would require temporary closure of a portion of Coyote Creek Parkway and adjacent trails immediately upstream and downstream of the Coyote Percolation Dam. Closures would result in temporary impacts to recreational land uses. Refer to the recreation land use discussion below. Construction of the Phase 2 Coyote Percolation Dam CM would occur on land with a consist of an open space and ranchlands land use designation. Project activities would consist of the construction of a roughened channel which would improve fish passage. Construction of the fish enhancement features would not prevent future use of the site for ranchland or open space purposes. Completion of this Conservation Measure would not require a land use designation change or amendment and the proposed activities are not prohibited under either land use designation. Thus, it would not result in a substantial land use conflict related to any land use plan, policy, or regulation intended to avoid or minimize environmental effects.

Maintenance of the North Channel Reach ~~Extension~~

Land uses included within the North Channel Reach ~~Extension~~ site consist of open space, recreational, and open hillside. ~~During construction of the North Channel Extension, temporary work within select reaches of Coyote Creek that may temporarily reduce recreational access and use of the Coyote Creek Parkway. Closures would be temporary and would result in temporary impacts to recreational land uses.~~ Maintenance of the North Channel Reach ~~Extension~~ would occur on land that ~~with a~~ consists of an open space and open hillside land use designation. Project activities would consist of the maintenance of the North Channel Extension (e.g., maintaining channel conveyance, replacing plantings, etc.), completed as part of FOCP ~~restoration of the existing channel and revegetation with native vegetation. Regrading of the North Channel would not prevent future use of the site for open hillsides or open space purposes~~. Completion of this Conservation Measure would not require a land use designation change or amendment and the proposed activities are not prohibited under either land use designation. Thus, it would not result in a substantial land use conflict related to any land use plan, policy, or regulation intended to avoid or minimize environmental effects.

Maintenance Activities at the Live Oak Restoration Reach and Sediment Augmentation Program

Land uses included within the Maintenance Activities at the Live Oak Restoration Reach and Sediment Augmentation Program areas consist of recreational and hillside. Maintenance Activities at the Live Oak Restoration Reach and the Sediment Augmentation Program would occur on lands with hillside land use designations. Maintenance Activities would include monitoring of the Live Oak Restoration Reach and the replacement of in-channel materials, as needed, to maintain restoration features to provide habitat for steelhead throughout the south channel of Coyote Creek (e.g. large woody debris, wetland benches).The Sediment Augmentation Program would involve the initial stockpiling and placement of at least 500 cy of sediment in the Live Oak Restoration Reach, and then replenishing this sediment at least every 5 years in an amount up to 500 cy in various locations in Coyote Creek during adaptive management. ~~consist of removing and stockpiling approximately 55,000 cy of suitable sediment throughout the duration of Project construction and would be washed and sorted prior to placing it in Coyote Creek.~~ This would result in a temporary visual change to the program site but would not result in a permanent physical change. The stockpiling of materials is not a prohibited use under the hillside land use designation. Thus, the temporary use of land designated hillside for stockpiling would not result a permanent change in land use. Therefore, it would not result in a substantial land use conflict on hillside land related to any land use plan, policy, or regulation intended to avoid or minimize environmental effects.

During implementation of the Sediment Augmentation Program, temporary work within select reaches of Coyote Creek that may temporarily reduce recreational access and use of the Coyote Creek Parkway. Closures would be temporary and would result in temporary impacts to recreational land uses. Refer to the recreation land use discussion below.

Recreational Land Use Discussion

Similar to construction-related impacts resulting from Seismic Retrofit components, construction of Conservation Measures, which are located within Anderson Lake County Park and Coyote Creek Parkway, would result in temporary closures of existing recreational facilities, which would be incompatible with existing recreational land use designations, as identified in **Table 3.15-1** above. Specifically, construction work within Ogier Ponds ~~and the Coyote Creek Parkway~~ related to the Ogier Ponds CM would require temporary closure, while the area is modified from the existing conditions baseline and the Phase 2 Coyote Percolation Dam CM would require temporary closure of a portion of Coyote Creek Parkway and adjacent trails immediately upstream and downstream of the Coyote Percolation Dam. Furthermore, conservation measures related to the maintenance of habitat enhancements within the north channel and in-creek work related to spawning gravel and rearing habitat improvements would also require temporary work within select reaches of Coyote Creek that may temporarily reduce recreational access and use of the Coyote Creek Parkway.

Temporary closures of recreational facilities during construction of the Conservation Measure components would be incompatible with the recreation land use designations for these areas. However, adherence to the requirements of BMPs would reduce the effects. As discussed above, implementation of BMP AQ-1 (Use Dust Control Measures) and BMP AQ-2 (Avoid Stockpiling Odorous Materials) will minimize dust and odors from construction; implementation of BMP TR-1 (Incorporate Public Safety Measures) will provide the public with construction warning signs, safety fencing, and access to detours during construction; and implementation of BMPs GEN-36 (Public Outreach), GEN-37 (Implement Public Safety Measures), and GEN-39 (Planning for Pedestrians, Traffic Flow, and Safety Measures) will require the advance notification to the public of recreational closures. These BMPs will reduce the level of disruption and impairment of recreational activities from construction activities. Over the long term, once completed the Conservation Measure components would be consistent with applicable recreation land use designations.

Land Use Policies Discussion

In addition, construction of the Conservation Measure components would be consistent with various land use policies adopted for the purpose of avoiding or mitigating an environmental effect.

The Resource Conservation Element of the Santa Clara County General Plan states that strategies for maintaining and improving water quality should include restoration of wetlands, riparian areas, and other habitats (Policy C-RC 19); cites long-range, inter-jurisdictional growth management and open space planning as a general approach to conserving natural resources (Policy C-RC 58); and encourages enhancement of riparian resources and protection of streams, their hydrology, and their environment when implementing flood control modifications (Policy R-RC 35). Construction of Conservation Measures along Coyote Creek and at Ogier Ponds would help restore steelhead habitat. Completion of these Conservation Measures would enhance existing degraded habitat, which would be consistent with Policy C-RC 19, Policy C-RC 58, and Policy R-RC 35.

The South County Joint Area Plan states that "[i]f flood control projects needed to protect presently existing development make [leaving natural streamside and riparian areas sin their natural state] infeasible, disruption should be minimized, maintaining slow flow and stable banks through design and other appropriate mitigation measures" (Policy SC 15.8). Construction of conservation measures along Coyote Creek and at the Ogier Ponds would be consistent with this policy. ~~In particular, the North Channel Extension would support continuous flows through each channel, to the greatest extent practicable, and would not increase the existing potential~~

~~for fish strandings as the historic North Channel would be graded to remove existing holes and pools that may strand fish when waters recede. Additionally, the restored North Channel would be designed to facilitate drainage and would be designed and graded to allow flows to continue to the greatest extent feasible during low flow times. These design measures would be consistent with Policy SC 15.8.~~ The Santa Clara County Countywide Trails Master Plan Update states that public improvement projects that may affect existing or proposed trails should be designed to allow shared use (Policy PR-TS 6.3). Construction activities along Coyote Creek and at the Ogier Ponds would be planned and designed to allow continued shared use of trails following construction. Recreation in Coyote Creek Parkway is planned and managed in keeping with policies contained in the Coyote Parkway Integrated Natural Resources Management Plan (INRMP). The INRMP calls for expansion of recreational infrastructure throughout the parkway, including the Ogier Ponds area. Construction of the Ogier Ponds CM would not prevent the continued use of the site for recreational purposes or be inconsistent with the INRMP. Thus, completion of the Ogier Ponds CM would not conflict with recreational goals and plans for the Ogier Ponds area.

The Natural Resources and Environment Element of the City of Morgan Hill General Plan emphasizes retention of natural streamside and riparian areas and identify stream setbacks for Category 1 and Category 2 streams (Policies NRE-5.3, 5.4, and 5.6). Conservation Measures constructed along Coyote Creek and at Ogier Ponds would be consistent with these policies. The Safety, Services, and Infrastructure Element encourages designs that retain the natural topography and vegetation while maintaining the designed flow and functional integrity (Policy SSI-6.6). The Environmental Considerations Element of the Envision San José 2040 General Plan identifies a goal to “protect the community from flooding and inundation and preserve the natural attributes of local floodplains and floodways” (Goal EC-5 and Policy EC-5.10). The City of San José Zoning Ordinance recognizes the dual goals to “prevent unwarranted deterioration of the environment and promote a balanced ecology” (Purpose #7). Because the conservation measures would be constructed specifically for this purpose, construction would be consistent with balancing safety and ecological benefits.

Summary ~~Determination~~

While construction associated with Conservation Measure components would temporarily preclude the use of portions of these areas for recreation, impacts would be short term in each location, and after construction, these areas would be restored, restoring consistency with land use plans, policies, and regulations. Because the Conservation Measure components would be constructed specifically to implement the types of ecological restoration, protection, and enhancement activities envisioned by local jurisdictions’ policies construction of Conservation Measure components would not result in significant environmental impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Post-Construction Anderson Dam Facilities Operations

Following construction of the Seismic Retrofit component, Anderson Dam would be retrofitted and upgraded to meet FERC and DSOD public safety requirements. The improved reliability of the dam structure would reduce the risk of catastrophic failure that would in the absence of the Project adversely affect downstream land uses in the region. Additionally, all recreational facilities temporarily closed as a result of construction would be restored and reopened, allowing for these areas to revert back to historic land uses and to align with local land use plans, policies, and regulations. Furthermore, no permanent modifications to recreational facilities would reduce the availability or quality of recreational uses, although there would be minor increases in inundation of downstream Coyote Creek recreational facilities due to modified reservoir operations (see Section 3.18, *Recreation*, Impact REC-1c.)

The Seismic Retrofit area includes parcels that are designated as open space/hillside areas/ranchlands, and utility. Operation of Anderson Dam post-construction would not impact the use of the parcels designated as open space/hillside areas/ranchlands, and utility. Operation and Maintenance of Anderson Dam would not require a land use designation change or amendment and the proposed activities are not prohibited under these listed land use designations. Thus, it would not result in a substantial land use conflict related to any land use plan, policy, or regulation intended to avoid or minimize environmental effect. The Seismic Retrofit area includes seven parcels that are designated as single-family residential. Operation and Maintenance of Anderson Dam post-construction would not impact the use of the parcels designated as single-family residential. The Seismic Retrofit component would not require a general plan amendment, nor would it result in activities on these seven parcels that would conflict with allowable land uses onsite. Thus, it would not result in a substantial land use conflict related to any land use plan, policy, or regulation intended to avoid or minimize environmental effect.

As described above for construction of the Seismic Retrofit component, many of the County General Plan's Resource Conservation policies are designed to provide adequate, high-quality water supplies for the community, including the ability to meet long-term projected demands, seismic safety, and groundwater management. In addition, several of the goals and policies identified in the Envision San José 2040 General Plan discuss protection of water supply, water quality, and groundwater recharge. As discussed in Chapter 2, *Project Description*, the purpose of the Project is to seismically retrofit, maintain, and operate Anderson Dam and Reservoir to meet safety requirements, thereby allowing Valley Water to maximize water supply and groundwater recharge capacity and benefits. Implementation of a seismically retrofitted Anderson Dam would be consistent with these policies, minimizing the risk of reservoir spill and downstream flooding, and providing in-stream environmental flows consistent with regulatory requirements. Thus, post-construction operations would not result in significant environmental impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Project and FAHCE Adaptive Management Program

As described above, the implementation of adaptive actions as part of the FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases, as well as refinements to Conservation Measures. These actions would occur when flow measures are not functioning as intended or not meeting FAHCE measurable objectives. Adaptive actions occurring within the Coyote Creek floodplain may result in temporary disruptions to adjacent recreational land uses (e.g., construction equipment operating near a trail that could generate noise temporarily affecting recreationalists). However, all work would be temporary and would not limit the use of an area. Thus, adaptive management actions would not conflict with any land use plan, policy, or regulation related intended to avoid or minimize environmental effect and would in many instances allow for enhanced implementation of land use plans, policies, and regulations that have been adopted for recreational opportunities, natural resource conservation, and environmental stewardship. Thus, adaptive management-related impacts would be less than significant.

Significance Conclusion Summary

Implementation of the Project would occur in areas designated as recreational, residential, agricultural, open space/hillside/ranchlands, and utility. As discussed above, the implementation of the Project on land designated as residential, agricultural, open space/hillside/ranchlands, and utility would not preclude the land from future use of the site for those land uses. The activities proposed as part of the Project would not occur on land whose land use designation prohibits such activities, as identified in **Table 3.15-1**. Thus, the Project would not result in a substantial conflict with these existing land use designations.

The majority of the land that would be affected by the Project is designated as recreational. In particular, portions of Anderson Lake County Park, Coyote Creek Parkway, Ogier Ponds, and the Coyote Percolation Pond would be temporarily closed during construction of the Seismic Retrofit improvements and Conservation Measure components, affecting recreational land uses in the area. While construction activities would disrupt existing recreational land uses, these effects would be temporary in nature.

As discussed above, implementation of BMP AQ-1, BMP AQ-2 BMP TR-1, BMPs GEN-36, GEN-37, and GEN-39 would minimize the level of disruption and impairment of onsite land uses during the Project construction period. Because impacts to land use from construction would be temporary, land within the Project Area would be returned to uses consistent with land use plans, policies, and regulations post-construction. Furthermore, operation of the Project would minimize the risk of reservoir spill and downstream flooding and provide in-stream environmental flows consistent with land use policies and regulations. The Project would seismically upgrade a critical facility consistent with local goals and policies, and construction and operation would not result in significant environmental impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

3.15.5 Cumulative Impacts

The geographic study area for the cumulative impact analysis for land use and planning is the portions of Santa Clara County, San José, and Morgan Hill that comprise the Project Area.

This section describes the Project’s contribution to cumulative land use and planning impacts, as summarized in **Table 3.15-2**.

Table 3.15-2 Summary of Project Impact Contribution to Cumulative Land Use and Planning Impacts

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact LU-1: 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	No	No	NCC	None	No

Key: NCC = not cumulatively considerable

Cumulative Impact LU-1: 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 **(Not Cumulatively Considerable)**

Because impacts on conflicts with land use from Project construction would be temporary and land within the Project area would be returned to uses consistent with land use plans, policies, and regulations after construction, the Project would not result in significant environmental impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Cumulative effects of Project with the FOCP

Activities associated with the FOCP would not 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. This is because FOCP activities would be temporary and land within the Project area would be returned to uses consistent with land use plans, policies, and regulations after construction. The cumulative impact on the environment resulting from a conflict with applicable land use plans, policies, or regulations from the FOCP and the Project would not be cumulatively significant, and the Project's contribution would **not be cumulatively considerable**.

Cumulative effects of Project with Probable Future Projects, Programs, and Plans

Projects listed in Section 3.0.5, as well as other future development projects that may be proposed in the next 10 years, would be reviewed for their consistency with regional and local plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. Those projects would be reviewed for compliance with the Santa Clara County General Plan, South County Joint Area Plan, Santa Clara County Countywide Trails Master Plan Update, Santa Clara Valley Habitat Plan, City of Morgan Hill General Plan, or Envision San José 2040, as applicable, and any inconsistencies would be assessed prior to project approval. Therefore, the cumulative impact on the environment resulting from a conflict with applicable land use plans, policies or regulations from the Project and probable future projects, programs and plans would not be cumulatively significant, and the Project's contribution would be **not cumulatively considerable.**

Significance Conclusion Summary

The cumulative impact on the environment resulting from a conflict with applicable land use plans, policies or regulations from the Project and probable future projects, programs and plans would **not be cumulatively significant**, and the Project's contribution would be **not cumulatively considerable**.

Mitigation Measures

No mitigation is required.

3.15.6 References

City of Morgan Hill, 2017 ~~2016~~. City of Morgan Hill General Plan. Available at: https://www.morganhill.ca.gov/75/General-Plan. Accessed: January 31, 2023.

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~~Topographic-map.com, 2021. Morgan Hill Topographic Map. Available at: https://en-us.topographic-map.com/map-8p349m/Morgan-Hill/. Accessed: May 2021.~~

3.16 Noise and Vibration

This section provides information about applicable regulations related to noise and vibration, the noise setting, and evaluates noise and vibration Project impacts. The information in this section is based in part on the Anderson Dam Seismic Retrofit Project Noise and Vibration Technical Memorandum ~~Impact Assessment Report~~, which is included in Appendix M[1].

The study area for noise and vibration focuses on the portions of the county, San José, and Morgan Hill that are in or near the Project Area, including the construction limits of the Seismic Retrofit and Conservation Measures components and the surrounding sensitive receptors.

3.16.1 Environmental Setting

3.16.1.1 Noise and Vibration Principles

Sound

Sound is the transmission of energy in the form of fluctuating pressure waves from a vibrating source through an elastic medium, such as air, that is detectable by the human ear. The pressure fluctuates above and below atmospheric pressure. The amplitude of the pressure fluctuation is typically described in terms of decibels (dB), while the rate of fluctuation per unit time (frequency) is described in hertz (Hz).

The decibel is a logarithmic ratio of a given sound pressure to a reference sound pressure. A logarithmic ratio is used for decibels since human hearing is roughly logarithmic, rather than linear. The reference sound pressure is roughly equal to the threshold of human hearing. Sound pressure levels below the human threshold of hearing are less than 0 dB, while levels above the human threshold of hearing are greater than 0 dB. Differences in sound level are also described in decibels. A 3-dB difference is considered “just noticeable”, a 5-dB difference is considered “clearly noticeable”, while a 10-dB difference is perceived as a doubling (or halving) in loudness. **Table 3.16-1** provides a list of common noise sources, their sound level, and their subjective loudness.

Because the decibel is logarithmic, a doubling of sound energy from a noise source produces a 3-dB increase in sound level from that source, not a doubling of the loudness of the sound (which requires a 10-dB increase). For example, if traffic along a road is causing a 60 dB sound level at some nearby location, doubling the amount traffic on this same road would cause the sound level at this same location to increase to 63 dB.

The range of frequencies a healthy human ear can hear is approximately 20 Hz to 20,000 Hz. The human ear is not equally sensitive to all frequencies across the audible frequency spectrum. The human ear is most sensitive to mid frequencies (the frequency range associated with speech) and is less sensitive at low frequencies and very high frequencies. To account for this, frequency weighting networks have been developed to approximate the human ear’s frequency response at different sound pressure levels. The A-weighting network is used to approximate the frequency response of the human ear at normal sound levels. Measurements using the A-

1 Appendix M has been revised in support of the Final EIR.

weighting network are described in terms of A-weighted decibels, often abbreviated colloquially as dBA. **Table 3.16-1** shows some representative noise sources and their corresponding noise levels in dBA.

Table 3.16-1. Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: Caltrans 2013

Sound Level Metrics

To better characterize changes in sound levels over time, several sound level metrics have been developed. The following is a summary of some of the more common metrics.

- Sound environments often vary in level over time. The equivalent-continuous sound level, Leq, is the steady-state sound level over a given time period that has the same total sound energy as the time-varying sound level measured over that same time period. Leq is the time-averaged sound energy of a measurement.
- The Day-Night Level, abbreviated as either DNL or L_{dn}, is an equivalent-continuous sound pressure level for a 24-hour period that includes a 10-dB penalty from 10:00 p.m. to 7:00 a.m. to reflect people's increased sensitivity to noise at night.

Noise Effects on People

Noise is sound that is considered undesirable or unpleasant. The effects of noise on people depends on a variety of factors, including the type of noise source, the context of the noise, and the sensitivity of the person.

How noticeable a noise source is depends on the following factors:

- The sound level. Louder noise tends to be more annoying. In addition, noise sources that change in sound level over time are more noticeable than those that do not vary over time.
- The duration. Noise that is fairly steady over time tends to be less noticeable, while short, impulsive noises are more noticeable.
- The frequency spectrum. Broadband noise—noise that contains sound energy at many frequencies—is not as noticeable as noise that contains discrete tones. For example, the tone from a backup beeper is more noticeable than noise from a fan, even if they are producing the same overall sound level.
- Masking effects. Noise from one source can be masked—made less noticeable—by noise from one or more louder sources.

The extent to which noise affects people can vary from subjective (causing annoyance) to physical (causing hearing loss). Where noise is loud enough to cause hearing loss, regulations such as those developed by OSHA have been adopted to mitigate hearing loss. In most environments, noise is not sufficiently loud to cause hearing loss but may still cause annoyance or impact people's productivity and general well-being. Note that the degree of annoyance caused by a given noise varies from person to person.

Environmental Noise and Propagation

Environmental noise refers to noise that propagates outdoors. The way in which sound propagates outdoors and the descriptors used to differentiate types of sound and noise sources are summarized below.

The attenuation of sound over distance outdoors depends on the type of source and environmental factors. In the free field (i.e., no obstructions for the sound), sound from a source that can be considered a point spreads hemispherically, resulting in a sound attenuation rate of

6 dB per doubling of distance. Point sources include, for example, fans and individual vehicles such as trucks. Sound from a line source spreads in the shape of a half cylinder, with a sound attenuation rate of 3 dB per doubling of distance. The most common type of line source is a highway. While highways have many point sources (vehicles), the constant stream of traffic results in the collection of point sources acting as a line source.

Vibration

Vibration is the transmission of energy in the form of waves through the ground, man-made structures, or other solid objects. As with sound, the frequencies of vibration are described in Hz. The amplitude of vibration is typically described either as peak particle velocity (PPV) in units of inches per second (in/sec) or in decibels of vibration velocity, abbreviated as VdB.

Vibration is perceived tactilely whether through feet or hands or through the whole body while sitting or lying down. Like noise, vibration can be a source of annoyance and can cause sleep disturbance.

Most perceptible indoor vibration is caused by sources within buildings, such as equipment operation, movement of people, or slamming doors. Typical outdoor sources are heavy construction equipment and activities (such as blasting and pile driving), steel-wheeled trains, and heavy trucks on rough roads or offroad. It is unusual for vibration from sources, such as buses and trucks on smooth roads to be perceptible, even in nearby locations.

Table 3.16-2 summarizes common sources of groundborne vibration velocity levels and average response to vibration by a person at rest in quiet surroundings (tolerance to vibration increases considerably during physical activity). The duration of the vibration event affects human response, as does its frequency of occurrence; increases in both result in decreased tolerance. Typical background vibration levels in residential areas are usually 50 VdB or lower, well below the threshold (65 VdB) of perception for most humans.

Table 3.16-2. Typical Vibration Levels and Associated Average Responses

Human or Structural Response	Vibration Velocity Level (VdB)	Typical Sources (50 feet from source)
Threshold for minor cosmetic damage to fragile buildings	100	Blasting, pile driving, vibratory compaction equipment
Difficulty with tasks such as reading a video or computer screen	90	Heavy tracked vehicles (bulldozers, cranes, drill rigs)
Threshold for residential annoyance for infrequent events (e.g., commuter rail)	80	Freight rail, typical Commuter rail, upper range
	70	Rapid transit, upper range
Threshold for residential annoyance for frequent events (e.g., rapid transit)	60	Commuter rail, typical

Human or Structural Response	Vibration Velocity Level (VdB)	Typical Sources (50 feet from source)
Approximate threshold for human perception of vibration and limit for vibration sensitive equipment	50	Bus or truck over bump or on rough roads, typical rapid transit, typical bus or truck on public road

Source: Federal Transit Administration 2018

Energy Transmission of Blasting

During blasting activity, the majority of the energy of detonations is consumed by rock breakage and movement. However, a small amount of energy is transmitted past the blasting area through vibration and air overpressure. The total energy released by the detonation of an explosive is typically provided in terms of Trinitrotoluene equivalent (TNTe). Various types of explosives have varying effectiveness factors compared to TNT. Limits for safe air overpressure and vibration from blasting are given in terms of TNTe per delay.

Vibration

Blasting results in groundborne vibration propagating from the blasting area. Blasting creates vibration waves in the ground of varying amplitude, frequency, and speed. Like other forms of groundborne vibration, the frequencies are described in Hz. The amplitudes are typically described in terms of PPV in/sec. The two most significant factors influencing the amplitude of vibration are the weight of charge and distance from the charge, though factors including timing between charges, geology, and charge confinement also play a role.

Vibration from blasting of sufficient amplitude can cause structures to respond, resulting in rattling within buildings, and excessive vibration from blasting has the potential to cause damage to structures. However, proper planning and monitoring of vibration can mitigate risk to nearby buildings.

Air Overpressure

Blasting creates vibrations in the air referred to as air overpressure. Air overpressure is the change in air pressure from normal atmospheric pressure generated by a blast. Air overpressure propagates as a pressure wave in the form of compression (positive pressure) followed by rarefaction (negative pressure). Like sound waves, air overpressure can be described in terms of pascals (Pa) or the sound equivalent in dB.

Much of the acoustic energy from air overpressure is below the range of human hearing (less than 20 Hz). The portion of an air overpressure below the range of human hearing is perceived as a sudden gust of wind, sometimes referred to as an “airblast” or “air concussion.” While most of the airblast energy is below the range of human hearing, it can cause structures to respond, resulting in rattling within buildings.

Factors that influence air overpressure include charge-weight per delay, depth of burial, volume of displaced rock, delay time intervals, type of explosive, atmospheric conditions, and topography.

3.16.1.2 Valley Water and Anderson Dam

Noise Sensitive Receptors

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Noise sensitive receptors are defined as places where noise could interfere with regular activities such as sleeping, talking, and recreation, which include hospitals, residences, convalescent homes, schools, libraries, churches, and other religious institutions.

Existing land uses within and adjacent to the Project Area include Coyote Creek, parkland and hiking trails, the Anderson Reservoir boat ramp, the Anderson Lake County Park Visitor's Center, the Santa Clara County Justice Training Center, the William F. James Boys Ranch, an orchard, and private residences. As such, noise sensitive receptor locations in the Project Area include residential communities, a high school, and public parkland, where sensitive receptors may reside or otherwise conduct regular activities. Sensitive receptors in the Project Area are described below by Project component.

Anderson Dam Seismic Retrofit Components

Nearby sensitive receptors include single-family residences, the William F. James Boys Ranch, and recreational users and staff members at Anderson Lake County Park, Rosendin Park, and nearby recreational trails. Residences and recreational trails along the southwestern bank of the reservoir (i.e., near Stockpile ~~Areas D and~~ Area K) and in the south area of the dam are within Morgan Hill, with residences closest to the dam within unincorporated Santa Clara County.[2.] The William F. James Boys Ranch is located within San José. There are no noise-sensitive receptors located northwest of the dam, within the vicinity of several stockpile areas (Stockpile Areas H, I, J, and L).

Recreational uses at the southeastern bank of the reservoir are located within the county, and recreational uses at the northwestern bank and the northern dam area are within San José. Recreational uses that border the Project Area include the Anderson Lake County Park to the southwest (which includes hiking trails and boating activities within the Seismic Retrofit component Project Area), the Live Oak Picnic Area also to the southwest, and the Rosendin Park Area to the southeast. These recreational areas would be temporarily closed during construction. Specifically, the Rosendin Park Area would be fully closed during the initial blasting phase of construction which is expected to take place over 3 to 4 months during Year 4, 5, or 6 of construction. Following the initial blasting phase, some trails in the park would be reopened with the exceptions of Lakeview, Gray Pine, and Rosendin Trails, which would all remain closed for the duration of blasting in Years 4, 5, and/or 6. There would be no planned closures of Rosendin Park Area before Year 4 or after Year 6 of Project construction. Rancho Laguna Seca Trail and the Cochrane Trail would remain partially closed and would be dead-end trails with a turnaround at the construction site following the blasting phase of Project construction.

[2] Note: Receptors R-31 and R-32 have been added to the noise analysis to more accurately estimate noise and vibration impacts on residences within unincorporated Santa Clara County.

The predominant noise sources to the southwest of the dam are natural sounds and traffic noise from Cochrane Road. At Anderson Lake County Park and Rosendin Park to the southeast, the predominant noise source is natural sounds.

Conservation Measures

Ogier Ponds Conservation Measure

The closest sensitive receptor to the Ogier Ponds CM area is the Parkway Lakes RV Park located southwest of Ogier Ponds along the east side of Monterey Highway, adjacent to the Project Area. Sensitive receptors also include users of the trails near Ogier Ponds, such as the Coyote Creek Trail. The predominant source of noise in the vicinity of Ogier Ponds is traffic noise from US 101, Ogier Avenue, and Barnhart Avenue, and sounds typical of nature, such as birds chirping and wind gusts.

Maintenance of the North Channel Reach ~~Extension~~ and Maintenance Activities at the Live Oak Restoration Reach

Maintenance of the North Channel Reach ~~Extension~~ and Maintenance Activities at the Live Oak Restoration Reach CMs would occur downstream of Anderson Dam along Coyote Creek. Nearby sensitive receptors include residential communities adjacent to Coyote Creek to the south of Cochrane Road and Malaguerra Avenue. Sensitive receptors also include users of the trails that are adjacent to Coyote Creek, such as the Coyote Creek Trail. The predominant source of noise in the vicinity of Coyote Creek is traffic noise from US 101, Monterey Highway, and Cochrane Road. Additional sources of noise include natural sources, such as birds chirping and wind gusts.

Sediment Augmentation Program

The Sediment Augmentation CM spans the length of Coyote Creek downstream of Anderson Dam to Ogier Ponds. Nearby sensitive receptors include those near the Maintenance of the North Channel Reach ~~Extension~~ and Maintenance Activities at the Live Oak Restoration Reach CMs, discussed above, and residential communities southwest of Coyote Creek bound by US 101 to the northeast and Monterey Highway to the southwest. The predominant source of noise in the vicinity of Coyote Creek is traffic noise from US 101 and other major roadways such as Cochrane Road and Monterey Highway.

Phase 2 Coyote Percolation Dam Conservation Measure

The closest receptors near the Phase 2 Coyote Percolation Dam CM include residential communities adjacent to Coyote Percolation Pond to the south and west, recreational users at Metcalf Park adjacent to the south, and recreational users along Coyote Creek Trail, which has a trailhead at Metcalf Park. Residential communities are also located north of US 101, approximately 0.1 miles from the Project Area. The predominant source of noise in the vicinity of the Phase 2 Coyote Percolation Dam Conservation Measure is traffic noise from US 101 and other major roadways, such as Monterey Highway and Metcalf Road.

Ambient Noise Levels

To characterize ambient noise levels in the Project Area, Ramboll conducted ambient noise level measurements from June 13 through June 17, 2022. Eight (8) 24-hour sound level measurements were conducted in the vicinity of Anderson Dam, one 24-hour sound level measurement was conducted in the vicinity of Ogier Ponds, and two 24-hour sound level measurements were conducted in the vicinity of the Phase 2 Coyote Percolation Dam CM area.

The measurement locations were chosen based on the locations of future construction activities and the locations of noise-sensitive receptors. The measurements were conducted using Larson Davis LxT sound level meters, which meet ANSI S1.4 requirements for a Type 1 sound level meter and were made in general conformance to ANSI S12.9-1992/Part 2. Weather conditions were clear throughout the measurements.

The results of the measurements taken in the vicinity of Anderson Dam are summarized in **Table 3.16-3**. The location of the noise measurements in the vicinity of Anderson Dam are shown in **Figure 3.16-1**. The primary sources of noise in the vicinity of Anderson Dam included traffic noise from local roads, with insects, birds, and wind also contributing to the noise environment. Based on observations on site, the intersection of Cochrane Road and Malaguerra Avenue saw more traffic than other road sections near the Project Area. As a result, the ambient noise levels measured at Sound Level Measurement (SLM)-2 were higher than the other monitoring locations. Monitoring locations SLM-5 through SLM-6 were shielded from local traffic noise and had the lowest ambient noise levels.

Table 3.16-3. Anderson Dam Noise Level Measurement Results

Tag	Location	Measurement Period	Nearest Noise-Sensitive Receptor(s)	Nearest Area(s) of Construction Activity	L_{dn} (dBA)
SLM-1	~60 feet east of Malaguerra Avenue and Sycamore Avenue intersection	7:00 a.m. 06/15/2022 - 8:00 a.m. 06/16/2022	Residences along Malaguerra Avenue	Staging Area 1, Stockpile Area E, Sediment Augmentation Program	50
SLM-2	~60 feet northeast of Cochrane Road-Malaguerra Ave intersection	9:00 a.m. 06/16/2022 - 10:00 a.m. 06/17/2022	Residences along Cochrane Road and Malaguerra Avenue, juvenile correctional facility	Staging Area 1, Stockpile Area E	61
SLM-3	Northeast corner of Live Oak Picnic Area near Coyote Creek	9:00 a.m. 06/16/2022 - 10:00 a.m. 06/17/2022	Residences along Cochrane Road, juvenile correctional facility	Staging Area 1, Stockpile Area E, North Channel Reach ~~Extension~~	50
SLM-4	~80 feet northwest of Cochrane Road-Via Sebastian intersection	7:00 a.m. 06/15/2022 - 8:00 a.m. 06/16/2022	Residences along Cochrane Road	Staging Area 4, Staging Area 1	54

Tag	Location	Measurement Period	Nearest Noise-Sensitive Receptor(s)	Nearest Area(s) of Construction Activity	L_{dn} (dBA)
SLM-5	Southeast corner of Rosendin Park	10:00am 06/15/2022 - 10:00 a.m. 06/16/2022	Residences along Holiday Drive	Basalt Hill Borrow Area, Stockpile Area D	45
SLM-6	Southeast end of lake basin, south side	9:00 a.m. 06/15/2022 - 10:00 a.m. 06/16/2022	Residences along Holiday Drive	Stockpile K (North)	46
SLM-7	Southeast end of lake basin, south side	9:00 a.m. 06/15/2022 - 10:00 a.m. 06/16/2022	Residences along Holiday Drive	Stockpile K (South)	48
SLM-8	Southeast end of lake basin, north side along East Dunne Avenue	10:00 a.m. 06/15/2022 - 10:00 a.m. 06/16/2022	Residences north of E Dunne Avenue	Stockpile K (North and South)	50 ~~58~~

Source: Santa Clara Valley Water District. ~~2023~~. 2024. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M) Prepared by Ramboll.

Key: SLM = sound level meter

The results of the measurement taken in the vicinity of Ogier Ponds are summarized in **Table 3.16-4**. The location of the noise measurement in the vicinity of Ogier Ponds is shown in **Figure 3.16-2.** The primary source of noise in the vicinity of Ogier Ponds was traffic along US 101, with noise from Monterey Highway, insects, birds, and farm animals also contributed to the noise environment.

Table 3.16-4. Ogier Ponds Noise Level Measurement Results

Tag	Location	Measurement Period	Nearest Noise-Sensitive Receptor(s)	Nearest Area(s) of Construction Activity	L_{dn} (dBA)
SLM-9	Near Ogier Avenue, ~170 feet beyond Barnhart Avenue	9:00 p.m. 06/13/2022 - 9:00 p.m. 06/14/2022	Parkway Lakes RV Park	Ogier Ponds	57

The results of the measurements taken in the vicinity of the Phase 2 Coyote Percolation Dam are summarized in **Table 3.16-5**. The locations of the noise measurements in the vicinity of the Phase 2 Coyote Percolation Dam are shown in **Figure 3.16-3.** The dominant source of noise at the percolation dam is traffic noise from US 101. Local traffic along Forsum Road and activity at Metcalf Park also contribute to the noise environment.

Table 3.16-5. Phase 2 Coyote Percolation Dam Noise Level Measurement Results

Tag	Location	Measurement Period	Nearest Noise-Sensitive Receptor(s)	Nearest Area(s) of Construction Activity	L_{dn} (Dba)
SLM-10	Along Coyote Creek Trail, ~500 feet west of Percolation Dam	7:00 p.m. 06/13/2022 - 12:00 p.m. 06/14/2022	Metcalf Park, residences along Forsum Road	Percolation Dam	62
SLM-11	~80 feet west of Percolation Dam	7:30 p.m. 06/13/2022 - 7:30 p.m. 06/14/2022	Metcalf Park, residences along Forsum Road	Percolation Dam	64

Figure 3.16-1. Noise Monitoring Locations near Anderson Dam

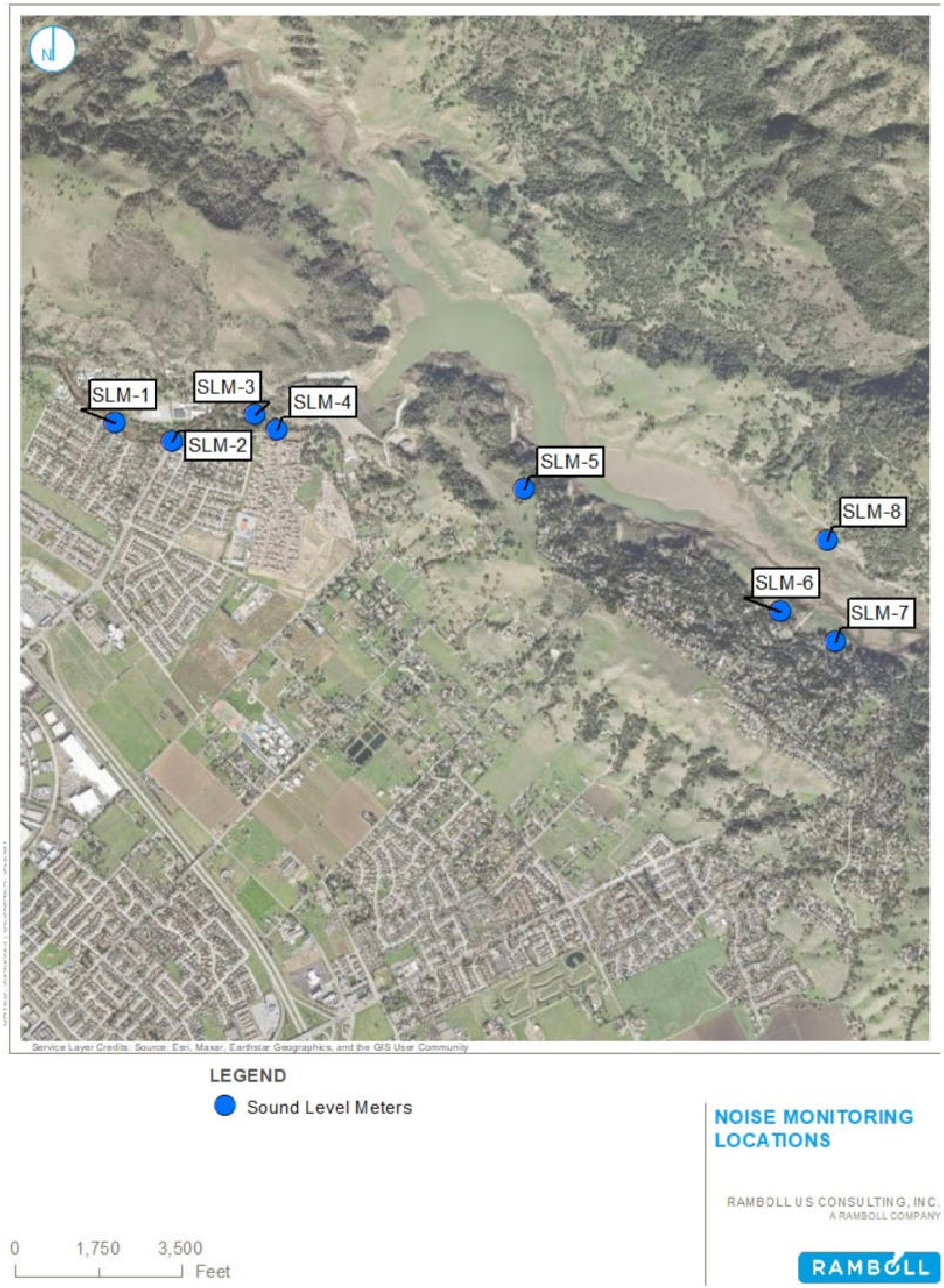

Figure 3.16-2. Seismic Retrofit Construction Equipment Sound Level Meter – Ogier Pond Area

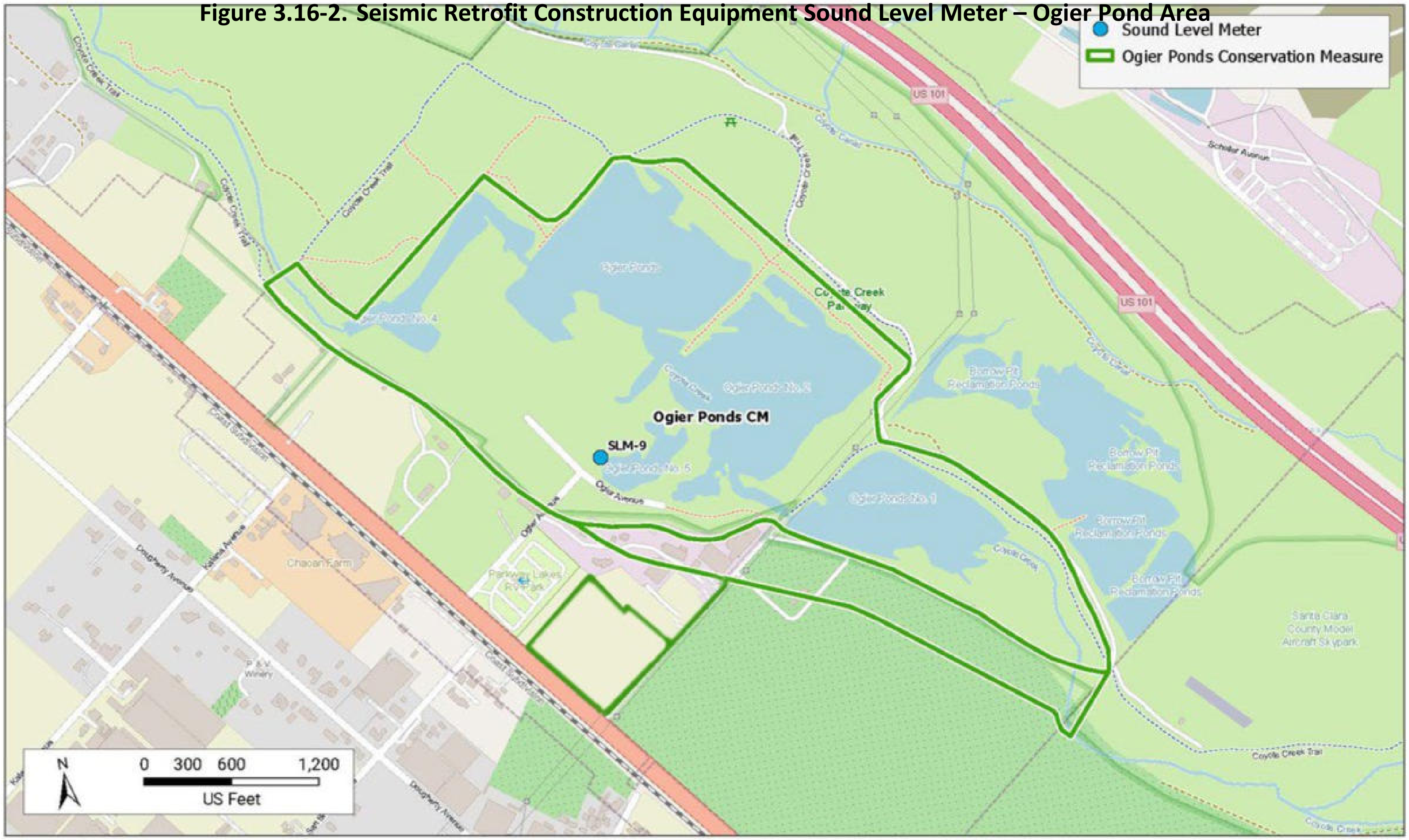

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Figure 3.16-2. Seismic Retrofit Construction Equipment Sound Level Meter – Ogier Pond Area
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

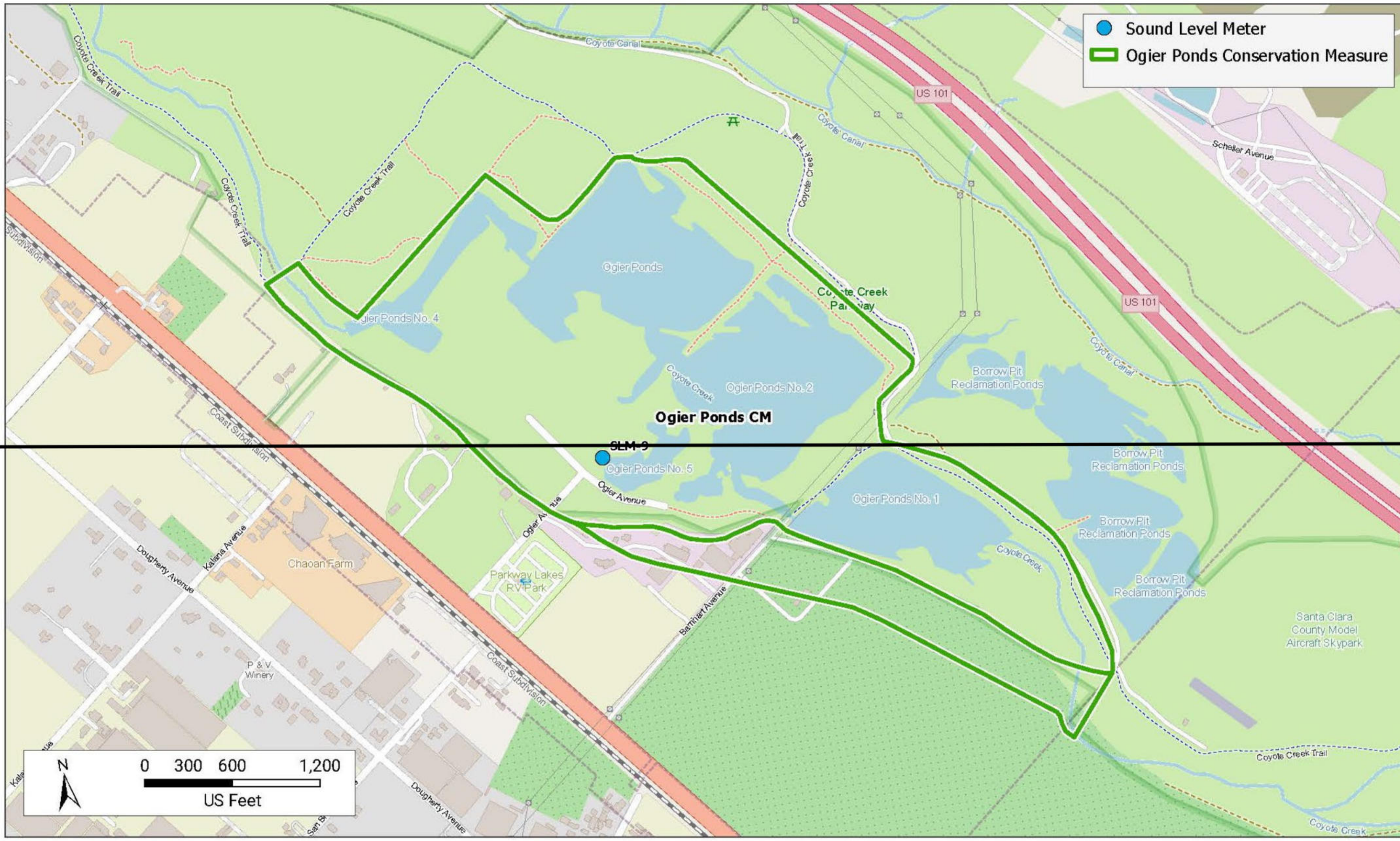

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Figure 3.16-2. Seismic Retrofit Construction Equipment Sound Level Meter – Ogier Pond Area
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

Figure 3.16-3. Seismic Retrofit Construction Equipment Sound Level Meter – Coyote Percolation Dam Area

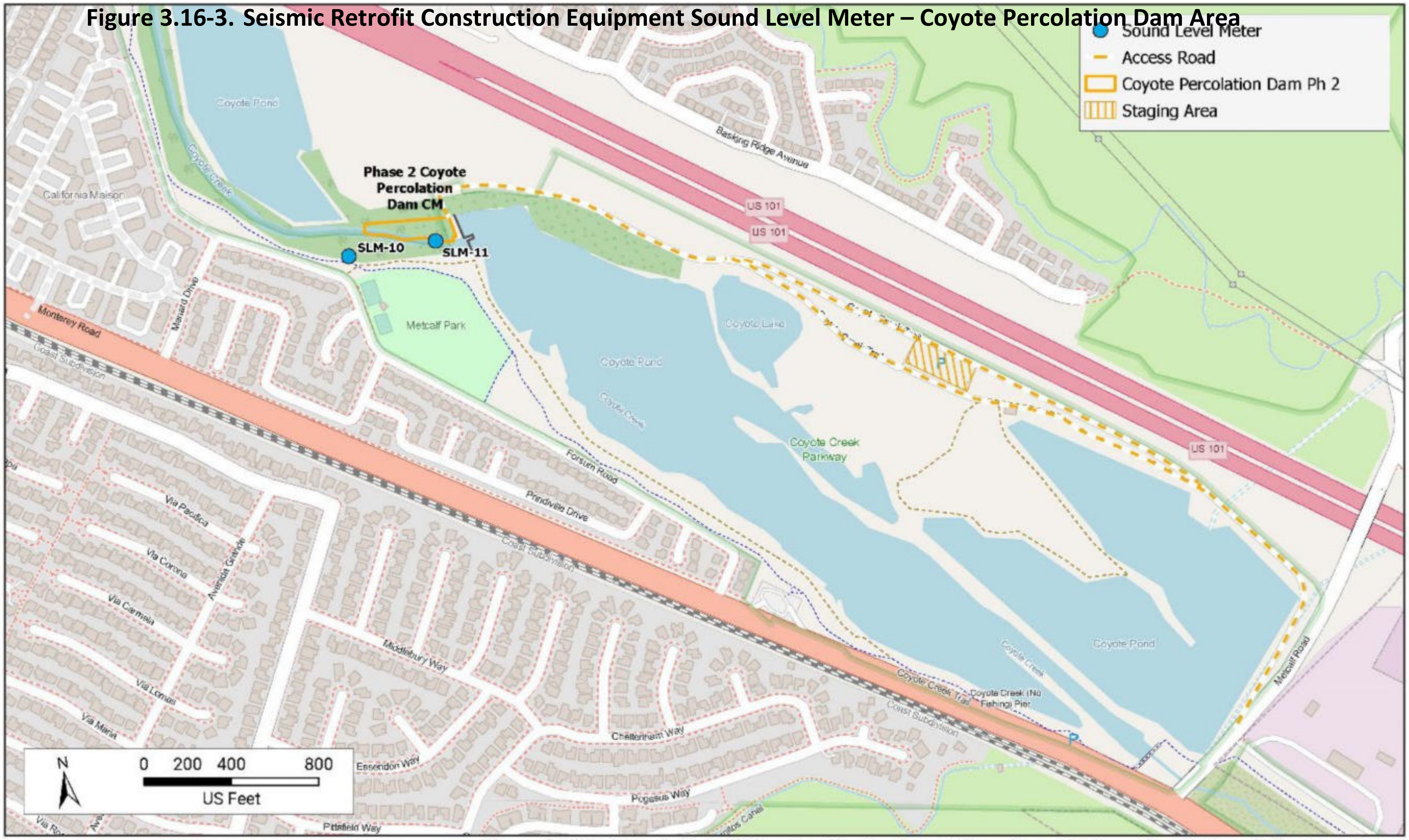

Figure 3.16-3. Seismic Retrofit Construction Equipment Sound Level Meter – Coyote Percolation Dam Area

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Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

3.16.2 Regulatory Setting

3.16.2.1 Federal Laws, Regulations, and Policies

U.S. Environmental Protection Agency Noise Control Guidelines

In 1972, the Noise Control Act (42 USC Section 4901 et seq.) was passed by Congress to regulate noise environments in support of public health and welfare. It also established the USEPA Office of Noise Abatement and Control to coordinate federal noise control activities. The USEPA established guidelines for noise levels that would be considered safe for community exposure without the risk of adverse health or welfare effects. The USEPA found that to prevent hearing loss over the lifetime of a receptor, the yearly average equivalent continuous sound level (L_{eq}) should not exceed 70 dBA. The USEPA also found that the day-night average sound level (L_{dn} or DNL) should not exceed 55 dBA in outdoor activity areas, or 45 dBA indoors, to prevent interference and annoyance. In 1982, the USEPA phased out the office's funding as part of a shift in federal noise control policy to transfer the primary responsibility of regulating noise to state and local governments. While the Office of Noise Abatement and Control no longer exists, the Noise Control Act has been used as a resource in developing state and local standards for environmental noise.

Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under Title 40 of the CFR, Part 205, Subpart B. The federal truck pass by noise standard is 80 dBA at 50 feet from the vehicle pathway centerline, under specified test procedures. These noise limits are implemented through regulatory controls that are required of truck manufacturers.

Federal Transit Administration Noise and Vibration Assessment Criteria

The FTA provides criteria for assessing construction noise impacts based on the potential for adverse community reaction in its *Transit and Noise Vibration Impact Assessment Manual* (FTA 2018). For a general assessment, the criterion is 80 dBA $L_{eq(8\text{-}hr)}$ during the day at residential receptors.

The FTA has adopted vibration criteria for assessment of vibration from construction activities, for damage to structures (FTA 2018). The criteria are summarized in **Table 3.16-6**. For potential human annoyance, the FTA recommends a limit of 72 VdB at residential receptors from frequent events (i.e., 70 or more per day). <u>Indoor ground borne vibration impact criteria are included in **Table 3.16-7**</u>.

Table 3.16-6. Construction Vibration Damage Criteria

Building Category/Structural Category	Peak Particle Velocity, in/sec
I. Reinforced concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment. 2018.

Table 3.16-7. Indoor Ground-Borne Vibration Impact Criteria for General Vibration Assessment

Land Use Category	Ground-Borne Vibration Impact Levels (VdB re 1 µin/sec rms)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations	65 VdB[4]	65 VdB[4]	65 VdB[4]
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

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment. 2018.

Notes:
[1] More than 70 events per day
[2] 30-70 events per day
[3] Fewer than 30 events per day
[4] From FTA, 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."

3.16.2.2 State Laws, Regulations, and Policies

California Department of Transportation Vibration Guidelines

The Caltrans *Transportation and Construction Vibration Guidance Manual* contains guidance on air overpressure and ground vibration from blasting (Caltrans 2020). The relevant section on criteria for air overpressure and ground vibration does not provide any requirements for Caltrans projects but does include a discussion of their effects on people and structures, and a summary of limits provided by the U.S. Bureau of Mines (USBM) and the Office of Surface Mining and Reclamation Enforcement.

The manual outlines the USBM conclusions of USBM RI 8507 "Structure Response and Damage Produced by Ground Vibration from Surface Mine Blasting", including the following:

- The potential for damage to residential structures is greater with low-frequency blast vibration (below 40 Hz) than with high frequency blast vibration (40 Hz and above).
- The type of residential construction is a factor in the vibration amplitude required to cause damage.
- For low-frequency blast vibration, a limit of 0.75 in/sec for modern drywall construction and 0.50 in/sec for older plaster-on-lath construction was proposed. For frequencies above 40 Hz, a limit of 2.0 in/sec for all types of construction was proposed.

~~Regarding air overpressure,~~ According to the manual, since most modern seismographs with air overpressure recording capability have a frequency response from 2-250 Hz ~~Hertz (Hz), and a~~ the limit of 133 dB is appropriate (Caltrans 2020).

3.16.2.3 Regional and Local Laws, Regulations, and Policies

Santa Clara County Municipal Code Noise Ordinance

The Santa Clara County Noise Ordinance (2017) is included in Chapter VIII, Control of Noise and Vibration, in the County Code of Ordinances. The intent of the ordinance is to control unnecessary, excessive, and annoying noise and vibration, and to prohibit the noise and vibration generated from or by all sources. The ordinance includes exterior and interior noise limits, prohibits specified noise-generating activities, establishes motor vehicle noise limits, and outlines special provisions, including exemptions for construction activities and demolition activities. The County also intends to maintain quiet in those areas that exhibit low noise levels and to implement programs aimed at reducing noise in those areas where noise levels are above acceptable values.

Section B11-154(b)(6) of the Santa Clara County Code prohibits the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekdays and Saturday hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays, that would generate a noise disturbance across a residential or commercial real property line. Where technically and economically feasible, construction activities must be conducted in a manner such that the maximum noise levels at affected properties will not exceed the following levels:

- Maximum noise level for stationary construction equipment noise affecting single-family residences is 60 dBA on weekdays and Saturdays from 7:00 a.m. to 7:00 p.m., and 50 dBA at all other times.
- Maximum noise level for stationary construction equipment noise affecting multi-family residences is 65 dBA on weekdays and Saturdays from 7:00 a.m. to 7:00 p.m., and 55 dBA at all other times.
- Maximum noise level for stationary construction equipment noise affecting commercial areas is 70 dBA on weekdays and Saturdays from 7:00 a.m. to 7:00 p.m., and 65 dBA at all other times.

Regarding groundborne vibration, Section B11-154(b)(7) of the Santa Clara County Code prohibits operating or permitting the operation of any device that creates a vibrating or quivering effect that endangers or injures the safety or health of human beings or animals, annoys or disturbs a person of normal sensitivities, or endangers or injures personal or real properties.

Santa Clara County General Plan Safety and Noise Element

The Santa Clara County General Plan Safety and Noise Element (2015) contains the following policies relevant to noise and vibration (see Section 3.3.2, *County of Santa Clara General Plan*, and Table 6 of Appendix M for a summary of goals and policies):

Policy C-HS 24: Environments for all residents of Santa Clara County free from noises that jeopardize their health and well-being should be provided through measures which promote noise and land use compatibility.

Policy C-HS 25: Noise impacts from public and private projects should be mitigated.

Policy C-HS(i) 23: Project design review should assess noise impacts on surrounding land uses. (Implementors: County and cities)

Policy C-HS(i) 24: Where necessary, construct sound walls or other noise mitigations. (Implementors: County, cities, and public agencies.)

Policy C-HS(i) 25: Prohibit construction in areas which exceed applicable interior and exterior standards, unless suitable mitigation measures can be implemented. (Implementors: County and cities)

Policy C-HS(i) 26: Require project-specific noise studies to assess actual and protected dB noise contours for proposed land uses likely to generate significant noise. (Implementors: County and cities)

City of San José Municipal Code

Section 20.100.450 of the San José Municipal Code (2023a) contains the City's restrictions on hours for construction, including the following:

> Unless otherwise expressly allowed in a Development Permit or other planning approval, no applicant or agent of an applicant shall suffer or allow any construction activity on a site located within 500 feet of a residential unit before 7:00 am or after 7:00 pm, Monday through Friday, or at any time on weekends.

Section 20.75.400 states that there shall be no activity on any site that causes vibration that is perceptible without instruments at the receiving property line of the site. See Section 3.3.3, *City of San Jose Municipal Code*, of Appendix M for more information.

Envision San José 2040 General Plan (2023b)

Policy EC-1.2: Minimize the noise impacts of new development on land uses sensitive to increased noise levels (Categories 1, 2, 3 and 6) by limiting noise generation and by requiring use of noise attenuation measures such as acoustical enclosures and sound barriers, where feasible. The City considers significant noise impacts to occur if a project would:

- Cause the DNL at noise sensitive receptors to increase by five dBA DNL or more where the noise levels would remain "Normally Acceptable" [below 60 dBA DNL for residential land uses]; or
- Cause the DNL at noise sensitive receptors to increase by three dBA DNL or more where noise levels would equal or exceed the "Normally Acceptable" level [60 dBA DNL or greater].

Policy EC-1.3: Mitigate noise generation of new nonresidential land uses to 55 dBA DNL at the property line when located adjacent to existing or planned noise sensitive residential and public/quasi-public land uses.

Policy EC-1.9: Regulate the effects of operational noise from existing and new industrial and commercial development on adjacent uses through noise standards in the City's Municipal Code.

Policy EC-1.7: Require construction operations within San José to use best available noise suppression devices and techniques and limit construction hours near residential uses per the City's Municipal Code. The City considers significant construction noise impacts to occur if a project located within 500 feet of residential uses or 200 feet of commercial or office uses would:

- Involve substantial noise generating activities (such as building demolition, grading, excavation, pile driving, use of impact equipment, or building framing) continuing for more than 12 months.

For such large or complex projects, a construction noise logistics plan that specifies hours of construction, noise and vibration minimization measures, posting or notification of construction schedules, and designation of a noise disturbance coordinator are required prior to the start of construction, and implemented during construction to reduce noise impacts on neighboring residents and other uses.

Policy EC-2.3: Require new development to minimize continuous vibration impacts to adjacent uses during demolition and construction. For sensitive historic structures, including ruins and ancient monuments or buildings that are documented to be structurally weakened, a continuous vibration limit of 0.08 in/sec PPV (peak particle velocity) will be used to minimize the potential for cosmetic damage to a building. A continuous vibration limit of 0.20 in/sec PPV will be used to minimize the potential for cosmetic damage at buildings of normal conventional construction. Equipment or activities typical of generating continuous vibration include but are not limited to: excavation equipment; static compaction equipment; vibratory pile drivers; pile-extraction equipment; and vibratory compaction equipment. Avoid use of impact pile drivers within 125 feet of any buildings, and within 300 feet of historical buildings, or buildings in poor condition. On a project-specific basis, this distance of 300 feet may be reduced where warranted by a technical study by a qualified professional that verifies that there will be virtually no risk of cosmetic damage to sensitive buildings from the new development during demolition and construction. Transient vibration impacts may exceed a vibration limit of 0.08 in/sec PPV only when and where warranted by a technical study by a qualified professional that verifies that there will be virtually no risk of cosmetic damage to sensitive buildings from the new development during demolition and construction. See Section 3.3.4, *City of Morgan Hill Code of Ordinances,* of Appendix M for more information.

City of Morgan Hill Noise Ordinance

Chapter 8.28 of the Morgan Hill Code of Ordinances contains the City's noise ordinance. The noise ordinance provides regulations related to construction noise. Section 8.28.040 states that construction activities are prohibited other than between the hours of 7:00 a.m. and 8:00 p.m., Monday through Friday, and, between the hours of 9:00 a.m. and 6:00 p.m. on Saturday, unless public works projects, the chief building official, or the city council, allow hours to be worked outside of these time periods. Construction activities may not occur on Sundays or federal holidays. Section 18.76.090.B exempts temporary construction, demolition, and vehicles that enter and leave a site (e.g., construction equipment, trucks) from the noise standards in the noise ordinance (e.g., 60 dBA for public/quasi-public uses).

Section 18.76.130 prohibits vibration that is perceptible without instruments at the lot line, but, exempts temporary construction, demolition, and vehicles that enter and leave a lot (e.g., construction equipment, trucks). See Section 3.3.5*, City of Morgan Hill Code of Ordinances,* and Table 8 of Appendix M for more information.

City of Morgan Hill General Plan Safety, Services, and Infrastructure Element

The City of Morgan Hill General Plan (2017 ~~2016~~) Safety, Services, and Infrastructure Element contains the following goals and policies relevant to noise:

> **Policy SSI-8.2: Impact Evaluation.** The impact of a proposed development project on existing land uses should be evaluated in terms of the potential for adverse community response based on significant increase in existing noise levels, regardless of compatibility guidelines.

> **Policy SSI-8.5: Traffic Noise Level Standards.** Consider noise level increases resulting from traffic associated with new projects significant if: a) the noise level increase is 5 dBA L_{dn} or greater, with a future noise level of less than 60 dBA L_{dn}, or b) the noise level increase is 3 dBA L_{dn} or greater, with a future noise level of 60 dBA L_{dn} or greater.

> **Policy SSI-8.6: Stationary Noise Level Standards.** Consider noise levels produced by stationary noise sources associated with new projects significant if they substantially exceed existing ambient noise levels. See Section 3.3.6, *City of Morgan Hill General Plan*, of Appendix M for more information.

3.16.3 Methodology and Approach to Impact Analysis

This impact analysis considers whether implementation of the Project would result in significant impacts related to noise and vibration. This section includes an evaluation of the noise and vibration impacts generated by construction and operation of the Project. The analysis evaluates noise and vibration impacts that would occur as a result of the following activities:

- Seismic Retrofit Construction
- Conservation Measure Construction
- Construction Monitoring
- Post-Construction Anderson Dam Facilities Operations and Maintenance
- Post-Construction Conservation Measures Operations and Maintenance
- Post-Construction Project and FAHCE Adaptive Management

3.16.3.1 Seismic Retrofit Construction

As described in Section 3.0, *Introduction*, the baseline for evaluating Seismic Retrofit construction effects is the existing conditions at the time of EIR preparation modified by FOCP implementation (referred to as the existing conditions baseline).

Existing baseline operations for the Project reflect a seismically restricted capacity (e.g., maintenance of the reservoir at deadpool and 3 percent capacity), and flow releases and maintenance activities projected to occur following completion of the FOCP, presently under construction. Similarly, the construction baseline assumes completion of facility upgrades and physical changes associated with the FOCP.

Noise

Onsite Noise

During construction, onsite noise sources would consist of construction equipment within the Project Area. The Anderson Dam Seismic Retrofit Project (Project) Noise and Vibration Technical Memorandum ~~Impact Assessment (Ramboll 2023)~~ (Appendix M), which supports the noise and vibration assessment in this section, utilized the Computer Aided Noise Abatement (CadnaA) software to estimate noise levels due to construction at the nearest sensitive receptors to the Project Area (Datakustik 2024 ~~2022~~). The CadnaA environmental noise prediction software enables noise modeling of complex facilities using sound propagation factors as adopted by the International Organization for Standardization (i.e., ISO 9613, ISO 17534). CadnaA considers distance, topography, intervening structures, atmospheric attenuation, ground effects, and vegetation when estimating sound levels from specific sources at distant receptor locations. The model was used in lieu of simple calculations due to the area's varied topography, and the effect that the topography may have on construction noise propagation at nearby noise-sensitive receptors. In addition to topography, the model allows for consideration of other factors that may influence the propagation of sound such as ground surface type (i.e., acoustically hard or soft surfaces), intervening structures and acoustic reflection from structures, meteorology, and dense vegetation. The model predicts sound levels at identified noise-sensitive residential uses.

Noise levels due to construction of the Project were estimated based upon available reference noise level data for construction equipment published by the Federal Highway Administration (FHWA), the FTA, and manufacturers. Where sound data was not available, sound levels were estimated based on horsepower ratings. The reference construction equipment sound levels are shown in **Table 3.16-8 ~~Table 3.16-7.~~**

Table 3.16-8 ~~3.16-7~~ Reference Construction Equipment Noise Levels

Equipment	**L_{ASmax} @ 50 ft**
Air Compressor	80
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	82

Equipment	**L_{ASmax} @ 50 ft**
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	80
Paver	85
Pile-driver (Impact)	101
Pile-driver (Sonic)	95
Pneumatic Tool	85
Pump	77
Rail Saw	90
Rock Drill	95
Roller	85
Saw	76
Scarifier	83
Scraper	85
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck	84

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, September 2018.

Key: L_{ASmax} = A-weighted, slow response, maximum, sound level.

Noise levels generated from construction activities would vary depending on the type of equipment in use, how many pieces of equipment are operating at any one time, the proximity of equipment to a noise receptor location (i.e., mobile equipment can be moved around a construction site), and the duration of equipment use. In addition, some equipment or activities, such as pile driving and jackhammering, generate "impulsive" noise levels (i.e., impact noise).

For the purposes of modeling noise from construction equipment and activities, representative noise sources (i.e., construction equipment) were placed at representative geographic locations within each construction area. Equipment and activity locations were estimated based on the construction phasing plan and the *Project Description* (see Section 2.5.1).

Construction activities would occur intermittently at the Project Area over the 7-year construction period of the Seismic Retrofit component. Construction activities could expose sensitive receptors to temporary or extended durational increases in noise and vibration. Construction would result in temporary increases in truck traffic noise along routes for hauling of material from borrow and stockpile areas, as well as along offsite roadways.

Each phase of construction was evaluated separately to identify the potential for noise impacts from each phase with consideration of the factors identified above, specific to each geographic area. Overlapping construction activities were evaluated when activities would overlap during the same time in the same vicinity. **Table 3.16-9** ~~**Table 3.16-8**~~ provides a brief summary of the Seismic Retrofit component construction phases, equipment and activities identified in each phase, duration of each phase, and the noise-sensitive receptor areas potentially affected by each construction phase. A more detailed summary of this information can be found in Appendix M.

Table 3.16-9 ~~3.16-8~~. Noise Assessment by Seismic Retrofit Construction Phase

Construction Phase	Activities	Duration (months)	Noise-Sensitive Receptor Areas Potentially Affected
Year 1	Construction of haul roads and preparation stockpile areas; dredging at dam toe; begin tunneling for the LLOW	9	Residences near Staging Areas 1-6 ~~4~~ and Stockpile Area E, juvenile detention center, Holiday Lake Estates residences near Stockpile Area K, residences along truck routes
Year 2 (Stage 1a)	Construction of cofferdam, bypass pump system; excavation of upstream and downstream portals; tunnel excavation	12	Residences near Staging Areas 1, 4, Stockpile Area E, and excavation area; juvenile detention center; Holiday Lake Estates residences near Stockpile Area K; residences along truck routes
Year 3 (Stage 1b)	Excavation, demolish spillway, excavation and foundation preparation; HLOW tunnel excavation and lining; gate shaft excavation and lining	12	Residences near Staging Areas 1-4 and excavation area, juvenile detention center, Holiday Lake Estates residences near Stockpile Area K, residences along truck routes
Year 4	Hauling filler and drain material to site; excavation, fill, and foundation preparation; construction of spillway structure; installation of water treatment system	12	Residences near Staging Areas 1-4 and excavation area, juvenile detention center, Holiday Lake Estates residences near Stockpile Area K, residences along truck routes
Year 5 (Stage 3a)	Hauling filler and drain material to site; excavation; fill; excavation, blasting, and hauling of material; construction of spillway structure; sloping intake structure; excavate downstream portal trench; water treatment system	12	Residences near Staging Areas 1, 4; juvenile detention center; residences along Barnard Rd; western end of Holiday Lake estates; residences along truck routes

Construction Phase	Activities	Duration (months)	Noise-Sensitive Receptor Areas Potentially Affected
Year 6 (Stage 3b)	Hauling filler and drain material to site; excavation; construct bypass pump system; conveying bypass flows; fill; excavation, blasting, and hauling of material; excavate sloping intake structure; construct pipe supports and lining	12	Residences near Staging Areas 1, 4, and Stockpile Area E, juvenile detention center, residences along Barnard Rd residences near Stockpile Area K, western end of Holiday Lake estates, residences along truck routes
Year 7	Construction of concrete lined channel; restoring parking areas; construction of permanent access roads	10	Residences near Staging Areas 1-4 and excavation area, residences along truck routes

Key: HLOW = high-level outlet works

Construction activities would be conducted during a 10-hour shift per day, between 6:00 a.m. and 4:00 p.m., Monday through Saturday, with limited Sunday work. Sunday work would include up to 12 Sundays in Years 1 through 3, up to 40 Sundays in Year 4, and up to 12 Sundays in Years 5 through 7. Nighttime construction work could occur during excavation and fill of the dam, tunneling for outlet works, paving activities on Cochrane Road, construction of the spillway and conversion of the existing Stage 1 Diversion System into Stage 2 Diversion System, and support production. The nighttime work could occur during all seven years of construction. Specific Project components that would require modified construction hours include:

- Excavation of the existing dam and construction of the replacement dam and spillway, and conversion of existing Stage 1 Diversion System into Stage 2 Diversion System—two 10-hour shifts, with a 0.5-hour lunch break (one shift between 6:00 a.m. and 4:30 p.m., and the second shift from 6:00 p.m. to 4:30 a.m., Monday through Saturday and certain Sundays).
- Blasting at BHBA—restricted hours of 8:00 a.m. to 5:00 p.m.
- Cochrane Road—communication lines and repaving construction may occur outside the work window of 6:00 am and 4:00 pm, including weekends on a limited basis up to 24-hours a day, 6 days per week ~~24-hours per day, including weekends, on a limited basis for several consecutive days as needed to avoid traffic and transportation conflicts~~.
- Delivery of materials (e.g., equipment, aggregate base, and drainage and filter material) —7:00 a.m. to 8:00 p.m., Monday to Friday.
- Tunneling (e.g., use of a road header) required for the outlet works (e.g., construction of the HLOW and LLOW at the dam)—24 hours per day ~~(two 12-hour shifts)~~, 6 days per week.
- Support production (e.g., concrete placement ~~and formwork for the spillway walls, outlet works, and other concrete structures~~)—24 hours per day ~~(two 12-hour shifts)~~, 6 days per week.

Offsite Noise

During construction, offsite noise sources consist of daily truck deliveries of rocks, aggregate, and soil to the Project Area, shuttle bus trips for workers between Staging Area 5 and Staging Area 4, and worker vehicle trips to and from staging areas. Noise sensitive receptors consist of residences near the road segments being used. Delivery of materials to the Project Area is assumed to be limited to the hours of 7:00 a.m. to 8:00 p.m., Monday to Friday.

An approximately 0.8-miles section of Cochrane Road between Malaguerra Avenue and Coyote Road would be fully or partially closed to through traffic during construction. Vehicles would be routed through a detour along Peet Road, Half Road, Elm Road, and East Main Road.

Predicted Seismic Retrofit Component-related vehicle counts were compared to 2015 traffic data for Morgan Hill (City of Morgan Hill 2015). Changes in traffic along US 101 from Seismic Retrofit Component-related traffic were assumed to be negligible. The estimated sound levels for Years 1, 3, and 6 were chosen as Year 1 represents typical daytime truck activity, Year 3 represents greatest nighttime worker activity (worker vehicle and shuttle bus trips), and Year 6 represents greatest daytime and nighttime truck activity.

The estimated noise levels include the following assumptions:

2015 Traffic Data

- 90 percent of traffic occurs during the day (7:00 a.m. to 10:00 p.m.)
- 10 percent of traffic occurs at night (10:00 p.m. to 7:00 a.m.)
- 2015 traffic did not include any trucks, buses, or motorcycles

Project Traffic

- 100 percent of delivery truck traffic occurs during the day (7:00 a.m. to 8:00 p.m.).
- The daily maximum estimates were used for analysis

These assumptions are generally conservative since the areas between US 101 and the Project Area have seen significant development since 2015, which means that ambient traffic noise levels were lower in 2015, in general, providing a more conservative baseline for assessing Project impacts.

Vibration

Construction vibration levels that could occur due to Seismic Retrofit Component construction are based on reference vibration levels published by the FTA. Groundborne vibration attenuation rates were applied to reference vibration levels from construction equipment to predict the levels of construction vibration at the nearest vibration-sensitive receptors. Construction vibration to receptors more than 500 feet from the edge of the construction sites were not considered. Groundborne vibration and groundborne noise dissipate rapidly over distance and would be minimal at distances greater than 500 feet (FTA 2018). Vibration levels for typical construction equipment are shown in **Table 3.16-10 ~~3.16-9~~**.

Table 3.16-10 ~~3.16-9~~. Example Vibration Source Levels for Construction Equipment

Equipment		PPV_{ref} at 25 feet (in/sec)	Approximate Lv* at 25 feet
Pile Driver (impact)	Upper range	1.518	112
	Typical	0.644	104
Pile Driver (sonic)	Upper range	0.734	105
	Typical	0.17	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, September 2018.
** RMS velocity in decibels, VdB re 1 micro-in/sec.*

Blasting

Air overpressure and vibration from blasting at the residential receptor nearest to the BHBA was evaluated using methods found in the International Society of Explosives Engineers (ISEE) *Blasters' Handbook*, 18th Edition (ISEE 2011). The significance thresholds for blasting identified in *Specific Thresholds of Significance* were used as limits to calculate the maximum allowable charge per delay.

3.16.3.2 Conservation Measures Construction

As described in Section 3.0, *Introduction*, the baseline for evaluating Conservation Measure construction effects is the existing conditions at the time of EIR preparation modified by FOCP implementation (i.e., existing conditions baseline). Conservation Measures involving construction activities with a potential to substantially ~~adversely~~ affect noise and vibration that were modeled and are evaluated in the impact analysis include:

- Ogier Ponds CM
- ~~North Channel Extension~~
- ~~Maintenance Activities at the Live Oak Restoration Reach~~

- Sediment Augmentation Program[3]
- Phase 2 Coyote Percolation Dam CM

The noise and vibration impacts from the construction of the Conservation Measure components were analyzed using the same methodologies as the Seismic Retrofit construction. Conservation Measures construction activities would generally be conducted during a 12-hour ~~10-hour~~ shift per day, between ~~6:00 a.m.~~ 7:00 a.m. and ~~6:00 p.m.~~ 5:00 p.m., Monday through Friday. Equipment maintenance would occur on Saturdays, and no work would occur on Sundays. Select construction activities such as the operation of pumps and electric generators to control groundwater seepage may operate at any time on any day of the week.

Maintenance of the North Channel Reach and Live Oak Restoration Reach would be downstream of the existing Anderson Dam outlet structure and would primarily involve minor and intermittent maintenance activities including vegetation management, replacement plantings, and gravel placement. The work would coincide with Seismic Retrofit construction and would be significantly smaller in scale. As a result, the noise and vibration analysis for Seismic Retrofit construction would also apply to the North Channel Reach and Live Oak Restoration Reach. Therefore, no additional noise or vibration analysis has been conducted specific to the North Channel Reach or Live Oak Restoration Reach.

3.16.3.3 Construction Monitoring

Construction Monitoring activities are not included in the impact analysis, as monitoring would involve data and information collection and assessment and would not result in any substantial amount of noise. Thus, construction monitoring is not discussed further in this section.

3.16.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

Operation of the Anderson Dam following construction of the Project would involve implementation of the FAHCE rule curves and pulse flows, which would not result in generation of additional noise or vibration sources compared to the existing conditions baseline. Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). Operational stationary noise sources such as an emergency backup generator proposed at the Diversion Control Structure and air release valves at the LLOW Control Structure and gate shaft are compared to the noise environment under baseline conditions.

[3] Noise and vibration impacts were only quantified for the initial placement of gravel, assumed to occur in Year 8. While noise and vibration impacts associated with future gravel augmentation are assumed to be minor, their scale, timing, and duration are speculative and were not quantified.

3.16.3.5 Post-Construction Conservation Measures Operations and Maintenance

Similar to the operation of the Anderson Dam, post-construction operations and maintenance of the conservation measures including Ogier Pond CM and Phase 2 Coyote Percolation Dam CM operations and maintenance, North Channel Reach ~~Extension~~ and Live Oak Restoration Reach maintenance, and the Sediment Augmentation Program maintenance would involve minimal activities requiring noise and vibration generation. Conservation measure maintenance activities would be limited to minor access road repairs, vegetation and sediment management, placement of small amounts (less than 500 cy) of gravel, trash removal, and inspections, all of which would generate minimal noise and vibration. Similar to the post-construction Anderson Dam Facilities maintenance activities, the Phase 2 Coyote Percolation Dam CM facilities would be maintained per Valley Water's existing DMP. Maintenance of Coyote Percolation Dam facilities were previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). No new long-term operational sources generating noise or vibration would be added by the conservation measures. Therefore, operations and maintenance of conservation measures would not result in significant impacts to noise or vibration, and these impacts are not discussed further in this section.

3.16.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because they would result in only minor noise and vibration generating activities.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts of these adaptive actions are not evaluated in the impact analysis because they would result in only minor noise and vibration generating activities.

3.16.3.7 Applicable Best Management Practices and VHP Conditions

No BMPs or VHP conditions are applicable to noise and vibration.

3.16.3.8 Thresholds of Significance

Significance Criteria

For the purposes of this EIR and pursuant to Appendix G of the *CEQA Guidelines*, the Project would result in a significant impact related to noise or vibration if it would lead to:

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, or generate a substantial incremental increase in noise levels

b) Generation of excessive ground-borne vibration or ground-borne 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, exposure of people residing or working in the project area to excessive noise levels

The Project is not located within an airport land use plan and there are no public airports or public use airports within 2 miles of the Project. Additionally, there are no private airstrips within the Project vicinity. The nearest public or public use airport is the San Martin Airport, approximately five miles south of the Project Area. There would be no impact related to criterion c, which is not considered further in the EIR analysis.

Specific Thresholds of Significance

This EIR applies the following noise and vibration thresholds. Some of these thresholds are based on standards in local government noise ordinances since they represent noise levels acceptable to the local community, consistent with *CEQA Guidelines* Appendix G (Question XIII[a]). However, Valley Water is exempt from compliance with the local noise ordinances under either Government Code Secs. 53091(d) or (e) (which state that county or city building and zoning ordinances do not apply to the construction of facilities for water storage or transmission), or for non-building and zoning ordinances, under *Hall v. Taft* (1956) 47 Cal. 2d 177,189 (which holds that water districts are exempt from municipal police power regulation).

Noise

<u>Construction</u>

Development facilitated by the Project could have a significant impact to noise-sensitive receptors in San José and Morgan Hill if temporary construction noise exposed noise-sensitive receivers to significantly adverse noise levels. As neither the City of San José nor the City of Morgan Hill have quantified construction noise limits, for purposes of analyzing impacts from the Project at noise-sensitive receptors located in San José and Morgan Hill, Valley Water has determined that the FTA construction noise criteria are appropriate. The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction in its *Transit and Noise Vibration Impact Assessment Manual*. For residential uses in San José and Morgan Hill, the daytime noise threshold is 80 dBA $L_{eq(8hr)}$ for an 8-hour period. To assess potential nighttime construction noise impacts, recommendations from the USEPA's *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Safety Margin of Safety* is used. Based on available sleep criteria data, an interior nighttime level of 35 dBA is considered acceptable (USEPA 1974). Assuming a 15-dBA reduction with a windows-open condition, an exterior noise level of 50 dBA L_{eq} would be required to maintain an acceptable interior noise environment of 35 dBA. For residential uses in San José and Morgan Hill, the nighttime construction noise threshold is 50 dBA L_{eq}.

For noise-sensitive receptors located in unincorporated Santa Clara County, construction noise impacts would be significant if maximum noise levels from stationary construction equipment noise exceed 60 dBA on weekdays and Saturdays from 7:00 a.m. to 7:00 p.m., and 50 dBA at all other times at single-family residences or if maximum noise levels from stationary construction equipment noise exceed 65 dBA on weekdays and Saturdays from 7:00 a.m. to 7:00 p.m., and 55 dBA at all other times at multi-family residences.

In addition, this EIR uses a threshold of 10 dBA DNL increase above ambient noise levels to assess temporary construction noise impacts at residential receptors.

Finally, per Caltrans recommendations, air overpressure from blasting resulting in noise would be significant if it exceeds 133 dB at a sensitive receptor building (Caltrans 2020).

Operation

Operational stationary source noise is addressed qualitatively since most equipment under the Project would replace equipment existing under baseline conditions. Noise generated by intermittent release of water at the gate shaft during emergency conditions would be located away from nearby sensitive receptors and is addressed qualitatively.

Roadway Vehicle Noise

Construction and Operation

Construction and operational roadway vehicle noise impacts were analyzed using the Envision San José 2040 General Plan (2011) noise standards and the City of Morgan Hill 2035 General Plan (2017 ~~2016~~) noise standards. Roadway vehicle noise impacts would be significant where such noise causes an increase of 5 dBA DNL where ambient noise levels are below 60 dBA DNL or causes an increase of 3 dBA DNL where ambient noise levels are 60 dBA DNL or greater. It should be noted that while the applicability of these traffic noise thresholds may be intended for assessing permanent traffic noise increase impacts, this EIR conservatively applies these thresholds to Project construction traffic noise as well. In lieu of quantified roadway vehicle noise thresholds in the county, the same noise thresholds are applied to sensitive receptors in unincorporated Santa Clara County.

Vibration

Construction and Operation

Criteria from the FTA are used to evaluate potential construction vibration impacts related to potential building damage and indoor human annoyance impacts from construction.

Construction vibration impacts of the project would be significant if vibration levels exceed the FTA criteria for building damage (see **Table 3.16-6** ~~**3.16-32**~~). Construction vibration impacts of the project would be significant if vibration levels exceed the FTA criterion for indoor human annoyance of 72 VdB at sensitive receptors (FTA 2018, see **Table 3.16-7**).

In addition, potential damage to structures from blasting would be significant if vibration levels exceed 0.1884 in/sec PPV at 1 Hz, 0.5 in/sec PPV at 3 Hz to 40 Hz, and 2.0 in/sec PPV at 40 Hz and above (Caltrans 2020).

3.16.4 Impact Analysis

Impact NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, or generation of substantial incremental increase in noise levels **(Significant and Unavoidable)**

Construction

Seismic Retrofit Construction

Onsite Construction Noise

To assess onsite construction noise levels, the activity or activities with the highest total sound levels (sound levels of all equipment for that activity) for each year were selected to represent the maximum noise impact for each year of construction. For similar activities across multiple years (e.g., dam excavation and fill activities from Year 2 through Year 6), the year with the loudest activity was selected. For example, Year 4 and Year 5 are not explicitly called out in the construction noise level tables (**Table 3.16-11** ~~**3.16-10**~~ through **Table 3.16-15** ~~**3.16-14**~~), as noise levels in those years are substantially similar to the noise levels in Year 6 given the similar construction activities. The following construction phases were assessed for Seismic Retrofit construction:

- Year 1, Construction of Haul Roads and Preparation of Stockpile Areas, Begin Tunneling of LLOW
- Year 2, Excavation of Downstream Portal
- Year 3, Excavation and Foundation Preparation of Spillway, Construction of Tie-Back Wall at Cochrane Road
- Year 6, Dam Excavation and Fill
- Year 7, Restoration of Parking Areas and Construction of Permanent Access Roads

Seismic Retrofit construction noise levels are summarized in **Table 3.16-11** ~~**3.16-10**~~ through **Table 3.16-15** ~~**3.16-14**~~ at the closest noise sensitive receptors. Refer to **Figure 3.16-4** for the locations of sensitive receptors near the Seismic Retrofit construction. Two receptors (R-33 and R-34) have been added to represent receptors at Rosendin Park for informational purposes. Because R-33 and R-34 do not represent residences or commercial receptors, significance thresholds have not been assigned.

As shown in **Table 3.16-11** ~~**3.16-10**~~ through **Table 3.16-15** ~~**3.16-14**~~, onsite construction noise levels (DNL) would exceed the 10 dBA increase above ambient threshold at Receptors R-2, R-4, R-5, and R-31 during Year 1; at Receptors R-2, R-4 through R-8, R-31, and R-32 during Year 2; at Receptors R-2 through R-9, R-31, and R-32 during Year 3; at Receptors R-2 through R-8, Receptors R-10 through R-12, R-31, and R-32 during Year 6; and Receptors R-2, R-4 through R-9 ~~R-8~~, R-31, and R-32 during Year 7.[4] Average construction noise levels (L_{eq}) would not exceed the FTA's construction noise daytime threshold of 80 dBA L_{eq}. Receptors R-8, R-9, R-31, and R-32 are located in unincorporated Santa Clara County and would be subject to Santa Clara County's weekday and Saturday daytime construction noise threshold of 60 dBA at residences. Onsite construction noise levels would exceed the Santa Clara County daytime construction noise threshold at Receptors R-8, R-31, and R-32 in Year 1, at Receptor R-8, R-31, and R-32 in Year 2, at Receptors R-8, R-9, R-31, and R-32 in Year 3, at Receptor R-8, R-31, and R-32 in Year 6, and at Receptor R-8, R-31, and R-32 in Year 7. Nighttime construction noise levels would exceed the residential nighttime construction noise threshold of 50 dBA L_{eq} at Receptors R-1 through R-9, R-31, and R-32 in Years 2, 3, and 7; and at each residential receptor in Year 6. Sunday work would exceed the Santa Clara County Sunday residential threshold of 50 dBA at Receptors R-8, R-9, R-31, and R-32 during Years 2, 3, 6, and 7. Therefore, onsite construction noise impacts from construction of the Seismic Retrofit components would be significant at nearby residences.

Recreational users at Anderson Lake County Park, the Rosendin Park Area, and the Live Oak Picnic Area would not be impacted during the times that these areas would be closed to users; however, recreators may be affected when the Rosendin Park Area is open outside of the initial blasting phase during Years 4, 5, or 6 of construction ~~as those areas would be closed to users during construction~~. Users of Rosendin Park would only be near the construction site for a relatively short time since there is no common outdoor use area, and hikers, for example, would not remain stationary. In addition, the County's construction noise limits apply only to residential and commercial properties. Because Rosendin Park is neither and users of the park would not be exposed to excessive construction noise for a substantial period, noise impacts on residential users would be a less-than-significant impact. ~~Therefore, onsite construction noise impacts from construction of the Seismic Retrofit components would be significant~~.

[4] While the modeled Overall with Project DNL values did not change, Receptors R-5, R-6, R-7, and R-9 were erroneously not included in this paragraph in the Partially Recirculated Draft EIR, and is updated here.

Table 3.16-11 ~~3.16-10~~. Seismic Retrofit Construction Noise Levels - Year 1, Construction of Haul Roads and Preparation for Stockpile Areas, Begin Tunnelling of LLOW

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] (dBA DNL)	Threshold of Signifiance[3]	Exceed Threshold (dBA DNL)?	Project Construction, L_{eq} Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Significant Impact?
R-1	61	57	62	71	No	~~62~~ 61/35	80/50	No
R-2	50	68	68	60	Yes	72/34	80/50	No
R-3	61	71	71	71	No	~~72~~ 71/35	80/50	No
R-4	54	69	69	64	Yes	~~75~~ 74/38	80/50	No
R-5	54	66	67	64	Yes	73/39	80/50	No
R-6	54	61	62	64	No	68/41	80/50	No
R-7	54	58	60	64	No	65/42	80/50	No
R-8	49[2]	57 ~~56~~	57	59	No	64/49	60[4]/50	Yes
R-9	49[2]	52 ~~51~~	54 ~~53~~	59	No	58/50	60[4]/50	No
R-10	45	34 32	45	55	No	41/33 ~~31~~	80/50	No
R-11	46	40 33	47 46	56	No	46/43 ~~44/34~~	80/50	No
R-12	48	36 28	48	58	No	42/40 ~~39/<30~~	80/50	No
R-13	50	37 ~~34~~	50	60	No	46/39 ~~45/35~~	80/50	No
R-31	49[2]	59	60	59	Yes	66/42	60[4]/50	Yes
R-32	49[2]	58	58	59	No	64/43	60[4]/50	Yes
R-33	49[2]	55	56	-	-	61/57	-	-
R-34	45	<30	45	-	-	35/<30	-	-

Source: Ramboll. 2024. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project construction plus ambient levels.

[2] Linear interpolation of ambient noise levels at SLM-4 and SLM-5.

[3] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

[4] For noise-sensitive receptors located in unincorporated Santa Clara County, construction noise impacts would be significant if maximum noise levels from stationary construction equipment noise exceed 60 dBA on weekdays and Saturdays during the daytime and 50 dBA during the nighttime and any time on Sunday.

Table 3.16-12 ~~3.16-11~~. Seismic Retrofit Construction Noise Levels - Year 2, Excavation of Downstream Portal

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] (dBA DNL)	Threshold of Significance (dBA DNL)[3]	Exceed Threshold?	Project Construction Noise Level (dBA L_{eq}) Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Significant Impact?
R-1	61	61	64	71	No	62/62	80/50	Yes
R-2	50	70	70	60	Yes	67/67	80/50	Yes
R-3	61	70	71	71	No	67/67	80/50	Yes
R-4	54	71	71	64	Yes	70/70	80/50	Yes
R-5	54	68	68	64	Yes	69/69	80/50	Yes
R-6	54	69	69	64	Yes	70/70	80/50	Yes
R-7	54	68	68	64	Yes	69/69	80/50	Yes
R-8	49[2]	66	66	59	Yes	66/66	60[4]/50	Yes
R-9	49[2]	58	58	59	No	58/58	60[4]/50	Yes
R-10	45	34	45	55	No	35/35	80/50	No
R-11	46	<30	46	56	No	<30/<30	80/50	No
R-12	48	<30	48	58	No	<30/<30	80/50	No
R-13	50	<30	50	60	No	<30/<30	80/50	No
R-31	49[2]	69	69	59	Yes	69/69	60[4]/50	Yes
R-32	49[2]	72	72	59	Yes	74/74	60[4]/50	Yes
R-33	49[2]	57	57	-	-	58/58	-	-
R-34	45	<30	45	-	-	<30/<30	-	-

Source: Ramboll. 2024. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project construction plus ambient levels.

[2] Linear interpolation of ambient noise levels at SLM-4 and SLM-5.

[3] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

[4] For noise-sensitive receptors located in unincorporated Santa Clara County, construction noise impacts would be significant if maximum noise levels from stationary construction equipment noise exceed 60 dBA on weekdays and Saturdays during the daytime and 50 dBA during the nighttime and any time on Sunday.

Table 3.16-13 ~~3.16-12~~. Seismic Retrofit Construction Noise Levels - Year 3, Excavation and Foundation Preparation of Spillway, Construction of Tie-Back Wall at Cochrane Road

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] (dBA DNL)	Threshold of Significance (dBA DNL)[3]	Threshold Exceeded?	Project Construction Noise Level (dBA L_{eq}) Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Significant Impact?
R-1	61	65	66	71	No	66/66	80/50	Yes
R-2	50	71	71	60	Yes	69/69	80/50	Yes
R-3	61	72	72	71	Yes	71/71	80/50	Yes
R-4	54	73	73	64	Yes	72/72	80/50	Yes
R-5	54	73	73	64	Yes	73/73	80/50	Yes
R-6	54	74	74	64	Yes	76/76	80/50	Yes
R-7	54	73	73	64	Yes	74/74	80/50	Yes
R-8	49[2]	73	73	59	Yes	75/75	60[4]/50	Yes
R-9	49[2]	63	63	59	Yes	64/64	60[4]/50	Yes
R-10	45	33	45	55	No	33/33	80/50	No
R-11	46	33	46	56	No	35/35	80/50	No
R-12	48	<30	48	58	No	<30/<30	80/50	No
R-13	50	39	50	60	No	41/41	80/50	No
R-31	49[2]	74	74	59	Yes	75/75	60[4]/50	Yes
R-32	49[2]	77	77	59	Yes	79/79	60[4]/50	Yes
R-33	49[2]	64	64	-	-	66/66	-	-
R-34	45	32	45	-	-	33/33	-	-

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project construction plus ambient levels.

[2] Linear interpolation of ambient noise levels at SLM-4 and SLM-5.

[3] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

[4] For noise-sensitive receptors located in unincorporated Santa Clara County, construction noise impacts would be significant if maximum noise levels from stationary construction equipment noise exceed 60 dBA on weekdays and Saturdays during the daytime and 50 dBA during the nighttime and any time on Sunday.

Table 3.16-14 ~~3.16-13~~. Seismic Retrofit Construction Noise Levels - Year 6, Dam Excavation and Fill

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[3]	Exceed Threshold?	Project Construction, (dBA L_{eq}) Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Exceed Threshold?
R-1	61	63	65	71	No	62/62	80/50	Yes
R-2	50	74	74	60	Yes	72/72	80/50	Yes
R-3	61	78	78	71	Yes	73/73	80/50	Yes
R-4	54	76	76	64	Yes	73/73	80/50	Yes
R-5	54	73	73	64	Yes	73/73	80/50	Yes
R-6	54	69	69	64	Yes	69/69	80/50	Yes
R-7	54	67	67	64	Yes	68/68	80/50	Yes
R-8	49[2]	64	64	59	Yes	65/65	60[4]/50	Yes
R-9	49[2]	59	59	59	No	58/58	60[4]/50	Yes
R-10	45	56	56	55	Yes	56/56	80/50	Yes
R-11	46	58	58	56	Yes	57/57	80/50	Yes
R-12	48	61	62	58	Yes	63/63	80/50	Yes
R-13	50	51	54	60	No	52/52	80/50	Yes
R-31	49[2]	68	68	59	Yes	68/68	60[4]/50	Yes
R-32	49[2]	70	70	59	Yes	72/72	60[4]/50	Yes
R-33	49[2]	67	67	-	-	66/66	-	-
R-34	45	45	47	-	-	43/43	-	-

Source: Ramboll. 2024. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project construction plus ambient levels.

[2] Linear interpolation of ambient noise levels at SLM-4 and SLM-5.

[3] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

[4] For noise-sensitive receptors located in unincorporated Santa Clara County, construction noise impacts would be significant if maximum noise levels from stationary construction equipment noise exceed 60 dBA on weekdays and Saturdays during the daytime and 50 dBA during the nighttime and any time on Sunday.

Table 3.16-15 ~~3.16-14~~. Seismic Retrofit Construction Noise Levels - Year 7, Restoration of Parking Areas and Construction of Permanent Access Roads

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] (dBA DNL)	Threshold of Significance[3]	Exceed Threshold?[4]	Project Construction Noise Level (dBA L_{eq}) Day/Time	Threshold of Significance (dBA L_{eq}) Day/Night	Exceed Threshold?
R-1	61	63	65	71	No	62/62	80/50	Yes
R-2	50	73	73	60	Yes	72/72	80/50	Yes
R-3	61	74	74	71	Yes ~~No~~	73/73 ~~74/74~~	80/50	Yes
R-4	54	74	74	64	Yes	75/75	80/50	Yes
R-5	54	72	72	64	Yes ~~No~~	73/73	80/50	Yes
R-6	54	70	70	64	Yes ~~No~~	70/70	80/50	Yes
R-7	54	68	68	64	Yes ~~No~~	67/67	80/50	Yes
R-8	49[2]	68	68	59	Yes	67/67	60[5]/50	Yes
R-9	49[2]	59	60	59	Yes ~~No~~	58/58	60[5]/50	Yes
R-10	45	33	45	55	No	34/34 ~~33/33~~	80/50	No
R-11	46	<30	46	56	No	<30/<30	80/50	No
R-12	48	<30	48	58	No	<30/<30	80/50	No
R-13	50	35	50	60	No	37/37	80/50	No
R-31	49[2]	69	69	59	Yes	69/69	60[5]/50	Yes
R-32	49[2]	72	72	59	Yes	74/74	60[5]/50	Yes
R-33	49[2]	65	65	-	-	66/66	-	-
R-34	45	32	45	-	-	33/33	-	-

Source: Ramboll. 2024. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project construction plus ambient levels.

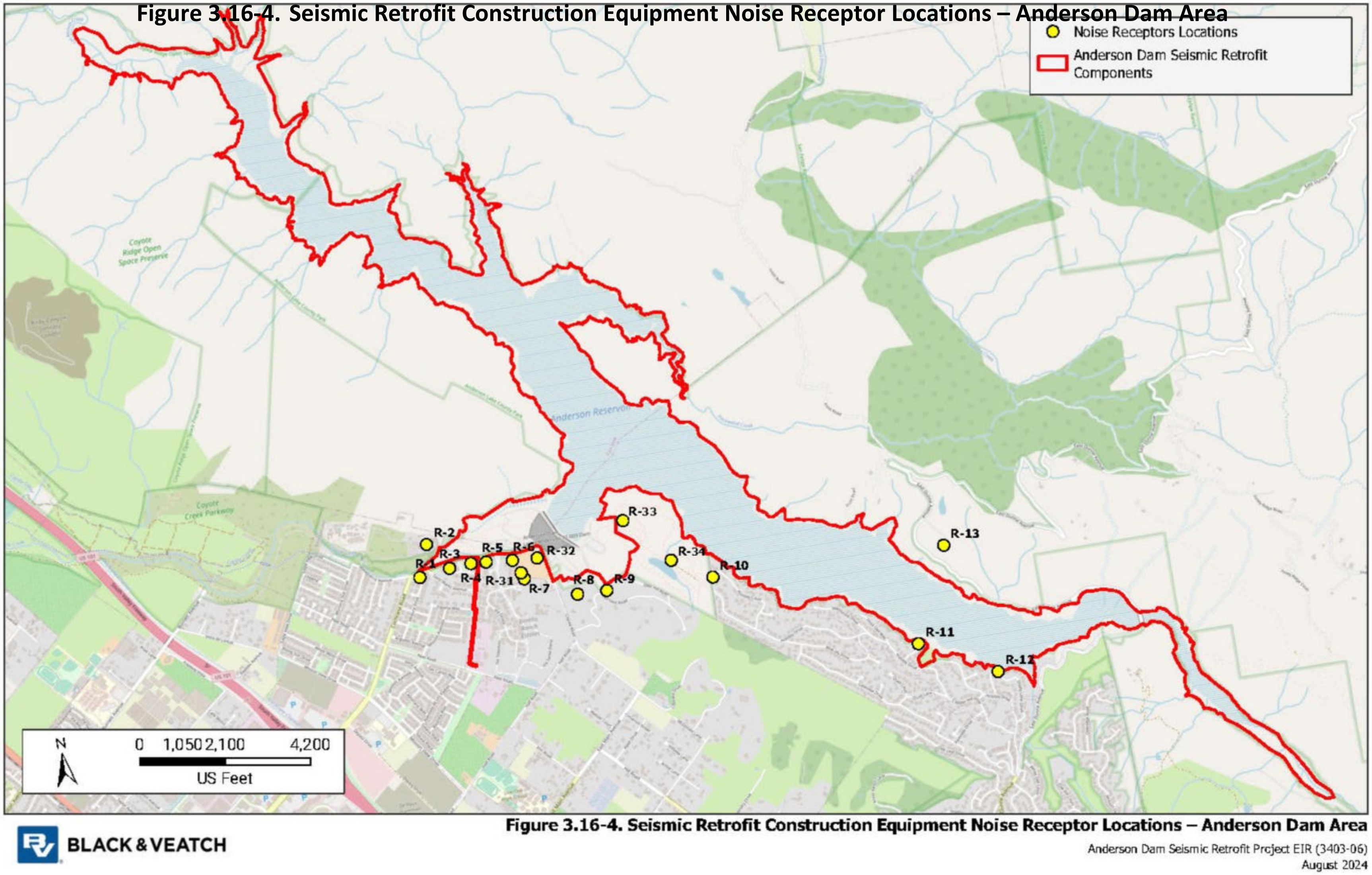
[2] Linear interpolation of ambient noise levels at SLM-4 and SLM-5.

[3] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

[4] While the modeled Overall with Project DNL values did not change, the Exceed Threshold column was erroneously not updated in the Partially Recirculated Draft EIR and is updated here.

[5] For noise-sensitive receptors located in unincorporated Santa Clara County, construction noise impacts would be significant if maximum noise levels from stationary construction equipment noise exceed 60 dBA on weekdays and Saturdays during the daytime and 50 dBA during the nighttime and any time on Sunday.

1 **Figure 3.16-4. Seismic Retrofit Construction Equipment Noise Receptor Locations – Anderson Dam Area**



1

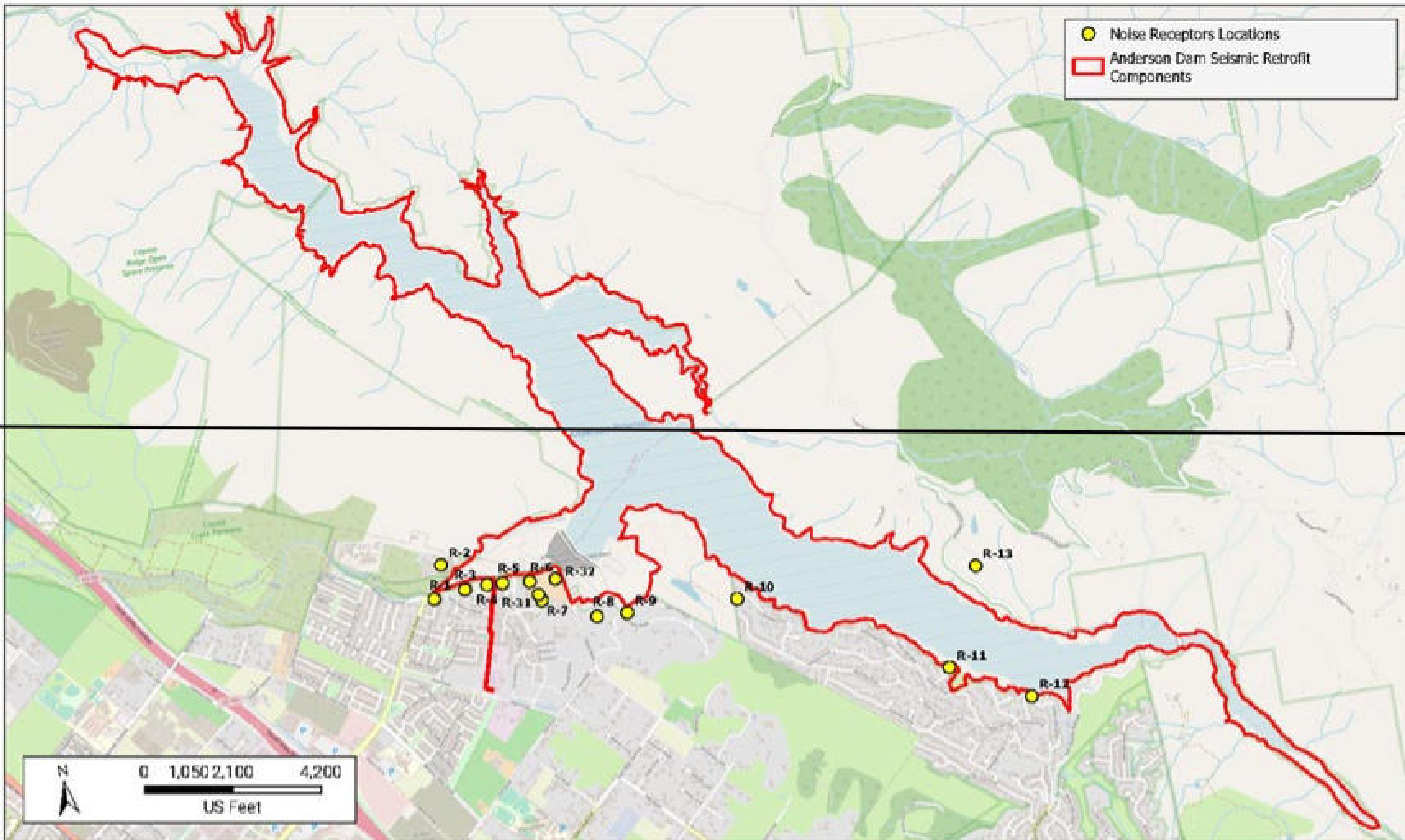


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Figure 3.16-4. Seismic Retrofit Construction Equipment Noise Receptor Locations – Anderson Dam Area

Anderson Dam Seismic Retrofit Project EIR (3400-06)
August 2024

<u>Offsite Construction Noise</u>

Offsite construction noise sources would consist of daily truck deliveries of rocks, aggregate, and soil to the Project Area, shuttle bus trips for workers between Staging Area 5 and Staging Area 4, and worker vehicle trips to and from staging areas. An approximately 0.8-miles section of Cochrane Road between Malaguerra Avenue and Coyote Road would be fully or partially closed to through traffic during construction. Vehicles would be routed through a detour along Peet Road, Half Road, Elm Road, and East Main Road. Noise-sensitive receptors consist of residences near these roadway segments. Delivery of materials to the Project Area is limited to the hours of 7:00 a.m. to 8:00 p.m.

The estimated offsite construction noise levels for Years 1, 3, and 6 are provided in **Table 3.16-16** **~~3.16-15~~** through **Table <u>3.16-18</u>** **~~3.16-17~~** These years were chosen as Year 1 represents typical daytime truck activity, Year 3 represents greatest nighttime worker activity (worker vehicle and shuttle bus trips), and Year 6 represents greatest daytime and nighttime truck activity. <u>A detailed description of the various truck routes for each phase of construction can be found in Chapter 2, *Project Description*.</u>

As shown in **Table <u>3.16-16</u>** **~~3.16-15~~**through **Table <u>3.16-18</u>** **~~3.16-17~~,** offsite construction noise levels would exceed the 5 dBA increase above ambient threshold along Route 1b and Route 3. Therefore, offsite construction noise levels would be significant.

<u>Overall Construction Noise</u>

Implementation of **Mitigation Measures NOI-1 and NOI-2** would reduce construction noise impacts. **Mitigation Measure NOI-1**, described below, will require Valley Water to implement a Construction Management Plan, which would require prior notice of construction activities to nearby sensitive receptors, proper maintenance of all construction equipment, equipping all construction equipment with mufflers and air intake silencers, locating staging and delivery areas as far from sensitive receptors as is feasible, enclosing stationary noise sources in temporary sheds, restricting the use of bells, whistles, alarms, and horns, and posting signs at construction area entrances to reinforce the prohibition of unnecessary idling. **Mitigation Measure NOI-2**, described below, is specific to Seismic Retrofit construction and would require the installation of a temporary noise barrier, limiting of construction activity at Staging Area 1 ~~and Stockpile Area E~~ within 300 feet of <u>nearby residences</u> ~~Receptor R-2 and residences across Cochrane Road~~, reducing the noise levels generated by track drill rigs to 86 dBA at 50 feet, posting a sign 10 days prior to the start of nighttime construction that details Project construction and provides a noise complaint phone number, and conducting construction noise monitoring during periods of nighttime construction work. **Mitigation Measure NOI-2** will also reduce offsite construction noise levels by reducing speeds along haul routes and routing truck traffic and worker vehicles along Route 1a instead of Route 1b.

Implementation of **Mitigation Measures NOI-1 and NOI-2** will reduce Seismic Retrofit construction noise levels by up to approximately 15 dBA (Bies, Hansen, and Howard 2018, Harris 1991). Therefore, **Mitigation Measures NOI-1 and NOI-2** will reduce nighttime construction noise to approximately 64 dBA L_{eq} or less. Seismic Retrofit construction noise could still exceed the nighttime construction noise threshold of 50 dBA L_{eq} even with implementation of **Mitigation Measures NOI-1 and NOI-2.** Therefore, Seismic Retrofit construction noise impacts will be significant and unavoidable.

Table 3.16-16 ~~3.16-15~~. Offsite Seismic Retrofit Construction Road Noise at 50 feet, Year 1

Route	Road Segment	Existing Traffic Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[4]	Exceed Threshold?
1a – Trucks and Worker Vehicles	Cochrane Road – US 101 to Peet[2]	58	58	63	No
	Cochrane Road – Peet to Curve	57	57	62	No
	Cochrane Road – Malaguerra Curve to Staging Area 1	51	48	56	No
1b – Trucks and Worker Vehicles	Peet – Cochrane Road to Half Rd	47	52	52	No
	Half Rd – Peet to Cochrane Road	36	49	41	Yes
	Cochrane Road – Half Road to Staging Area 4	45	51[3]	50	Yes
2 – Worker Vehicles to Staging Area 5	East Dunne Avenue – US 101 to Hill Road	61	62	64	No
	Hill Road – East Dunne Avenue to San Pedro Avenue	56	56	61	No
3 – Shuttle Bus Route from Staging Area 5 to Staging Area 4	Hill Road – Diana Avenue to San Pedro Avenue	56	56	61	No
	Hill Road – East Main Ave to Diana Avenue	55	55	60	No
	East Main Avenue – Hill Road to Cochrane Road	45	49	50	No
	Cochrane Road – East Main Avenue to Half Road	45	49	50	No

Source: Ramboll. 2024. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the cumulative level of Project Traffic plus Non-Project Traffic.

[2] This road segment is shared with Route 1b.

[3] Includes traffic noise from Project shuttle buses.

[4] Roadway vehicle noise impacts would be significant where such noise causes an increase of 5 dBA DNL where ambient noise levels are below 60 dBA DNL or causes an increase of 3 dBA DNL where ambient noise levels are 60 dBA DNL or greater.

Table 3.16-17 ~~3.16-16~~ Offsite Seismic Retrofit Construction Road Noise at 50 feet, Year 3

Route	Road Segment	Existing Traffic Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[4]	Exceed Threshold?
1a – Trucks and Worker Vehicles	Cochrane Road – US 101 to Peet[2]	58	59	63	No
	Cochrane Road – Peet to Curve	57	57	62	No
	Cochrane Road – Malaguerra Curve to Staging Area 1	51	53	56	No
1b – Trucks and Worker Vehicles	Peet – Cochrane Road to Half Road	47	53	52	Yes
	Half Road – Peet to Cochrane Road	36	48	41	Yes
	Cochrane Road – Half Road to Staging Area 4	45	54[3]	50	Yes
2 – Worker Vehicles to Staging Area 5	East Dunne Avenue – US 101 to Hill Road	61	62	64	No
	Hill Road – East Dunne Avenue to San Pedro Ave	56	58	61	No
3 – Shuttle Bus Route from Staging Area 5 to Staging Area 4	Hill Road – Diana Avenue to San Pedro Avenue	56	57	61	No
	Hill Road – East Main Avenue to Diana Ave	55	56	60	No
	East Main Avenue – Hill Road to Cochrane Road	45	52	50	Yes
	Cochrane Road – East Main Avenue to Half Road	45	52	50	Yes

Source: Ramboll. 2024. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the cumulative level of Project Traffic plus Non-Project Traffic.

[2] This road segment is shared with Route 1b.

[3] Includes traffic noise from Project shuttle buses.

[4] Roadway vehicle noise impacts would be significant where such noise causes an increase of 5 dBA DNL where ambient noise levels are below 60 dBA DNL or causes an increase of 3 dBA DNL where ambient noise levels are 60 dBA DNL or greater.

Table 3.16-18 ~~3.16-17~~. Offsite Seismic Retrofit Construction Road Noise at 50 feet, Year 6

Route	Road Segment	Existing Traffic Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[4]	Exceed Threshold?
1a – Trucks and Worker Vehicles	Cochrane Road – US 101 to Peet[2]	58	59	63	No
	Cochrane Road – Peet to Curve	57	58	62	No
	Cochrane Road – Malaguerra Curve to Staging Area 1	51	53	56	No
1b – Trucks and Worker Vehicles	Peet – Cochrane Road to Half Road	47	54	52	Yes
	Half Road – Peet to Cochrane Road	36	49	41	Yes
	Cochrane Road – Half Road to Staging Area 4	45	54[3]	50	Yes
2 – Worker Vehicles to Staging Area 5	East Dunne Avenue – US 101 to Hill Road	61	62	64	No
	Hill Road – East Dunne Avenue to San Pedro Ave	56	57	61	No
3 – Shuttle Bus Route from Staging Area 5 to Staging Area 4	Hill Road – Diana Avenue to San Pedro Ave	56	57	61	No
	Hill Road – East Main Avenue to Diana Ave	55	56	60	No
	East Main Avenue – Hill Road to Cochrane Rd	45	51	50	Yes
	Cochrane Road – East Main Avenue to Half Road	45	51	50	Yes

Source: Ramboll. 2024. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the cumulative level of Project Traffic plus Non-Project Traffic.

[2] This road segment is shared with Route 1b.

[3] Includes traffic noise from Project shuttle buses.

[4] Roadway vehicle noise impacts would be significant where such noise causes an increase of 5 dBA DNL where ambient noise levels are below 60 dBA DNL or causes an increase of 3 dBA DNL where ambient noise levels are 60 dBA DNL or greater.

Conservation Measures Construction

Ogier Ponds CM

Onsite Construction Noise

To assess onsite construction noise levels, several phases were selected based on total sound levels, number of pieces of equipment, and proximity to noise-sensitive receptors in order to represent phases of greatest activity. The following phases were assessed:

- Construction of the Haul Roads and Preparation of Stockpile Areas (Year 6 ~~1~~)
- Dewater Pond 1 (Year 6 ~~1~~)
- Pond 1 Fill Borrow Hill Excavation (Year 6 ~~1~~)
- Pond 1 Fill Import from Basalt Hill Excavation (Year 6 ~~1~~)
- Spillway (Year 8 ~~2~~)

Recreational users along Coyote Creek Trail would be exposed to Ogier Ponds CM construction noise. The Coyote Creek Trail is within the Ogier Ponds CM Project Area and trail users would be exposed to noise associated with most construction activities during the 3-year construction period~~, including material hauling across the trail~~. Users of the trail would only be near the construction site for a relatively short time since there are no common outdoor use areas, and they are not expected to remain stationary for extended periods of time. The impact to trail users would be less than significant.

Ogier Ponds CM onsite construction noise levels are summarized in **Table 3.16-19** ~~**3.16-18**~~ through **Table 3.16-23** ~~**3.16-22**~~ and sensitive receptors are included in **Figure 3.16-5**. As shown in **Table 3.16-19** ~~**3.16-18**~~ through **Table 3.16-23** ~~**3.16-22**~~, onsite construction noise levels (DNL) would not exceed the 10 dBA increase above ambient threshold ~~at Receptors R-18 through R-20 during the spillway construction phase. Construction noise levels during all other modeled construction phases would not exceed the 10 dBA increase above ambient threshold~~. Average construction noise levels (L_{eq}) at receptors not located in unincorporated Santa Clara County would not exceed the FTA's construction noise daytime threshold of 80 dBA L_{eq}. Nighttime construction would not occur during Ogier Ponds CM construction and, thus, the nighttime construction noise threshold of 50 dBA L_{eq} would not be exceeded. Receptors R-8, R-9, and R-20 are located in unincorporated Santa Clara County and would be subject to Santa Clara County's weekday and Saturday daytime construction noise threshold of 60 dBA. Onsite construction noise levels would exceed the applicable Santa Clara County construction noise threshold at Receptor R-8 ~~R-9~~ during the pond 1 fill borrow hill ~~import from Basalt Hill~~ excavation construction phase and at Receptor R-20 during the construction of haul roads and preparation of stockpile areas, dewatering of pond 1, pond 1 fill import from Basalt Hill excavation, and spillway construction phases. Therefore, onsite construction noise impacts from construction of the Ogier Ponds CM would be significant.

Table 3.16-19 ~~3.16-18~~. Ogier Ponds Conservation Measure Construction Noise Levels - Construction of Haul Roads and Preparation of Stockpile Areas

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] (dBA DNL)	Threshold of Significance[2]	Exceed Threshold?	Project Construction Noise Level (dBA L_{eq}) Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Exceed Threshold?
R-14	57	49	58	67	No	57/-	80/50	No
R-15	57	59	61	67	No	67 66/-	80/50	No
R-16	57	64 ~~65~~	65 ~~66~~	67	No	~~73~~ 72/-	80/~~50~~	No
R-17	57	63	64	67	No	71/-	80/50	No
R-18	57	64 ~~64~~	64	67	No	71/	80/~~50~~	No
R-19	57	62	63	67	No	70/-	80/50	No
R-20	57	62	63	67	No	69/-	60[3]/50	Yes

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1]Overall with Project is the combined level of Project construction plus ambient levels.

[2] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

[3] For noise-sensitive receptors located in unincorporated Santa Clara County, construction noise impacts would be significant if maximum noise levels from stationary construction equipment noise exceed 60 dBA on weekdays and Saturdays during the daytime and 50 dBA during the nighttime.

Table 3.16-20 ~~3.16-19~~. Ogier Ponds Conservation Measure Construction Noise Levels - Dewater Pond 1

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance[2]	Exceed Threshold?[2]	Project Construction Noise Level (dBA L_{eq}) Day/Time	Significance Threshold (dBA L_{eq}) Day/Night	Exceed Threshold?
R-14	57	44	57	67	No	51/-	80/50	No
R-15	57	48	57	67	No	55/-	80/50	No
R-16	57	52	58	67	No	59/-	80/50	No
R-17	57	55	59	67	No	62/-	80/50	No
R-18	57	58	61	67	No	65/-	80/50	No
R-19	57	63	64	67	No	70/-	80/50	No
R-20	57	64	65	67	No	71/-	60[3]/50	Yes

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1]Overall with Project is the combined level of Project construction plus ambient levels.

[2] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

[3] For noise-sensitive receptors located in unincorporated Santa Clara County, construction noise impacts would be significant if maximum noise levels from stationary construction equipment noise exceed 60 dBA on weekdays and Saturdays during the daytime and 50 dBA during the nighttime.

Table 3.16-21 ~~3.16-20~~. Ogier Ponds Conservation Measure Construction Noise Levels - Pond 1 Fill Borrow Hill Excavation

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance[2]	Significant Impact?	Project Construction Noise Level (dBA Leq) Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Exceed Threshold?
R-5	54	51	56	64	No	57/-	80/50	No
R-6	54	54	57	64	No	59/-	80/50	No
R-7	54	56	58	64	No	61/-	80/50	No
R-8	49	58	58	59	No	62/-	60[3]/50	Yes
R-9	49	50	52	59	No	56/-	60[3]/50	No

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1]Overall with Project is the combined level of Project construction plus ambient levels.

[2] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

[3] For noise-sensitive receptors located in unincorporated Santa Clara County, construction noise impacts would be significant if maximum noise levels from stationary construction equipment noise exceed 60 dBA on weekdays and Saturdays during the daytime and 50 dBA during the nighttime.

Table 3.16-22 ~~3.16-21~~. Ogier Ponds Conservation Measure Construction Noise Levels - Pond 1 Fill Import from Basalt Hill Excavation

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBADNL)	Threshold of Significance[2]	Exceed Threshold?	Project Construction Noise Level (dBA L_{eq}) Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Exceed Threshold?
R-14	57	45	57	67	No	52/-	80/50	No
R-15	57	55	59	67	No	~~63~~ 63/-	80/50	No
R-16	57	59 ~~58~~	61	67	No	~~66~~ 67/-	80/50	No
R-17	57	62 57	63 60	67	No	64 69/-	80/50	No
R-18	57	62 59	63 ~~61~~	67	No	67 69/-	80/50	No
R-19	57	62 61	63 ~~62~~	67	No	68 69/-	80/50	No
R-20	57	67 66	67	67	No	74/-	60[3]/50	Yes

Source: Ramboll. 2024. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project construction plus ambient levels.

[2] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

[3] For noise-sensitive receptors located in unincorporated Santa Clara County, construction noise impacts would be significant if maximum noise levels from stationary construction equipment noise exceed 60 dBA on weekdays and Saturdays during the daytime and 50 dBA during the nighttime.

Table 3.16-23 ~~3.16-22~~. Ogier Ponds Conservation Measure Construction Noise Levels - Spillway

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBADNL)	Threshold of Significance[2]	Exceed Threshold?	Project Construction Noise Level (dBA L_{eq}) Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Exceed Threshold?
R-14	57	40 ~~54~~	57 ~~59~~	67	No	48/-	80/50	No
R-15	57	52 ~~58~~	58 ~~61~~	67	No	~~60~~ 61/-	80/50	No
R-16	57	57 ~~62~~	60 ~~63~~	67	No	~~-6~~5/-	80/50	No
R-17	57	61 ~~66~~	62 ~~66~~	67	No	~~-6~~9/-	80/50	No
R-18	57	63 ~~69~~	64 ~~69~~	67	No ~~Yes~~	72 73/-	80/~~50~~	No
R-19	57	66 ~~74~~	66 ~~74~~	67	No ~~Yes~~	~~-7~~5/-	80/50	No
R-20	57	60 ~~74~~	62 ~~74~~	67	No ~~Yes~~	70/-	60[3]~~/50~~	Yes

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

1 Overall with Project is the combined level of Project construction plus ambient levels.

2 A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

3 For noise-sensitive receptors located in unincorporated Santa Clara County, construction noise impacts would be significant if maximum noise levels from stationary construction equipment noise exceed 60 dBA on weekdays and Saturdays during the daytime and 50 dBA during the nighttime.

Figure 3.16-5. Seismic Retrofit Construction Equipment Noise Receptor Locations – Ogier Ponds Conservation Measure

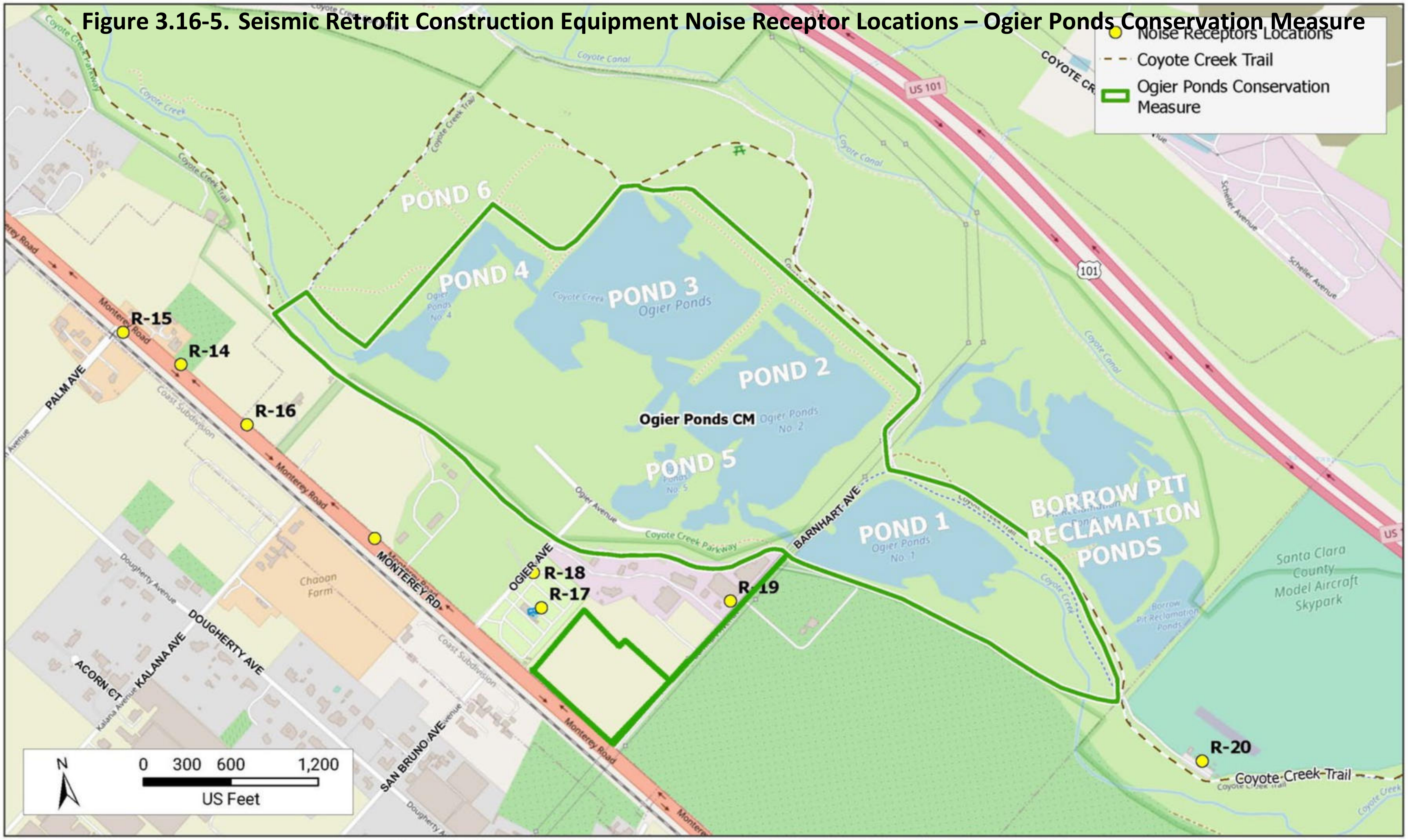
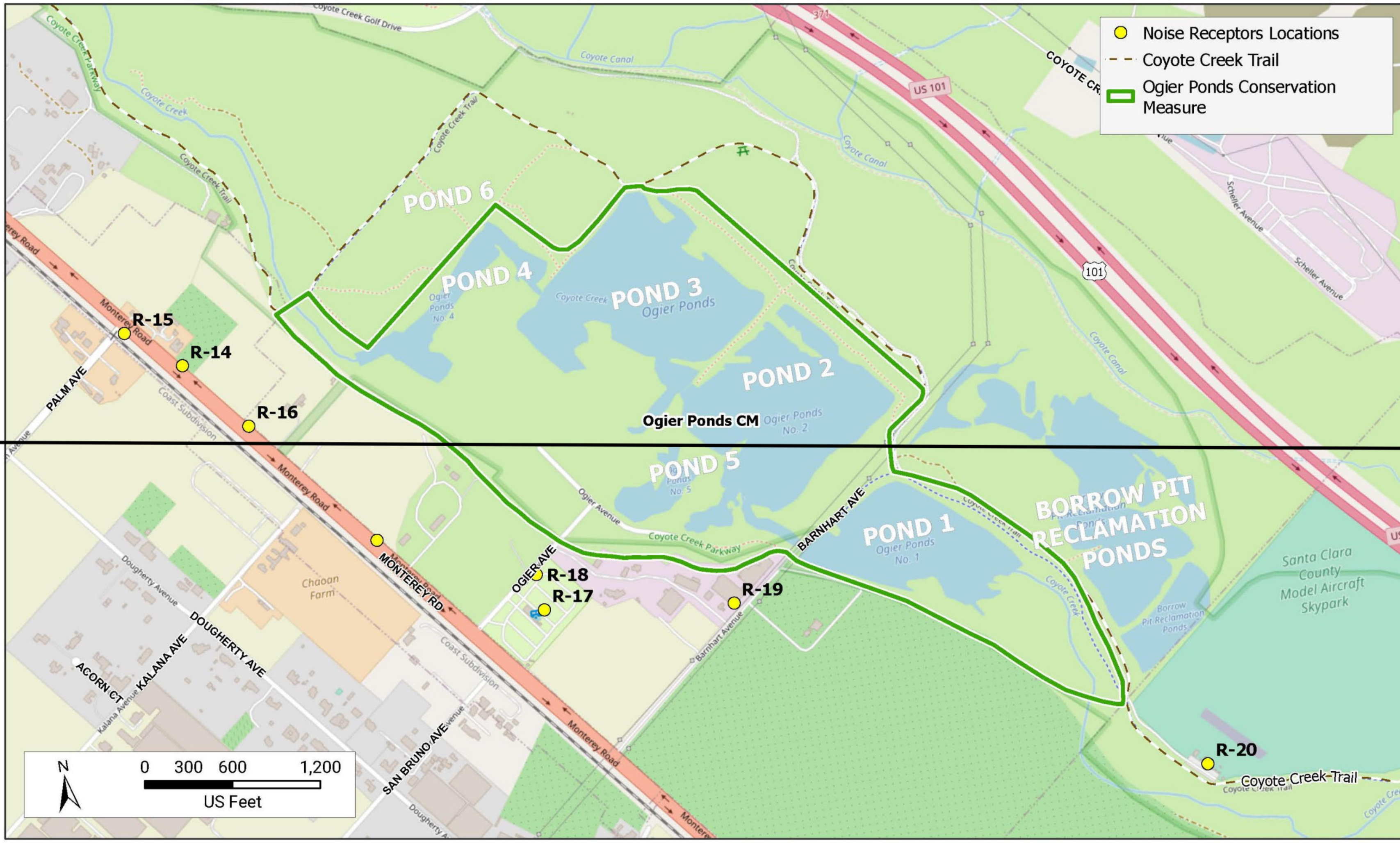


Figure 3.16-5. Seismic Retrofit Construction Equipment Noise Receptor Locations – Ogier Ponds Conservation Measure

BLACK & VEATCH

Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023



BLACK & VEATCH

Figure 3.16-5. Seismic Retrofit Construction Equipment Noise Receptor Locations – Ogier Ponds Conservation Measure
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

Offsite Construction Noise

Offsite construction noise sources would consist of daily truck deliveries of rocks, aggregate, and soil to the Ogier Ponds CM Project Area from the BHBA, in addition to worker vehicles traveling to and from the Ogier Ponds CM Project Area.

The estimated offsite construction noise levels for Pond 1 Fill – Borrow Hill Excavation in Year 6, Pond 1 Fill Import – Basalt Hill Excavation in Year 6, and Import of materials from Holiday Lakes Estates Bench Excavation in Year 7 are provided in **Table 3.16-24 ~~3.16-23~~** through **Table 3.16-26 ~~3.16-25.~~** The other phases of Ogier Ponds CM construction would result in fewer than one truck delivery per hour on average, which would not result in an increase in offsite construction noise levels.

As shown in **Table 3.16-24 ~~3.16-23~~** through **Table 3.16-26 ~~3.16-25~~**, offsite construction noise levels would not exceed the 5 dBA increase above ambient threshold ~~along Cochrane Road between Staging Area 1 to Peet Road during Pond 1 Fill in Year 6~~. Therefore, offsite construction noise levels would be less than significant.

Overall Construction Noise

Implementation of **Mitigation Measures NOI-1 and NOI-3** would reduce construction noise impacts. **Mitigation Measure NOI-1,** described below, will require Valley Water to implement a Construction Management Plan, which would require prior notice of construction activities to nearby sensitive receptors, proper maintenance of all construction equipment, equipping all construction equipment with mufflers and air intake silencers, locating staging and delivery areas as far from sensitive receptors as is feasible, enclosing stationary noise sources in temporary sheds, restricting the use of bells, whistles, alarms, and horns, and posting signs at construction area entrances to reinforce the prohibition of unnecessary idling. **Mitigation Measure NOI-3**, described below, is specific to Ogier Ponds CM construction and will require the installation of a temporary noise barrier ~~and the reduction of truck and vehicle speeds along Cochrane Road~~.

Implementation of **Mitigation Measures NOI-1 and NOI-3** will reduce Ogier Ponds CM onsite construction noise levels by 15 dBA, which would result in construction noise levels below the applicable thresholds of significance. ~~However, offsite construction noise levels would still exceed the 5 dBA increase above ambient threshold~~. Therefore, Ogier Ponds CM construction noise impacts would be less than significant with mitigation ~~and unavoidable~~.

Table 3.16-24 ~~3.16-23~~. Ogier Ponds Conservation Measure Offsite Construction Road Noise at 50 feet, Year 6, Pond 1 Fill – Borrow Hill Excavation

Road Segment[2]	Existing Traffic Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[3]	Exceed Threshold?
Cochrane Road – Staging Area 1 to Malaguerra	51	58 ~~63~~	56	Yes
Cochrane Road – Malaguerra to Peet Road	57	60 ~~63~~	62	No Yea

Road Segment[2]	Existing Traffic Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[3]	Exceed Threshold?
Cochrane Road – Peet Road to US 101	58	60 ~~63~~	63	No
Cochrane Road – US 101 to Monterey Highway	63	64 ~~66~~	66	No
Monterey Highway – Cochrane Rd to Barnhart Avenue	64	65 ~~67~~	67	No

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project Traffic plus Non-Project Traffic.

[2] Traffic data for Barnhart Avenue is not available and therefore is not included.

[3] Roadway vehicle noise impacts would be significant where such noise causes an increase of 5 dBA DNL where ambient noise levels are below 60 dBA DNL or causes an increase of 3 dBA DNL where ambient noise levels are 60 dBA DNL or greater.

Table 3.16-25 ~~3.16-24~~. Ogier Ponds Conservation Measure Offsite Construction Road Noise at 50 feet, Year 6, Pond 1 Fill – Import for Basalt Hill Excavation

Road Segment[2]	Existing Traffic Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[3]	Exceed Threshold?
Cochrane Road – Staging Area 1 to Malaguerra	51	55 ~~60~~	56	No Yes
Cochrane Road – Malaguerra to Peet Road	57	59 ~~61~~	62	No
Cochrane Road – Peet Road to US 101	58	59 ~~61~~	63	No
Cochrane Road – US 101 to Monterey Highway	63	64 ~~65~~	66	No
Monterey Highway – Cochrane Road to Barnhart Avenue	64	65 ~~66~~	67	No

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project Traffic plus Non-Project Traffic.

[2] Traffic data for Barnhart Avenue is not available and therefore is not included.

[3] Roadway vehicle noise impacts would be significant where such noise causes an increase of 5 dBA DNL where ambient noise levels are below 60 dBA DNL or causes an increase of 3 dBA DNL where ambient noise levels are 60 dBA DNL or greater.

Table 3.16-26 ~~3.16-25~~. Ogier Ponds Conservation Measure Offsite Construction Road Noise at 50 feet, Year 7, Import and Sort Creek Materials from Bench Excavation

Road Segment[2]	Existing Traffic Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[3]	Threshold Exceeded?
Cochrane Road – Staging Area 1 to Malaguerra	51	54 ~~56~~	56	No
Cochrane Road – Malaguerra to Peet Road	57	58 ~~59~~	62	No
Cochrane Road – Peet Road to US 101	58	59	63	No
Cochrane Road – US 101 to Monterey Highway	63	63 ~~64~~	66	No
Monterey Highway – Cochrane Rd to Barnhart Avenue	64	64 ~~65~~	67	No

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project Traffic plus Non-Project Traffic.

[2] Traffic data for Barnhart Avenue is not available.

[3] Roadway vehicle noise impacts would be significant where such noise causes an increase of 5 dBA DNL where ambient noise levels are below 60 dBA DNL or causes an increase of 3 dBA DNL where ambient noise levels are 60 dBA DNL or greater.

~~North Channel Extension~~

~~Work on the North Channel Extension would be downstream of the existing Anderson Dam outlet structure. Construction equipment used for the North Channel Extension would include a bulldozer, motor grader, excavator, loader, dump truck, water truck, pumps, and supporting vehicles. The work would coincide with Year 1 and Year 7 of the Seismic Retrofit construction and would be significantly smaller in scale. As a result, the noise analysis for the Seismic Retrofit construction would also apply to the North Channel Extension. Therefore, no additional noise analysis has been conducted specific to the North Channel Extension~~.

Sediment Augmentation Program

Onsite Construction Noise

Recreational users along Coyote Creek Trail would be exposed to Sediment Augmentation Program construction noise. The Coyote Creek Trail is within the Sediment Augmentation Program Project Area and trail users would be exposed to noise associated with construction activities. Users of the trail would only be near the construction site for a relatively short time since there are no common outdoor use areas, and they are not expected to remain stationary for extended periods of time. The impact to trail users would be less than significant.

Sediment Augmentation Program construction noise levels are summarized in **Table 3.16-27 ~~3.16-26~~** and sensitive receptors are included in **Figure 3.16-6.** As shown in **Table 3.16-27 ~~3.16-26 through Table 3.16-28~~** , average construction noise levels (L_{eq}) would not exceed the FTA's construction noise daytime threshold of 80 dBA L_{eq}. Nighttime construction would not occur during Sediment Augmentation Program construction and, thus, the nighttime construction noise threshold of 50 dBA L_{eq} would not be exceeded. However, onsite construction noise levels (DNL) would exceed the 10 dBA increase above ambient threshold at Receptor R-2 ~~during construction of haul roads and preparation of stockpile areas~~. Therefore, onsite construction noise impacts from construction of the Sediment Augmentation Program would be significant.

Offsite Construction Noise

Haul trips and worker trips related to construction of the Sediment Augmentation Program would be minimal. Therefore, offsite construction noise impacts related to the Sediment Augmentation Program would be less than significant.

Overall Construction Noise

Implementation of **Mitigation Measure NOI-1** would reduce on-site construction noise impacts. **Mitigation Measure NOI-1**, described below, will require Valley Water to implement construction noise BMPs, which would require prior notice of construction activities to nearby sensitive receptors, proper maintenance of all construction equipment, equipping all construction equipment with mufflers and air intake silencers, locating staging and delivery areas as far from sensitive receptors as is feasible, enclosing stationary noise sources in temporary sheds, restricting the use of bells, whistles, alarms, and horns, and posting signs at construction area entrances to reinforce the prohibition of unnecessary idling.

Implementation of **Mitigation Measure NOI-1** will reduce Sediment Augmentation Program construction noise; however, construction noise levels would still exceed applicable thresholds of significance. Therefore, Sediment Augmentation Program construction noise impacts would be significant and unavoidable.

Table 3.16-27 ~~3.16-26~~. Sediment Augmentation Program Construction Equipment Noise Level Predictions, Activity Near Cochrane Road and Malaguerra Ave ~~Sediment Augmentation Program Construction Noise Levels - Haul Roads and Preparation of Stockpile Areas~~

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[2]	Exceed Threshold?	Project Construction Noise Level (dBA L_{eq}) Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Exceed Threshold?
~~R-3~~	~~61~~		~~65~~	~~71~~	No	~~71/-~~	~~80/50~~	~~No~~
~~R-2~~	~~50~~	67	~~67~~	~~60~~	Yes	~~75/-~~	~~80/50~~	~~No~~
~~R-1~~	~~61~~	~~55~~	~~62~~	~~71~~	~~No~~	~~64/-~~	~~80/50~~	~~No~~
R~~-26~~	~~50~~	58	~~59~~	~~60~~	No	~~68/-~~	~~80/50~~	~~No~~
R~~-27~~	~~50~~	56	~~57~~	~~60~~	No	~~66/-~~	~~80/50~~	~~No~~
~~R-28~~	~~57~~	~~55~~	~~59~~	~~67~~	~~No~~	~~64/-~~	~~80/50~~	~~No~~
R~~-29~~	~~57~~	49	~~58~~	~~67~~	No	~~59/-~~	~~80/50~~	~~No~~
R~~-30~~	~~57~~	41	~~57~~	~~67~~	No	~~50/-~~	~~80/50~~	~~No~~
~~R-18~~	~~57~~	~~26~~	~~57~~	~~67~~	~~No~~	~~35/-~~	~~80/50~~	~~No~~
R~~-17~~	~~57~~	~~25~~	~~57~~	~~67~~	~~No~~	~~34/-~~	~~80/50~~	~~No~~
~~R-16~~	~~57~~	~~22~~	~~57~~	~~67~~	~~No~~	~~30/-~~	~~80/50~~	~~No~~
R-3	61	61	~~64~~	71	No	64/-	80/50	~~No~~
R-2	50	~~67~~	~~67~~	60	~~Yes~~	70/-	80/50	~~No~~
R-1	61	55	~~62~~	71	No	58/-	80/50	~~No~~
R-26	50	55	~~56~~	60	No	62/-	80/50	~~No~~
R-27	50	53	~~55~~	60	No	59/-	80/50	~~No~~
R-28	57	52	~~58~~	67	No	59/-	80/50	~~No~~
R-29	57	~~45~~	~~57~~	67	~~No~~	52/-	80/50	~~No~~
R-30	57	~~<30~~	~~57~~	67	~~No~~	35/-	80/50	~~No~~
R-18	57	<30	~~57~~	67	No	<30/-	80/50	~~No~~

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[2]	Exceed Threshold?	Project Construction Noise Level (dBA L_{eq}) Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Exceed Threshold?
R-17	57	<30	57	67	No	<30/-	80/50	No
R-16	57	<30	57	67	No	<30/-	80/50	No

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project construction plus ambient levels.

[2] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

~~Table 3.16-27 Sediment Augmentation Program Construction Noise Levels - Creek Bypass~~

~~Noise-Sensitive Receptor~~	~~Ambient Noise Level (dBA DNL)~~	~~Project Construction Noise Level (dBA DNL)~~	~~Overall with Project[1] Noise Level (dBA DNL)~~	~~Threshold of Significance (dBA DNL)[2]~~	~~Exceed Threshold?~~	~~Project Construction Noise Level (dBA L_{eq}) Day/Night~~	~~Threshold of Significance (dBA L_{eq}) Day/Night~~	~~Exceed Threshold?~~
~~R-3~~	~~61~~	~~31~~	~~61~~	~~71~~	~~No~~	~~40/-~~	~~80/50~~	~~No~~
~~R-2~~	~~50~~	~~33~~	~~50~~	~~60~~	~~No~~	~~41/-~~	~~80/50~~	~~No~~
~~R-1~~	~~61~~	~~35~~	~~61~~	~~71~~	~~No~~	~~44/-~~	~~80/50~~	~~No~~
~~R-26~~	~~50~~	~~45~~	~~51~~	~~60~~	~~No~~	~~54/-~~	~~80/50~~	~~No~~
~~R-27~~	~~50~~	~~45~~	~~51~~	~~60~~	~~No~~	~~53/-~~	~~80/50~~	~~No~~
~~R-28~~	~~57~~	~~52~~	~~58~~	~~67~~	~~No~~	~~60/-~~	~~80/50~~	~~No~~
~~R-29~~	~~57~~	~~53~~	~~58~~	~~67~~	~~No~~	~~62/-~~	~~80/50~~	~~No~~
~~R-30~~	~~57~~	~~45~~	~~57~~	~~67~~	~~No~~	~~54/-~~	~~80/50~~	~~No~~
~~R-18~~	~~57~~	~~57~~	~~60~~	~~67~~	~~No~~	~~64/-~~	~~80/50~~	~~No~~
~~R-17~~	~~57~~	~~53~~	~~58~~	~~67~~	~~No~~	~~40/-~~	~~80/50~~	~~No~~
~~R-16~~	~~57~~	~~56~~	~~60~~	~~67~~	~~No~~	~~60/-~~	~~80/50~~	~~No~~

~~Source: Ramboll. 2023. Anderson Dam Seismic Retrofit Project Noise & Vibration Impact Assessment~~

~~Notes:~~

~~[1] Overall with Project is the combined level of Project construction plus ambient levels.~~

~~[2] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.~~

~~**Table 3.16-28. Sediment Augmentation Program Construction Noise Levels - Dewater**~~

~~**Noise-Sensitive Receptor**~~	~~**Ambient Noise Level (dBA DNL)**~~	~~**Project Construction Noise Level (dBA DNL)**~~	~~**Overall with Project[1] Noise Level (dBA DNL)**~~	~~**Threshold of Significance (dBA DNL)[2]**~~	~~**Exceed Threshold?**~~	~~**Project Construction Noise Level (dBA L_{eq}) Day/Night**~~	~~**Threshold of Significance (dBA L_{eq}) Day/Night**~~	~~**Exceed Threshold?**~~
~~R-3~~	~~61~~	~~28~~	~~61~~	~~71~~	~~No~~	~~36/-~~	80/50	~~No~~
~~R-2~~	~~50~~	~~31~~	~~50~~	~~60~~	~~No~~	~~39/-~~	80/50	~~No~~
~~R-1~~	~~61~~	~~32~~	~~61~~	~~71~~	~~No~~	~~40/-~~	80/50	~~No~~
~~R-26~~	~~50~~	~~40~~	~~50~~	~~60~~	~~No~~	~~48/-~~	80/50	~~No~~
~~R-27~~	~~50~~	~~41~~	~~50~~	~~60~~	~~No~~	~~49/-~~	80/50	~~No~~
~~R-28~~	~~57~~	~~47~~	~~57~~	~~67~~	~~No~~	~~55/-~~	80/50	~~No~~
~~R-29~~	~~57~~	~~56~~	~~60~~	~~67~~	~~No~~	~~64/-~~	80/50	~~No~~
~~R-30~~	~~57~~	~~38~~	~~57~~	~~67~~	~~No~~	~~47/-~~	80/50	~~No~~
~~R-18~~	~~57~~	~~53~~	~~59~~	~~67~~	~~No~~	~~61/-~~	80/50	~~No~~
~~R-17~~	~~57~~	~~28~~	~~57~~	~~67~~	~~No~~	~~36/-~~	80/50	~~No~~
~~R-16~~	~~57~~	~~52~~	~~58~~	~~67~~	~~No~~	~~60/-~~	80/50	~~No~~

~~*Source: Ramboll. 2023. Anderson Dam Seismic Retrofit Project Noise & Vibration Impact Assessment*~~

~~*Notes:*~~

~~*[1] Overall with Project is the combined level of Project construction plus ambient levels.*~~

~~*[2] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.*~~

Figure 3.16-6. Seismic Retrofit Construction Equipment Noise Receptor Locations – Anderson Dam to Ogier Pond

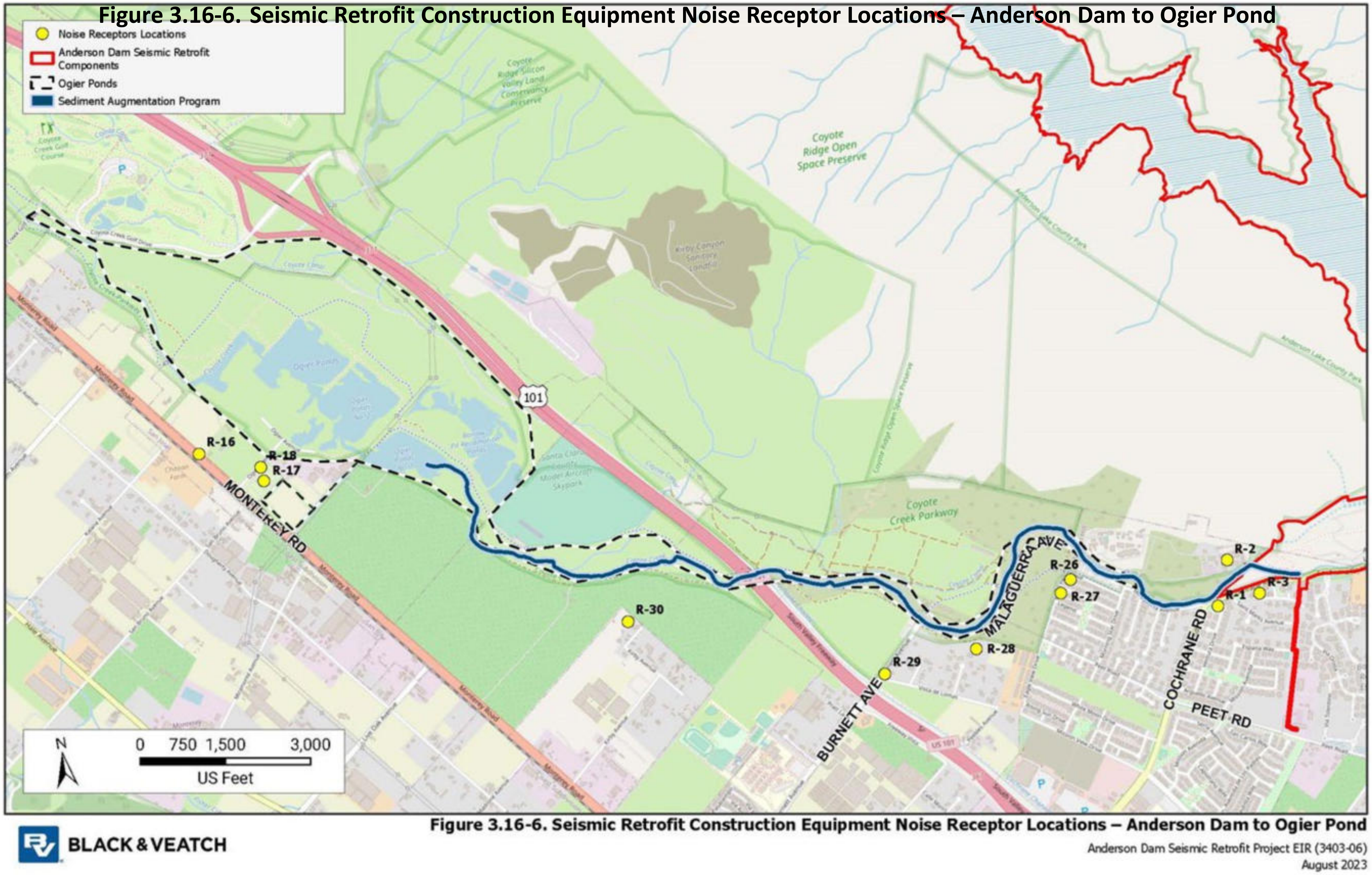


Figure 3.16-6. Seismic Retrofit Construction Equipment Noise Receptor Locations – Anderson Dam to Ogier Pond
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

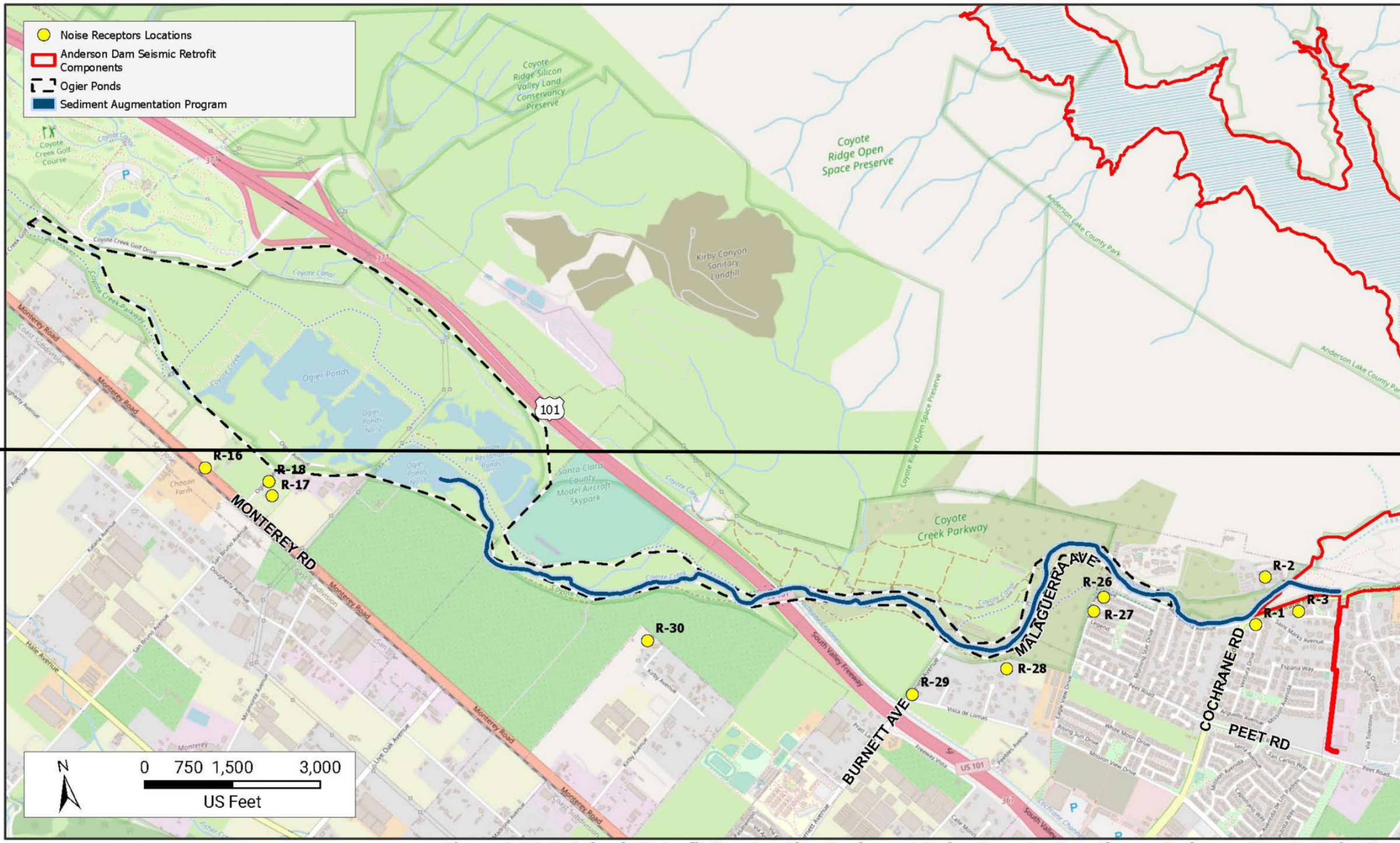


Figure 3.16-6. Seismic Retrofit Construction Equipment Noise Receptor Locations – Anderson Dam to Ogier Pond

Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2023

BLACK & VEATCH

Phase 2 Coyote Percolation Dam CM Construction

Onsite Construction Noise

Recreational users along Coyote Creek Trail would be exposed to Phase 2 Coyote Percolation CM construction noise. The Coyote Creek Trail is within the Phase 2 Coyote Percolation CM Project Area and trail users would be exposed to noise associated with most construction activities. Users of the trail would only be near the construction site for a relatively short time since there are no common outdoor use areas, and they are not expected to remain stationary for extended periods of time. The impact to trail users would be less than significant.

Phase 2 Coyote Percolation Dam CM construction noise levels are summarized in **Table 3.16-28** ~~**3.16-29**~~ and **Table 3.16-29** ~~**3.16-30**~~**,** and sensitive receptors are included in **Figure 3.16-7**. As shown in **Table 3.16-28** ~~**3.16-29**~~ and **Table 3.16-29** ~~**3.16-30**~~, onsite construction noise levels (DNL) would not exceed the 10 dBA increase above ambient threshold. Average construction noise levels (L_{eq}) would not exceed the FTA's construction noise daytime threshold of 80 dBA. Nighttime construction would not occur during Phase 2 Coyote Percolation Dam CM construction and, thus, the FTA nighttime construction noise threshold of 50 dBA L_{eq} would not be exceeded. Additionally, recreational users at Metcalf Park and along Coyote Creek trail would be exposed to Phase 2 Coyote Percolation Dam CM construction noise. Construction noise levels would expose recreational users at Metcalf Park to significant noise levels if construction noise levels exceed the FTA's construction noise daytime threshold of 80 dBA L_{eq}. Construction noise levels at receptors R-21 and R-22 are most representative of Phase 2 Coyote Percolation Dam CM construction noise levels for recreational users at Metcalf Park. As shown in **Table 3.16-28** ~~**3.16-29**~~ and **Table 3.16-29** ~~**3.16-30**~~, construction noise levels at receptors R-21 and R-22 would be below 80 dBA L_{eq}. Therefore, onsite construction noise impacts from construction of the Phase 2 Coyote Percolation Dam CM would be less than significant.

Offsite Construction Noise

Haul trips and worker trips related to construction of the Phase 2 Coyote Percolation Dam CM would be minimal. Therefore, offsite construction noise impacts related to Phase 2 Coyote Percolation Dam CM would be less than significant.

Table 3.16-28 ~~3.16-29~~. Phase 2 Coyote Percolation Dam CM Construction Noise Level - Haul Roads and Preparation of Stockpile Areas

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[2]	Exceed Threshold?	Project Construction Noise Level (dBA Leq) Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Exceed Threshold?
R-21	62	59	64	72	No	70/-	80/50	No
R-22	62	59	64	72	No	69/-	80/50	No
R-23	64	63	66	74	No	73/-	80/50	No
R-24	64	61	66	74	No	72/-	80/50	No
R-25	64	57	65	74	No	67/-	80/50	No

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project construction plus ambient levels.

[2] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

Table 3.16-29 ~~3.16-30~~. Phase 2 Coyote Percolation Dam CM Construction Noise Levels – Roughened Ramp

Noise-Sensitive Receptor	Ambient Noise Level (dBA DNL)	Project Construction Noise Level (dBA DNL)	Overall with Project[1] Noise Level (dBA DNL)	Threshold of Significance (dBA DNL)[2]	Exceed Threshold?	Project Construction Noise Level (dBA L_{eq}) Day/Night	Threshold of Significance (dBA L_{eq}) Day/Night	Exceed Threshold?
R-21	62	62	65	72	No	69/-	80/50	No
R-22	62	52	62	72	No	60/-	80/50	No
R-23	64	55	64	74	No	63/-	80/50	No
R-24	64	50	64	74	No	58/-	80/50	No
R-25	64	44	64	74	No	52/-	80/50	No

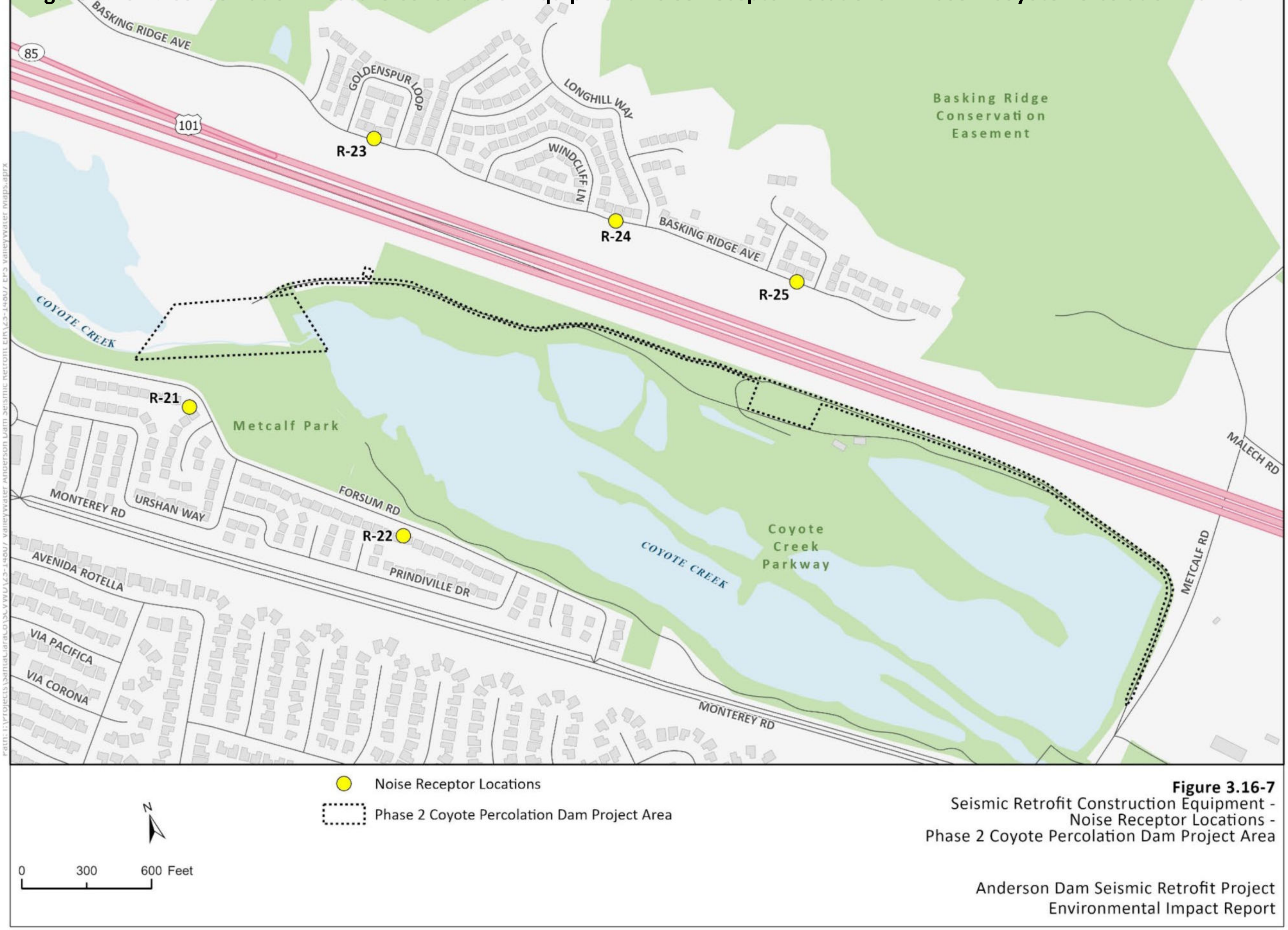
Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Notes:

[1] Overall with Project is the combined level of Project construction plus ambient levels.

[2] A significance threshold of 10 dBA over ambient is used for assessing onsite construction equipment noise.

Figure 3.16-7. Conservation Measure Construction Equipment Noise Receptor Locations – Phase 2 Coyote Percolation Dam CM



Operations and Maintenance

As discussed in Section 3.3.3, *Methodology and Approach to Impact Analysis*, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures, as well as the Project and FAHCE AMP, would result in negligible sources of noise. A diesel generator is proposed at the new outlet works which would replace an existing diesel generator in the same general area north of Via Sebastian. Noise from the proposed generator would generate similar noise levels to the existing generator due to occasional testing and in the case of power loss. In addition, air release valves are proposed at the LLOW, which would intermittently generate noise. However, noise from the air release valves is anticipated to be similar to noise levels generated by the existing AMF facility air release valves, which would be replaced with the Project. The existing facility and proposed facility are located in the same general area north of Cochrane Road. Finally, the gate shaft located at northern end of the top of the dam would potentially produce noise from the infrequent release of water during water level events. However, at a distance of approximately 1,000 feet from the nearest residences south of Cochrane Road, noise levels would not be significant. Therefore, operational noise impacts would be less than significant.

Significance Conclusion Summary

Construction of the Seismic Retrofit Component, Ogier Ponds CM, and the Sediment Augmentation Program would exceed applicable construction noise thresholds of significance, while Project operational noise impacts would be less than significant. Specifically, onsite Seismic Retrofit construction noise levels would exceed the 10 dBA increase above ambient threshold at Receptors R-2, R-4, R-5, and R-31 during Year 1; at Receptors R-2, R-4 through R-8, R-31, and R-32 during Year 2; at Receptors R-2 through R-9, R-31, and R-32 during Year 3; at Receptors R-2 through R-8, R-10 through R-12, R-31, and R-32 during Year 6; and at Receptors R-2, R-4 through R-9, ~~R-8~~, R-31, and R-32 during Year 7.[5] On-site construction noise levels would exceed the applicable Santa Clara County daytime residential construction noise threshold at Receptors R-8 R-9, R-31, and R-32 in Year 1, at Receptors R-8, R-31, and R-32 in Year 2, at Receptors R-8, R-9, R-31, and R-32 in Year 3, at Receptors R-8, R-31, and R-32 in Year 6, and at Receptors R-8, R-31, and R-32 in Year 7. Seismic Retrofit nighttime construction noise levels would exceed the nighttime residential construction noise threshold of 50 dBA L_{eq} at Receptors R-1 through R-9, R-31, and R-32 in Years 2, 3, and 7; and at each residential receptor in Year 6. Sunday work would exceed the Santa Clara County Sunday residential threshold of 50 dBA at Receptors R-8, R-9, R-31, and R-32 during Years 2, 3, 6, and 7. Offsite Seismic Retrofit construction noise levels would exceed the 5 dBA increase above ambient threshold along Route 1b and Route 3.

Onsite Ogier Ponds CM construction noise levels would not exceed the 10 dBA increase above ambient threshold ~~at Receptors R-18 through R-20 during the spillway construction phase~~. Onsite Ogier Ponds CM construction noise levels would exceed the applicable Santa Clara County construction noise threshold at Receptor R-8 ~~R-9~~ during the Pond 1 fill borrow hill ~~import from Basalt Hill~~ excavation construction phase and at Receptor R-20 during the construction of haul roads and preparation of the staging and stockpile areas, dewatering of Pond 1, Pond 1 fill

[5] While the modeled Overall with Project DNL values did not change, Receptors R-5, R-6, R-7, and R-9 were erroneously not included in this paragraph in the Partially Recirculated Draft EIR, and is updated here.

import from Basalt Hill excavation, and spillway construction phases. Offsite Ogier Ponds CM construction noise would not exceed the 5 dBA increase above ambient threshold~~ along Cochrane Road between Staging Area 1 to Peet Road during Year 6, Pond 1 Fill~~. Onsite Sediment Augmentation Program construction noise would exceed the 10 dBA increase above ambient threshold at Receptor R-2 during activity near Cochrane Road and Malaguerra Avenue ~~haul roads and preparation of stockpile areas construction phase~~. Onsite ~~North Channel Extension and~~ Phase 2 Coyote Percolation Dam construction noise would not exceed applicable construction noise thresholds. Offsite construction noise associated with the ~~North Channel Extension and~~ Phase 2 Coyote Percolation Dam would also not exceed applicable noise thresholds. Implementation of **Mitigation Measure NOI-1**, described below, will require Valley Water to implement a Construction Management Plan, which would require prior notice of construction activities to nearby sensitive receptors, proper maintenance of all construction equipment, equipping all construction equipment with mufflers and air intake silencers, locating staging and delivery areas as far from sensitive receptors as is feasible, enclosing stationary noise sources in temporary sheds, restricting the use of bells, whistles, alarms, and horns, and posting signs at construction area entrances to reinforce the prohibition of unnecessary idling.

Implementation of **Mitigation Measure NOI-2**, described below, is specific to Seismic Retrofit construction and will require the installation of a temporary noise barrier, limiting of construction activity at Staging Area 1 ~~and Stockpile Area E~~ within 300 feet of nearby ~~Receptor R-2 and~~ residences ~~across Cochrane Road~~, reducing the noise levels generated by track drill rigs to 86 dBA at 50 feet, posting a sign 10 days prior to the start of nighttime construction that provides a noise complaint phone number, and construction noise monitoring during nighttime periods of construction. **Mitigation Measure NOI-2** will also reduce offsite construction noise levels by reducing speeds along haul routes and routing truck traffic and worker vehicles along Route 1a instead of Route 1b. Mitigated Seismic Retrofit nighttime construction noise levels would still exceed the nighttime construction noise threshold of 50 dBA $L_{eq.}$

Implementation of **Mitigation Measure NOI-3**, described below, is specific to Ogier Ponds CM construction and will require the installation of a temporary noise barrier. ~~and the reduction of truck and vehicle speeds along Cochrane Road~~. Mitigated Ogier Ponds CM construction noise would be less than significant with mitigation. ~~offsite construction noise would still exceed the 5 dBA increase above ambient threshold~~. Mitigated Sediment Augmentation Program onsite construction noise would also still exceed applicable thresholds of significance. Therefore, Project construction would result in generation of a substantial temporary increase in ambient noise levels in the Project vicinity in excess of locally-adopted standards and the standards of other agencies, or would result in generation of substantial incremental increases in noise levels. Impacts would be **significant and unavoidable**.

Mitigation Measures

NOI-1 Implement Construction Noise Reduction Measures

Prior to the start of construction, Valley Water shall prepare a Construction Management Plan. Valley Water will include the following construction noise reduction measures in the Construction Management Plan:

- At least 30 days prior to the start of construction activities, all offsite businesses and residents within 500 feet of the Project Area will be notified of the planned construction activities. The notification will include a brief description of the Project, the activities that would occur, the hours when construction would occur, and the construction period's overall duration. The notification will include the telephone numbers of Valley Water's and the contractor's authorized representatives that are assigned to respond in the event of a noise complaint.

- At least 30 days prior to the start of construction activities, a sign will be posted at each construction site entrance, or other conspicuous location, that includes a 24-hour telephone number for Project ~~project~~ information, and a procedure in which a construction manager will respond to and investigate noise complaints and take corrective action, if necessary, in a timely manner. The sign will have a minimum dimension of 48 inches wide by 24 inches high with a 1-inch minimum font height and will also include contact information for Valley Water staff. The sign will be placed 5 feet above ground level.
- If a construction noise complaint(s) is registered and if Valley Water or its contractor are not available to make noise measurements, Valley Water will retain a noise consultant to conduct noise measurements at the properties that registered the complaint. The noise measurements will be conducted for a minimum of 1 hour. Valley Water will prepare a letter report summarizing the measurements, calculation data used in determining impacts, and potential measures to reduce noise levels to the maximum extent feasible.
- Prior to the start of and for the duration of construction, the contractor will properly maintain and tune all construction equipment in accordance with the manufacturer's recommendations to minimize noise emissions.
- Prior to use of any construction equipment, the contractor will fit all equipment with properly operating mufflers, air intake silencers, and engine shrouds no less effective than as originally equipped by the manufacturer.
- Material hauling and deliveries will be coordinated by the construction contractor to reduce the potential of trucks waiting to unload for protracted periods of time.
- To the extent feasible, hydraulic equipment will be used instead of pneumatic impact tools, and electric powered equipment will be used instead of diesel-powered equipment.
- Stationary noise sources (e.g., generators) will be located as far from sensitive receptors as practicable, and they will be muffled and enclosed within temporary sheds, or insulation barriers.
- The use of bells, whistles, alarms, and horns will be restricted to safety warning purposes only.
- Signs will be posted at the job site entrance(s), within the onsite construction zones, and along queueing lanes (if any) to reinforce the prohibition of unnecessary engine idling. All other equipment will be turned off if not in use for more than two ~~five~~ minutes. The construction manager will be responsible for enforcing this.

NOI-2 Implement Seismic Retrofit Construction Noise Reduction Measures

Valley Water and/or its contractor will implement the following noise mitigation measures as part of the Seismic Retrofit construction component:

- For Staging Area 1 ~~and Stockpile Area E~~, as much as is feasible, limit activity of construction equipment within 300 feet of nearby ~~Receptor R-2 and~~ residences ~~across Cochrane Road~~.

- Install temporary noise barriers between Staging Area 1~~/Stockpile Area E~~ and noise-sensitive receptors, as feasible. The barriers will be at least 12 ~~18~~ feet high and have no cracks or gaps, except where access is required (e.g., options for noise barriers include field-constructed wood or masonry walls, manufactured noise curtains [e.g., Kinetics KBC], and semi-truck trailers) and provide a minimum noise reduction of 15 dBA.
- For track drill rigs, when they are not in a tunnel or shaft, install manufacturer-provided or third-party noise reduction systems, or install a sound barrier between the track drill rigs and noise-sensitive receptors to reduce noise levels to 86 dBA at 50 feet.
- Limit activity at Stockpile Areas K North and South to daytime (7:00 a.m. to 5:00 p.m.) hours as feasible.
- To reduce offsite construction noise, the following measures will be implemented:
  - Route truck traffic and worker vehicles along Route 1a and avoid Route 1b to the extent feasible.
  - Temporarily reduce worker vehicle and truck speeds ~~the posted speed limits~~ along East Main Avenue between Hill Road and Cochrane Road and on Cochrane Road between East Main Avenue and Half Road by 5 mph below the speed limit.
  - Reduce worker vehicle and truck speeds along the section of Cochrane Road closed to through traffic from the currently posted speed limit 45 mph to 35 mph.
- Prior to the start of construction, Valley Water will retain a qualified acoustical consultant to conduct construction noise monitoring during the nighttime work of Project construction at select locations in the surrounding community. The number and location of monitoring positions will be determined by Valley Water in consultation with the acoustical consultant. All sound level meters used during monitoring will satisfy the American National Standards Institute (ANSI) standard of Type 2 instrumentation or higher. All measurements shall be at least 5 feet above the ground and away from reflective surfaces. The noise monitoring data and results will be submitted in a memorandum to Valley Water on a weekly basis along with comparison to the 50 dBA $_{Leq}$ nighttime construction noise limit. If exceedances of the construction noise limit are found, the construction contractor will modify construction techniques and equipment to reduce the construction noise below the 50 dBA $_{Leq}$ limit, to the degree feasible.

NOI-3 Implement Ogier Ponds CM Construction Noise Reduction Measures

Valley Water and/or its contractor will implement the following noise mitigation measures as part of the Ogier Ponds CM construction component:

- Install temporary noise barriers between regions of significant activity and noise-sensitive receptors. The barriers will be at least 12-feet high and have no cracks or gaps, except where access is required (e.g., options for noise barriers include field-constructed wood or masonry walls, manufactured noise curtains [e.g., Kinetics KBC]), and semi-truck trailers) and provide a minimum noise reduction of 15 dBA.
- ~~To reduce offsite construction noise, the following measures will be implemented:~~
  - ~~Reduce truck speeds along the section of Cochrane Road closed to through traffic from the currently posted speed limit of 45 mph to 35 mph.~~

- ~~Require trucks to reduce their speed along Cochrane Road between Malaguerra Road and US 101 to 5 mph below the posted speed limit.~~

Impact NOI-2: Generate excessive groundborne vibration or groundborne noise levels (Less than Significant with Mitigation)

Construction

Seismic Retrofit Construction

Vibration from Seismic Retrofit construction is considered for sensitive receptors within 500 feet of construction activity areas. The following activity areas are more than 500 feet from any sensitive receptors, and therefore are not considered:

- BHBA
- Coffer dam
- Dredging
- Packwood Gravel Borrow Area
- Reservoir Disposal Area
- Spillway
- Boat ramp parking area
- Dam toe parking area
- Staging Area 3
- Stockpile Area B
- Stockpile Area C
- ~~Stockpile Area D~~
- Stockpile Area H
- Stockpile Area L
- Stockpile Area M

Seismic Retrofit construction vibration levels at sensitive receptors within 500 feet of the construction activity areas are summarized in **Table 3.16-30 ~~3.16-31~~** sensitive receptors are included in **Figure 3.16-8 ~~3.16-7~~**. Seismic Retrofit construction vibration levels would be significant if they exceed the 0.20 in/sec PPV threshold for structural damage and the indoor impact threshold of 72 VdB at sensitive receptors. As shown in **Table 3.16-30 ~~3.16-31~~** Seismic Retrofit construction vibration would not exceed the 0.20 in/sec PPV threshold for structural damage at any of the nearby sensitive receptors. Seismic Retrofit construction vibration would exceed the 72 VdB indoor impact threshold at Receptors R-2 and R-32. Therefore, Seismic Retrofit construction vibration would be significant.

Implementation of **Mitigation Measure NOI-4**, described below, will require the use of oscillatory or static rollers in lieu of a vibratory roller within 150 feet of residential structures. Implementation of **Mitigation Measure NOI-4** will reduce vibration levels below the 72 VdB indoor impact threshold. Therefore, Seismic Retrofit construction vibration impacts would be less than significant with mitigation incorporated.

Table 3.16-30 ~~3.16-31~~. Seismic Retrofit Construction Vibration

Receptor	Activity Area	Distance	Maximum Vibration			Significance Thresholds		Exceed Structural Damage Threshold?	Exceed Indoor Impact Threshold?
			Amplitude (PPV, in/sec)	Level (VdB)	Source	Structural Damage (PPV, in/sec)	Indoor Impact (VdB)		
R-6	Excavation	480	0.002	56	Padfoot roller	0.20	72	No	No
	Staging Area 4	340	0.004	60	Road-header	0.20	72	No	No
R-1	Staging Area 4	270	0.006	63	Padfoot roller	0.20	72	No	No
R-4	Staging Area 1	180	0.011	69	Padfoot roller	0.20	72	No	No
	Stockpile Area E	290	0.005	62	Padfoot roller	0.20	72	No	No
R-2	Staging Area 1	120	0.020	74	Padfoot roller	0.20	72	No	Yes
	Stockpile Area E	250	0.007	64	Padfoot roller	0.20	72	No	No
MH Vallee Vineyards	Staging Area 2	180	0.005	61	Loader	0.20	72	No	No
R-11	Stockpile Area K - North	320	0.005	61	Padfoot roller	0.20	72	No	No
R-12	Stockpile Area K - South	310	0.005	62	Padfoot roller	0.20	72	No	No
R-32	Staging Area 4	110	0.023	75	Padfoot roller	0.2	72	No	Yes

Source: Ramboll. 2024.. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Figure 3.16-8. Seismic Retrofit Construction Equipment Noise Receptor Locations – Anderson Dam Area

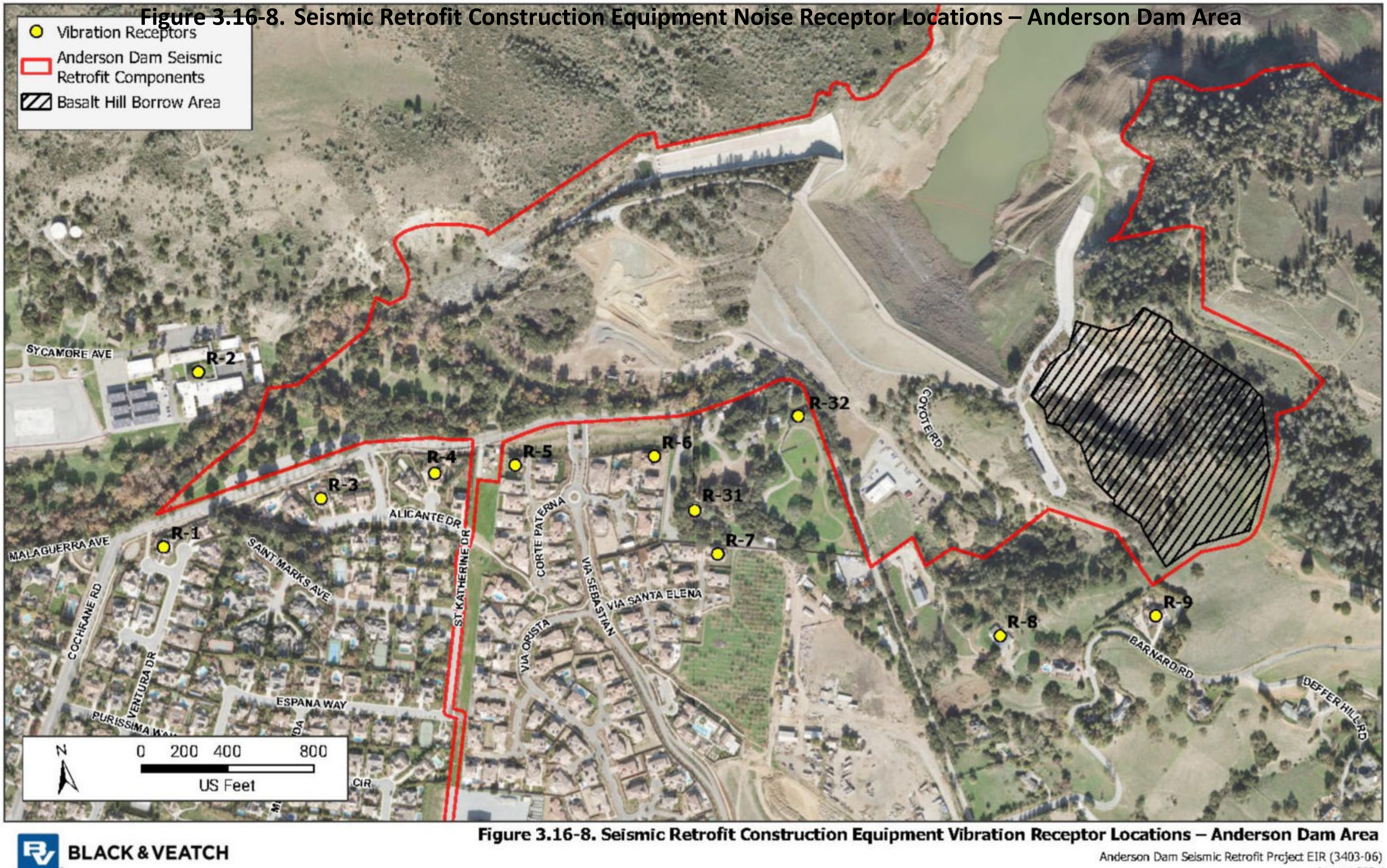


Figure 3.16-8. Seismic Retrofit Construction Equipment Vibration Receptor Locations – Anderson Dam Area
Anderson Dam Seismic Retrofit Project EIR (3403-06)
August 2024

Blasting Air Overpressure and Vibration

Construction of the Seismic Retrofit Component would require blasting at the BHBA. The approximate extent of blasting activities and proximity to the nearest sensitive receptors is shown in **Figure 3.16-8** ~~3.16-7~~. The minimum slant distance between the edge of the blasting area and the nearest sensitive receptor is approximately 240 feet.

Vibration from blasting activities would be significant if levels exceed the vibration threshold of 0.1884 in/sec PPV at 1 Hz, 0.5 in/sec PPV at 3 to 40 Hz, or 2.0 in/sec PPV at 40 Hz and above. Additionally, vibration from blasting activities would be significant if the air overpressure threshold of 133 dBL is exceeded. If uncontrolled, blasting vibration and air overpressure could exceed the established thresholds.

Implementation of **Mitigation Measure NOI-5**, described below, will require vibration and air overpressure monitoring be conducted while initial blasting activities occur. Monitoring results would be used to adjust blast loading limits to properly reflect site-specific conditions to prevent vibration impacts from blasting from exceeding the building damage thresholds and the air overpressure threshold of 133 dBL. Implementation of **Mitigation Measure NOI-5** will also include a Blasting Plan, which restricts blasting to between the hours of 8:00 a.m. and 5:00 p.m. and includes details for nearby sensitive receptors to file complaints. Implementation of **Mitigation Measure NOI-5** will require that blast loading limits do not exceed the significance thresholds mentioned above. Therefore, vibration impacts from blasting activities would be less than significant with mitigation incorporated.

Conservation Measures Construction

Ogier Ponds CM

Ogier Ponds CM construction vibration levels would be significant if they exceed the 0.20 in/sec PPV threshold for structural damage and the indoor impact threshold of 72 VdB at sensitive receptors. The nearest vibration-sensitive receptor is located more than 80 ~~60~~ feet from the Ogier Ponds CM construction area. At this distance, the structural damage thresholds would not be exceeded. Potential indoor vibration impacts would be less than significant at distances beyond 80 feet. There are no sensitive receptors within 80 feet of the Ogier Ponds CM construction area. Therefore, Ogier Ponds CM construction vibration would be less than significant.

~~North Channel Extension~~

~~Work on the North Channel Extension would be downstream of the existing Anderson Dam outlet structure. Construction equipment used for the North Channel Extension would include a bulldozer, motor grader, excavator, loader, dump truck, water truck, pumps, and supporting vehicles. The work would coincide with Year 1 and Year 7 of the Seismic Retrofit construction and would be significantly smaller in scale. As a result, the vibration analysis for Seismic Retrofit construction would also apply to the North Channel Extension . Therefore, no additional vibration analysis has been conducted specific to the North Channel Extension.~~

Sedimentation Augmentation Program

Sediment Augmentation Program construction vibration levels would be significant if they exceed the 0.20 in/sec PPV threshold for structural damage and the indoor impact threshold of 72 VdB at sensitive receptors. As shown in **Table 3.16-31 ~~3.16-32~~**, Sediment Augmentation Program construction vibration would not exceed the 0.20 in/sec PPV threshold for structural damage at sensitive receptor locations. Sediment Augmentation Program construction vibration would exceed the 72 VdB indoor impact threshold at Receptor R-2. Therefore, Sediment Augmentation Program construction vibration would be significant.

Implementation of **Mitigation Measure NOI-4**, described below, will require the use of oscillatory rollers in lieu of a vibratory roller within 150 feet of residential structures, including Receptor R-2. Implementation of **Mitigation Measure NOI-4** will reduce vibration levels below 72 VdB indoor impact threshold. Therefore, Sediment Augmentation Program construction vibration impacts would be less than significant with mitigation incorporated.

Phase 2 Coyote Percolation Dam CM

Phase 2 Coyote Percolation Dam CM construction vibration levels would be significant if they exceed the 0.20 in/sec PPV threshold for structural damage and the indoor impact threshold of 72 VdB at sensitive receptors. As shown in **Table 3.16-32 ~~3.16-33~~** Phase 2 Coyote Percolation Dam CM construction vibration would not exceed the 0.20 in/sec PPV threshold for structural damage or the 72 VdB indoor impact threshold. Therefore, Phase 2 Coyote Percolation Dam CM construction vibration would be less than significant.

Table 3.16-31 ~~3.16-32~~ Sediment Augmentation Program Construction Equipment Vibration

Description	Distance to Receptor (feet)	Medium Excavator	Loader	Medium Bulldozer	Motor Grader	Track Drill Rig	Articulated Dump Truck	Water Truck	Bulldozer	Long-Reach Excavator	Bobcat	Threshold (PPV, in/sec)	Exceed Threshold?
Structural Damage													
FTA Reference Vibration	25	0.003	0.089	0.089	0.089	0.089	0.076	0.076	0.089	0.089	0.003	--	--
R-2	60	0.001	0.024	0.024	0.024	0.024	0.020	0.020	0.024	0.024	0.001	0.20	No
R-3	340	0.000	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.000	0.20	No
Malaguerra Ave Residence	80	0.001	0.016	0.016	0.016	0.016	0.013	0.013	0.016	0.016	0.001	0.20	No
Morning Star Dr Residence	155	0.000	0.006	0.006	0.006	0.006	0.005	0.005	0.006	0.006	0.000	0.20	No
Eagle View Dr Residence	275	0.000	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.000	0.20	No
Coyote Creek Visitor Center at Anderson Lake	145	0.000	0.006	0.006	0.006	0.006	0.005	0.005	0.006	0.006	0.000	0.20	No
~~Donna Ct Residence~~	~~195~~	~~0.000~~	~~0.004~~	~~0.004~~	~~0.004~~	~~0.004~~	~~0.003~~	~~0.003~~	~~0.004~~	~~0.004~~	~~0.000~~	~~0.20~~	~~No~~
~~Burnett Ave Residence~~	~~110~~	~~0.000~~	~~0.010~~	~~0.010~~	~~0.010~~	~~0.010~~	~~0.008~~	~~0.008~~	~~0.010~~	~~0.010~~	~~0.000~~	~~0.20~~	~~No~~
Indoor Impact													
Description	**Distance to Receptor (feet)**	**Medium Excavator**	**Loader**	**Medium Bulldozer**	**Motor Grader**	**Track Drill Rig**	**Articulated dump truck**	**Water Truck**	**Bulldozer**	**Long-Reach Excavator**	**Bobcat**	**Threshold (VdB)**	**Significant Impact?**
FTA Reference Vibration	25	58	87	87	87	87	86	86	87	87	58	--	--
R-2	60	46	76	76	76	76	74	74	76	76	46	72	Yes
R-3	340	23	53	53	53	53	52	52	53	53	23	72	No
Malaguerra Ave Residence	80	42	72	72	72	72	70	70	72	72	42	72	No
Morning Star Dr Residence	155	34	63	63	63	63	62	62	63	63	34	72	No
Eagle View Dr Residence	275	26	56	56	56	56	54	54	56	56	26	72	No
Coyote Creek Visitor Center at Anderson Lake	145	35	64	64	64	64	63	63	64	64	35	72	No
~~Donna Ct Residence~~	~~195~~	~~31~~	~~60~~	~~60~~	~~60~~	~~60~~	~~59~~	~~59~~	~~60~~	~~60~~	~~31~~	~~72~~	~~No~~
~~Burnett Ave Residence~~	~~110~~	~~38~~	~~68~~	~~68~~	~~68~~	~~68~~	~~66~~	~~66~~	~~68~~	~~68~~	~~38~~	~~72~~	~~No~~

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Note: The receptors at Donna Ct Residence and Burnett Ave Residence were removed given the modeled Sediment Augmentation Program activities occurring in Year 8 at the Live Oak Restoration Reach would occur over 2,500 and 3,500 feet from these receptors, respectively; therefore, there would be no impact.

Table 3.16-32 ~~3.16-33~~ Phase 2 Coyote Percolation Dam CM Construction Vibration

Structural Damage														
Description	**Distance to Receptor (ft)**	**Medium Excavator**	**Loader**	**Medium Bulldozer**	**Motor Grader**	**Small Backhoe**	**Track Drill Rig**	**Articulated Dump Truck**	**Water Truck**	**Bulldozer**	**Long-Reach Excavator**	**Bobcat**	**Threshold (PPV, in/sec)**	**Significant Impact?**
FTA Reference Vibration	25	0.003	0.089	0.089	0.089	0.003	0.089	0.076	0.076	0.089	0.089	0.003	--	--
R-21	350	0.000	0.002	0.002	0.002	0.000	0.002	0.001	0.001	0.002	0.002	0.000	0.2	No

Indoor Impact														
Description	**Distance to Receptor (ft)**	**Medium Excavator**	**Loader**	**Medium Bulldozer**	**Motor Grader**	**Small Backhoe**	**Track Drill Rig**	**Articulated Dump Truck**	**Water Truck**	**Bulldozer**	**Long-Reach Excavator**	**Bobcat**	**Threshold (VdB)**	**Significant Impact?**
FTA Reference Vibration	25	58	87	87	87	58	87	86	86	87	87	58	--	--
R-21	350	23	53	53	53	23	53	51	51	53	53	23	72	No

Source: Ramboll. 2024 ~~2023~~. Anderson Dam Seismic Retrofit Project Noise & Vibration Technical Memorandum ~~Impact Assessment~~ (Appendix M)

Operations and Maintenance

As discussed in Section 3.3.3, *Methodology and Approach to Impact Analysis*, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures, as well as Project and FAHCE Adaptive Management, would result in negligible sources of groundborne vibration and groundborne noise. Therefore, operational vibration impacts would be less than significant, and no mitigation is required.

Significance Conclusion Summary

Construction of the Seismic Retrofit components and the Sediment Augmentation Program would exceed construction vibration thresholds of significance. Specifically, Seismic Retrofit construction vibration would exceed the 72 VdB indoor impact threshold at Receptor R-2 and R-32. Blasting activities during Seismic Retrofit construction that occur at a distance greater than 240 feet from the nearest sensitive receptors could exceed applicable blasting thresholds. Sediment Augmentation Program construction vibration would exceed the 72 VdB indoor impact threshold at Receptor R-2.

Implementation of **Mitigation Measure NOI-4**, described below, will require the use of oscillatory or static rollers in lieu of a vibratory roller within 150 feet of residential structures. Implementation of **Mitigation Measure NOI-5**, described below, will require vibration and air overpressure monitoring be conducted while initial blasting activities occur. Monitoring results would be used to adjust blast loading limits to properly reflect site-specific conditions to prevent vibration impacts from blasting from exceeding the building damage thresholds or air overpressure threshold of 133 dBL. Mitigated Seismic Retrofit and Sediment Augmentation Program construction vibration levels would not exceed the 0.20 in/sec PPV threshold for structural damage and the indoor impact threshold of 72 VdB. Therefore, Project construction would not generate excessive groundborne vibration or groundborne noise levels and impacts would be **less than significant with mitigation** incorporated.

Mitigation Measures

NOI-4 Seismic Retrofit and Sediment Augmentation Program Construction Vibration Reduction

Valley Water and/or its contractor will implement the following vibration mitigation measures for the Seismic Retrofit and Sediment Augmentation Program construction:

I. Use of oscillatory or static rollers (which maintains constant contact with the ground) in lieu of vibratory rollers (which lifts off and pounds the ground) for compaction near residential structures (within 150 feet)

NOI-5 Implement Blasting Plan

Valley Water and/or its contractor will implement a Blasting Plan that requires vibration and air overpressure monitoring be conducted by a qualified engineer or acoustical consultant while initial blasting activities occur. Monitoring results will be used to adjust blast loading limits to properly reflect site-specific conditions to prevent vibration impacts from blasting from exceeding the building damage threshold of 0.1884 in/sec PPV if blasting frequency is below 1 Hz, 0.5 in/sec PPV if blasting frequency is 3 Hz to 40 Hz, 2.0 in/sec PPV ay 40 Hz and above, or the air overpressure threshold of 133 dBL. ~~Initially, the maximum loading will not exceed 7.5 lb.~~

~~TNTe per delay (~3.4 kg).~~ The allowable explosive loading in lb. of TNTe per delay will be converted to explosive material used on the Project ~~project~~ and provided to the construction contractor. The allowable maximum loading may be adjusted up based on the frequency (Hz) of blasting and the results of blasting vibration and air overpressure monitoring at the recommendation of the monitoring engineer or qualified acoustical consultant conducting the blasting monitoring. The Blasting Plan will restrict blasting activities to between the hours of 8:00 a.m. and 5:00 p.m. The Blasting Plan will also include details regarding outreach to nearby sensitive receptors to notify them in advance of days in which blasting will occur and contact information on who to reach out to regarding complaints from the blasting.

3.16.5 Cumulative Impacts

The cumulative impact study area for noise and vibration focuses on the portions of the county, San José, and Morgan Hill that are in or near the Project Area, including the construction limits of the Seismic Retrofit and Conservation Measures components and the surrounding sensitive receptors. Predominant noise sources in the study area include traffic noise from nearby roadways and natural sounds, such as birds chirping and wind gusts.

The approach to the cumulative impacts analysis and list of foreseeable future projects, programs, and plans considered in the cumulative impact analysis is included in Section 3.0.5, *Approach to Cumulative Impacts*.

This section describes the Project's contribution to cumulative noise and vibration impacts, as summarized in **Table 3.16-33 ~~3.16-34~~** Cumulative impact thresholds for noise and vibration are the same as the impact thresholds presented in Section 3.16.3.8, *Thresholds of Significance*.

Table 3.16-33 ~~3.16-34~~. Summary of Project Impact Contribution to Cumulative Noise and Vibration Impacts

Impact	Significant Cumulative Impact with FOCP?	Significant Cumulative Impact with other Projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies	No	Yes	CC	MM NOI-1 MM NOI-2 MM NOI-3	Yes

Impact	Significant Cumulative Impact with FOCP?	Significant Cumulative Impact with other Projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact NOI-2: Generate excessive groundborne vibration or groundborne noise levels	No	No	NCC	MM NOI-4 MM NOI-5	No

Key: CC = cumulatively considerable; NCC = not cumulatively considerable; MM = Mitigation Measure

Cumulative Impact NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies (Cumulatively Considerable)

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction or operation activities overlap within the same timeframe as the construction activities for the Project.

Cumulative Effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; therefore, these two projects would not result in cumulative impacts related to noise. There would be no cumulative effect.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts,* would occur within the county. Construction or operation of future projects, programs, and plans could overlap with the 8-year ~~15-year~~ construction schedule during which the Seismic Retrofit Components and Conservation Measures construction would occur. As indicated under Impact NOI-1, construction of the Project would exceed applicable construction noise thresholds of significance. Project construction, combined with any construction occurring at the same time from probable future projects, plans, and programs, could generate a substantial temporary increase in noise levels resulting in a significant cumulative impact. Although Project mitigation measures would be implemented to reduce the Project's incremental noise impacts, they would remain, cumulatively considerable.

Significance Conclusion Summary

Valley Water would reduce the Project’s contribution to cumulative impacts related to construction noise through implementation of **Mitigation Measures NOI-1 through NOI-3**. Implementation of **Mitigation Measure NOI-1** will require Valley Water to implement a Construction Management Plan, which would require prior notice of construction activities to nearby sensitive receptors, proper maintenance of all construction equipment, equipping all construction equipment with mufflers and air intake silencers, locating staging and delivery areas as far from sensitive receptors as is feasible, enclosing stationary noise sources in temporary sheds, restricting the use of bells, whistles, alarms, and horns, and posting signs at construction area entrances to reinforce the prohibition of unnecessary idling. Implementation of **Mitigation Measure NOI-2** is specific to Seismic Retrofit construction and will require the installation of a temporary noise barrier, limiting of construction activity at Staging Area 1 ~~and Stockpile Area E~~ within 300 feet of nearby residences ~~of the William F. James Boys Ranch and residences across Cochrane Road~~, reducing the noise levels generated by track drill rigs to 86 dBA at 50 feet, posting a sign 10 days prior to the start of nighttime construction that provides a noise complaint phone number, and construction noise monitoring during nighttime periods of construction. **Mitigation Measure NOI-2** will also reduce offsite construction noise levels by reducing speeds along haul routes and routing truck traffic and worker vehicles along Route 1a instead of Route 1b. Implementation of **Mitigation Measure NOI-3** is specific to Ogier Ponds CM construction and will require the installation of a temporary noise barrier ~~and the reduction of truck and vehicle speeds along Cochrane Road~~. With implementation of **Mitigation Measures NOI-1 through NOI-3,** Project construction noise levels will still exceed the applicable construction noise thresholds at some receptors. Therefore, the Project's contribution to the significant cumulative impact related to a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project would be **cumulatively considerable**.

Mitigation Measures

NOI-1 Implement Construction Noise ~~BMPs~~ Reduction Measures

NOI-2 Implement Seismic Retrofit Construction Noise Reduction Measures

NOI-3 Implement Ogier Ponds CM Construction Noise Reduction Measures

Cumulative Impact NOI-2: Generate excessive groundborne vibration or groundborne noise levels **(Not Cumulatively Considerable)**

Cumulative projects, plans, and programs could result in incrementally adverse impacts if their construction or operation activities overlap within the same timeframe as the construction activities for the Project.

Cumulative Effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; therefore, these two projects would not result in cumulative impacts related to groundborne vibration or noise. There would be no cumulative effect.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur within the County. Construction or operation of future projects, programs, and plans could overlap with the 8-year ~~15-year~~ construction schedule during which the Seismic Retrofit Component and Conservation Measures construction would occur. As indicated under Impact NOI-2, Project construction vibration level impacts would be less than significant with mitigation incorporated. Project construction, in combination with construction or operation occurring at the same time from probable future projects, plans, and programs, is unlikely to result in a significant cumulative impact related to groundborne vibration. This is because for construction groundborne vibration impacts to cumulate, construction activities need to occur within relatively close distances of each other (e.g., within approximately 25 feet for a vibratory roller for potential architectural damage). None of the cumulative projects would be within 25 feet of a given sensitive receptor at the same time. Therefore, the cumulative impact resulting from the Project in combination with other probable future projects would not be significant, and the Project's contribution would not be cumulatively considerable.

Significance Conclusion Summary

Valley Water would reduce the Project's contribution to cumulative construction vibration impacts through implementation of **Mitigation Measures NOI-4 and NOI-5**. Implementation of **Mitigation Measure NOI-4** will require the use of oscillatory or static rollers in lieu of a vibratory roller within 150 feet of residential structures during Seismic Retrofit and Sediment Augmentation Program construction. Implementation of **Mitigation Measure NOI-5** will require vibration and air overpressure monitoring be conducted while initial blasting activities occur. Monitoring results would be used to adjust blast loading limits to properly reflect site-specific conditions to prevent vibration impacts from blasting from exceeding the building damage threshold of 0.1884 in/sec PPV if blasting frequency is below 1 Hz, 0.5 in/sec PPV if blasting frequency is 3 Hz to 40 Hz, 2.0 in/sec PPV ay 40 Hz and above, or the air overpressure threshold of 133 dBL. ~~Tentatively, the maximum loading will not exceed 7.5 lb. TNTe per delay (~3.4 kg).~~ Implementation of **Mitigation Measure NOI-5** will also include a Blasting Plan, which restricts blasting between the hours of 8:00 a.m. and 5:00 p.m. and includes details for nearby sensitive receptors to file complaints. With implementation of **Mitigation Measures NOI-4 and NOI-5**, Project construction vibration levels will not exceed the 0.20 in/sec PPV threshold for structural damage and the indoor impact threshold of 72 VdB, or the blasting vibration and air overpressure significance thresholds, and as a result, impacts related to excessive groundborne vibration would **be not cumulatively considerable**.

Mitigation Measures

NOI-4 Seismic Retrofit and Sediment Augmentation Program Construction Vibration Reduction ~~Measures~~

NOI-5 Implement Blasting Plan

3.16.6 References

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3.17 Public Services

This section evaluates the Project's impacts related to public services, which includes police and fire protection services. The *CEQA Guidelines* significance criteria for public services address impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, and parks. Impacts related to parks and recreation are discussed in Section 3.18, *Recreation*. The baseline used for the analysis of potential impacts to public services consists of existing conditions at time of the EIR preparation as modified by FOCP implementation.

The study area used to assess impacts related to public services is the service areas of the police and fire protection resources that serve the Project Area in the communities of the county, San José, and Morgan Hill.

The Project would not affect the enrollment for existing school facilities or contribute to any change in population or other land use modification that would affect the local school district. Furthermore, the Project would not conflict with the continued operation of the William F. James Boys Ranch juvenile detention facility, in a manner that would require new or expanded public service facilities. Impacts related to the Project resulting in the provision of new or physically altered schools or the William F. James Boys Ranch or any other non-police and non-fire public services or facilities that would cause significant environmental impacts are not addressed in this section.

3.17.1 Environmental Setting

3.17.1.1 Police Protection

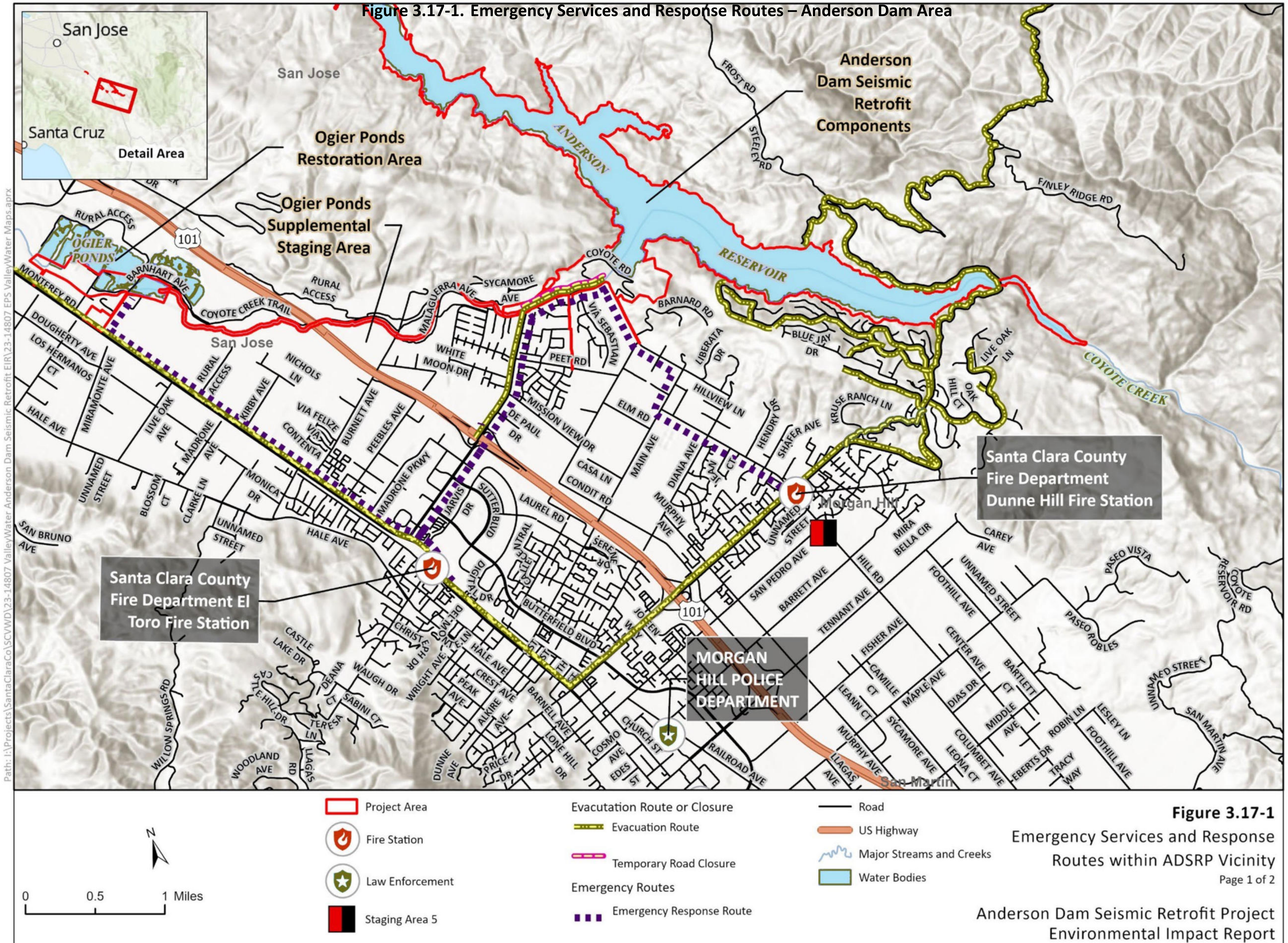
Law enforcement and public safety services in the study area are provided by a combination of departments from the County, City of San José, and City of Morgan Hill.

The Santa Clara County Sheriff's Office employs 2,025 personnel, of whom 1,453 are sworn law enforcement officers (Santa Clara County Sheriff's Office 2021). The Sheriff's Office is divided into four bureaus: Administrative Services, Enforcement, Custody, and Support Services.

The San José Police Department is authorized to employ approximately 1,400 employees and is divided into four bureaus: Investigations, Field Operations, Administration, and Technical Services (San José Police Department 2021). The Project is located within the San José Police Department's Southern Division. From 2020 to 2021, the San José Police Department citywide average response time for Priority 1 calls was 7.12 minutes and 22.8 minutes for Priority 2 calls (City of San José 2021). Priority 1 calls are those that represent a present or imminent danger to life or there is major damage to/loss of property while Priority 2 calls are those with injury or property damage or potential for either to occur or the suspect is still present in the area (City of San José 2021).

The Morgan Hill Police Department is separated into three divisions: Field Operations, Special Operations, and Support Services (Morgan Hill Police Department 2021). In 2021, the average response time for the Morgan Hill Police Department was 4.2 minutes (Tada, personal communication, 2022). The Morgan Hill police station is closest to the Project site, and is located at 16200 Vineyard Boulevard, Morgan Hill. This police station is approximately 3.3 miles southwest of the Project site (**Figure 3.17-1**). The Santa Clara County Sheriff's Office South County Substation is located at 80 Highland Avenue in San Martin. The Santa Clara County Sheriff's Office is approximately 6 miles south of the Project site ~~(**Figure 3.17-1**).~~

1 Figure 3.17-1. Emergency Services and Response Routes – Anderson Dam Area



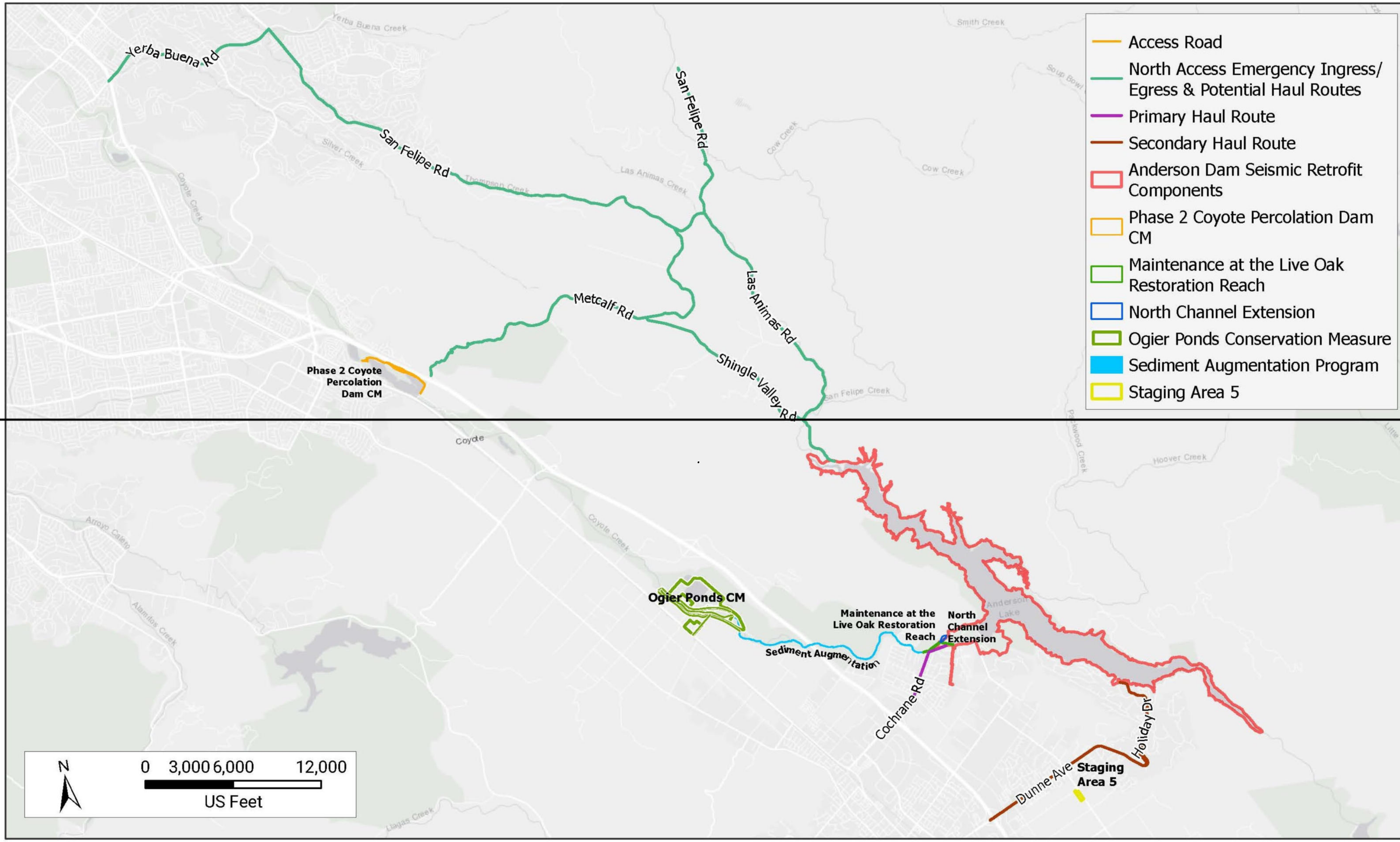


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Figure 3.17-1 Emergency Services and Response Routes – Anderson Dam Area

Anderson Dam Seismic Retrofit Project EIR (3403-06)

August 2023

3.17.1.2 Fire Protection

The Project is located within both the SRA and Local Responsibility Area (LRA) (CAL FIRE 2007 ~~2008~~) (**Figure 3.22-1** in Section 3.22, *Wildfire*). The State of California is financially responsible for the prevention and suppression of wildfires in SRAs, while local jurisdictions are responsible in LRAs. LRAs in the Project Area include those under the jurisdiction of the City of San José and the City of Morgan Hill. The Project is also within the boundaries of the South Santa Clara Fire Protection District (SSCFPD) (SWCA 2016a). Under a cooperative agreement, CAL FIRE provides fire and emergency services to both SSCFPD and the City of Morgan Hill (Center for Public Safety Management 2017). The CAL FIRE Santa Clara Unit also serves the SRA portion of the Project Area. CAL FIRE is California's fire department and resource management agency with nearly 8,000 permanent and seasonal employees.

There are three fire stations close to the Project site (**Figure 3.17-1)**. These three fire stations are described below:

- The Morgan Hill Fire Department Dunne Hill Fire Station is located 1.9 miles southeast of the Project Area at 2100 East Dunne Avenue, Morgan Hill. The response time for 90 percent of calls for the Morgan Hill Fire Department for the period from 2016 to 2018 was 6.4 minutes or less (Citygate Associates 2019).
- The Morgan Hill Fire Department El Toro Fire Station ~~CAL FIRE Station 11~~ is located approximately 2.4 ~~3.9~~ miles southwest of the Project Area at 18300 Old Monterey Road ~~15670 Monterey Street~~ in Morgan Hill. The Morgan Hill Fire Department has an average response time of 7.0 minutes within its coverage area ~~CAL FIRE has an average response time of 7 minutes for fires in the Morgan Hill coverage area and 10.7 minutes in the South Santa Clara County Fire District coverage area~~ (Center for Public Safety Management 2017).
- Station 27 is the closest San José Fire Department station, which is located at 6027 San Ignacio Road in San José, approximately 9 miles northwest of the Project Area. From 2020 to 2021, the responded to 73 percent of Priority 1 incidents within 8 minutes (City of San José 2021). Additionally, mutual aid fire resources are available from other County fire agencies, including fire officers, fire engines, air tankers, helicopter, and hand crews (SWCA 2016b). The closest fire stations to the Project Area are shown on **Figure 3.17-1**.

Access and evacuation routes for wildfires typically overlap, with fire crews traveling towards an advancing fire as residents and visitors travel away from the fire. ~~Primary emergency~~ Emergency evacuation routes identified along the east side of the reservoir in the Holiday Lake Estates and Jackson Oaks communities include East Dunne Avenue, Holiday Drive, and Monterey Road. Local roadways within Holiday Lake Estates and Jackson Oaks that connect to East Dunne Avenue, and therefore which would provide emergency evacuation access as well, are Quail Lane/Copper Hill Drive, Jackson Oaks Drive,~~ and~~ Oak Leaf Drive, and Thomas Grade. ~~is designated as a secondary emergency travel route.~~ All-evacuation routes are directed west of US 101. ~~(Morgan Hill Community Emergency Response Team [CERT] 2016).~~ Cochrane Road is the main road for the area west of Anderson Dam and provides access to US 101. Therefore, it could be used by emergency vehicles and may be used as an evacuation route by residents in the event of an emergency. Evacuation routes are shown on **Figure 3.17-1**. Additionally, the Project includes construction of temporary access/haul roads that would not serve as evacuation routes to the public, but would allow emergency access to the Project site. Specifically, Las Animas Road and Shingle Valley Road would provide emergency access to the Project site via the constructed Shingle Valley Haul Road.

~~Starting October 1, 2020, the FOCP construction and operation resulted in the closure Woodchopper's Flat Picnic Area in Anderson Lake County Park. The Woodchopper's Flat Picnic Area is designated as a temporary refuge area during a wildfire (Morgan Hill CERT 2016). The Woodchopper's Flat would remain closed throughout the duration of construction but would be restored and reopened following construction of the Project.~~ [1]

3.17.2 Regulatory Setting

This section summarizes laws, regulations, and policies pertinent to the evaluation of the Project's impacts on public services. No specific federal regulations related to public services are applicable to the Project.

3.17.2.1 State Laws, Regulations, and Policies

California Master Mutual Aid Agreement

The California Master Mutual Aid Agreement is a framework agreement between the State of California and local governments that provides for aid and assistance through the interchange of services and facilities. This aid agreement includes, but is not limited to, the following: fire, police, medical and health, communication, and transportation services, as well as facilities to cope with issues related to rescue, relief, evacuation, rehabilitation, and reconstruction.

California Fire Code

The California Fire Code (Title 24 CCR, Part 9) establishes minimum requirements to safeguard public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, including state essential services facilities. Chapter 33 of the CCR contains requirements for fire safety during construction and demolition as follows:

> **3304.1 Smoking.** Smoking shall be prohibited except in approved areas. Signs shall be posted in accordance with Section 310. In approved areas where smoking is permitted, approved ashtrays shall be provided in accordance with Section 310.
>
> **3304.2 Combustible debris, rubbish and waste.** Combustible debris, rubbish and waste material shall comply with the requirements of Sections 3304.2.1 through 3304.2.4.
>
> **3304.2.1 Combustible waste material accumulation.** Combustible debris, rubbish and waste material shall not be accumulated within buildings.
>
> **3304.2.2 Combustible waste material removal.** Combustible debris, rubbish and waste material shall be removed from buildings at the end of each shift of work.

[1] Woodchopper's Flat was identified as a temporary refuge area by the City of Morgan Hill's Community Emergency Response Team in 2016. However, per communications with the City of Morgan Hill on April 22, 2024, the Community Emergency Response Team map that identifies Woodchopper's Flat as a refuge area is outdated (Jennifer Ponce pers. comm.). Accordingly, Woodchopper's Flat is no longer considered a temporary refuge area and is no longer considered in this analysis.

3304.2.3 Rubbish containers. Where rubbish containers with a capacity exceeding 5.33 cubic feet (40 gallons) (0.15 m^3 [cubic meter]) are used for temporary storage of combustible debris, rubbish and waste material, they shall have tight-fitting or self-closing lids. Such rubbish containers shall be constructed entirely of materials that comply with either of the following:

1. Noncombustible materials.
2. Materials that meet a peak rate of heat release not exceeding 300 kilowatt per square meter (kW/m^2) when tested in accordance with American Society for Testing and Materials E1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation.

3304.2.4 Spontaneous ignition. Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container.

3304.6 Cutting and welding. Operations involving the use of cutting and welding shall be done in accordance with Chapter 35.

3304.7 Electrical. Temporary wiring for electrical power and lighting installations used in connection with the construction, alteration or demolition of buildings, structures, equipment or similar activities shall comply with the California Electrical Code.

3308.1 Program superintendent. The owner shall designate a person to be the fire prevention program superintendent who shall be responsible for the fire prevention program and ensure that it is carried out through completion of the Project. The fire prevention program superintendent shall have the authority to enforce the provisions of this chapter and other provisions as necessary to secure the intent of this chapter. Where guard service is provided, the superintendent shall be responsible for the guard service.

3308.2 Prefire plans. The fire prevention program superintendent shall develop and maintain an approved prefire plan in cooperation with the fire chief. The fire chief and the fire code official shall be notified of changes affecting the utilization of information contained in such prefire plans.

3310.1 Required access. Approved vehicle access for firefighting shall be provided to all construction or demolition sites. Vehicle access shall be provided to within 100 feet of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads, capable of support vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available.

3316.1 Conditions of use. Internal combustion–powered construction equipment shall be used in accordance with all of the following conditions:

1. Equipment shall be located so that exhausts do not discharge against combustible material.
2. Exhausts shall be piped to the outside of the building.
3. Equipment shall not be refueled while in operation.
4. Fuel for equipment shall be stored in an approved area outside of the building.

3.17.2.2 Regional and Local Laws, Regulations, and Policies

Laws, regulations, and policies governing the Project Area are implemented and enforced at the local or regional level. Local Laws, regulations, and policies that are applicable to the Project are described below.

Santa Clara County General Plan

- Policy C-PR 2: Sufficient land should be acquired and held in the public domain to satisfy the recreation needs of current and future residents and to implement the trailside concept along our scenic roads.
- Policy C-PR 14: Parks and recreation system planning, acquisition, development, and operation should be coordinated among cities, the County, State and Federal governments, school districts and special districts, and should take advantage of opportunities for linkages between adjacent publicly owned parks and open space lands.
- Policy C-GD 34: Planning must ensure that adequate services and amenities are available to urban areas proposed for compact development and/or mixed use centers, including but not limited to adequate: a. urban open space, commons, and recreational spaces; b. public safety and security; c. urban services and infrastructure, including dependent care and school facilities; and d. transportation system capacity, both streets and transit services.
- Policy C-GD 55: Coordination between school districts and cities should be improved to the extent necessary to resolve common problems stemming from urban growth and development.
- C-HS 22 Ensure that critical emergency services and equipment normally provided by outside agencies will be available in each jurisdiction to the extent possible (i.e., public health, mental health, coroner, fire suppression, etc.)
- R-HS 7 Areas of significant natural hazards, especially high or extreme fire hazard, shall be designated in the County's General Plan as Resource Conservation Areas, with generally low development densities in order to minimize public exposure to risks associated with natural hazards and limit unplanned public costs to maintain and repair public infrastructure
- R-HS 26 For communities in areas of high or extreme fire hazard that have developed under development densities greater than generally allowed under current General Plan policies, water systems with hydrants should be provided wherever feasible.
- R-HS 27 The County should encourage the use of fire-retardant building materials and landscaping not already required by County development and building codes when new development and rebuilding are proposed in areas of high or extreme fire hazard.
- R-HS 28 Development projects shall be reviewed by the County Fire Marshall's Office for safety code compliance and should also be referred if necessary to the appropriate fire protection authority or district for further review and recommendations

Envision San José 2040 General Plan

The Envision San José 2040 General Plan (General Plan)[2] contains the following relevant policies related to public services:

> **Policy ES-1.9:** Provide all pertinent information on 2040 General Plan amendments, rezonings and other development proposals to all affected school districts in a timely manner.
>
> **Policy ES-2.2:** Construct and maintain architecturally attractive, durable, resource-efficient, and environmentally healthful library facilities to minimize operating costs, foster learning, and express in built form the significant civic functions and spaces that libraries provide for the San José community. Library design should anticipate and build in flexibility to accommodate evolving community needs and evolving methods for providing the community with access to information sources. Provide at least 0.59 square feet of space per capita in library facilities.
>
> **Policy ES-2.3:** Prioritize Neighborhood Business Districts, Urban Villages, and other commercial areas as preferred locations for branch libraries to encourage social activity and economic development in San José's neighborhoods.
>
> **Policy ES-2.8:** Measure Library service delivery to identify the degree to which library activities are meeting the needs of San José's community.
>
> **Policy ES-2.9:** Foster a high-performing, collaborative library system responsive to changing customer and community needs.
>
> **Policy ES-3.1:** Provide rapid and timely Level of Service response time to all emergencies:
>
> 1. For police protection, achieve a response time of six minutes or less for 60 percent of all Priority 1 calls, and eleven minutes or less for 60 percent of all Priority 2 calls.
> 2. For fire protection, achieve a total response time (reflex) of eight minutes and a total travel time of four minutes for 80 percent of emergency incidents.
> 3. Enhance service delivery through the adoption and effective use of innovative, emerging techniques, technologies and operating models.
> 4. Measure service delivery to identify the degree to which services are meeting the needs of San José's community.
> 5. Ensure that development of police and fire service facilities and delivery of services keeps pace with development and growth in the city.
>
> **Policy ES-3.3:** Locate police and fire service facilities so that essential services can most efficiently be provided and level of service goals met. Ensure that the development of police and fire facilities and delivery of services keeps pace with development and growth of the city.

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[2] City of San José 2023, Envision San José 2040 General Plan, adopted November 1, 2011 (amendedMay 12, 2023 ~~March 16, 2020).~~ Available at https://www.sanjoseca.gov/home/showdocument?id=22359. Accessed June 21, 2023.

Policy ES-3.4: Construct and maintain architecturally attractive, durable, resource-efficient, environmentally sustainable and healthful police and fire facilities to minimize operating costs, foster community engagement, and express the significant civic functions that these facilities provide for the San José community in their built form. Maintain City programs that encourage civic leadership in green building standards for all municipal facilities.

Policy ES-3.5: Co-locate public safety facilities with other public or private uses to promote efficient use of space and provision of police and fire protection services within dense, urban portions of the city.

Policy ES-3.6: Work with local, State, and Federal public safety agencies to promote regional cooperation in the delivery of services. Maintain mutual aid agreements with surrounding jurisdictions for emergency response.

Policy ES-3.11: Ensure that adequate water supplies are available for fire-suppression throughout the City. Require development to construct and include all fire suppression infrastructure and equipment needed for their projects.

Activate San José Strategic Plan

Activate San José (ActivateSJ) is the 20-year strategic plan established by Parks, Recreation and Neighborhood Services to maintain, improve, and expand facilities, programs, and services in San José (City of San José 2019). Goals of the plan include:

- Focus efforts on improving the condition of parks and trails.
- Develop and effectively manage a 100-mile paved off-street trail network.
- Seek sustainable funding mechanisms for the parks and recreation system.
- Ensure that all San José residents can walk to a neighborhood park in 10 minutes.
- Continue to pursue the General Plan goal of 3.5 acres of parkland per 1,000 people.

San José Municipal Code

The following chapters of the San José Municipal Code contain relevant provisions pertaining to fire protection and emergency services:

- **Chapter 17.12 (City of San José Fire Code)** adopts the 2019 California Fire Code, with local amendments related to fire flow; sprinkler and fire alarm systems and standards; lithium batteries; 3D printing additive manufacturing; mobile fueling; plant production extraction processing systems; and highly toxic, toxic, and moderately toxic gases; and maintenance of existing fire protection and regulatory authority.
- **Chapter 17.68 (Hazardous Materials Storage Permit)** describes the requirements for storage of hazardous materials, including flammable and combustible liquids classified by the NFPA. These requirements include acquiring a storage permit, developing and submitting a Hazardous Materials Management Plan, and complying with requirements for storage, transportation, monitoring and inspection, and secondary containment. The Hazardous Materials Management Plan must include an emergency response plan that describes emergency equipment availability, testing, and maintenance.

- **Chapter 17.82 (Fire Safety during Construction)** is intended to minimize the potential for the occurrence and spread of fires, and to facilitate firefighting efforts, during construction of wood frame buildings. Chapter 17.82 requires that a construction fire protection plan be prepared before issuance of a building permit for any building involving wood frame construction. The plan must be approved by the fire chief and must specify how off-hours security will be addressed, and how construction sequencing—including the installation of mitigating fire protection barriers—will be used to minimize the potential for the occurrence and spread of fire.

Morgan Hill General Plan

Goal SSI-3 Minimal threat to persons, property, and the environment from fire hazards.

Policy SSI-3.2 Wildfire Risks. Avoid actions which increase fire risk, such as increasing public access roads in fire hazard areas, because of the great environmental damage and economic loss associated with a large wildfire. (South County Joint Area Plan 15.04)

Policy SSI-3.3 Public Facilities Location. Locate, when feasible, new essential public facilities outside of high fire risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities, or identify construction methods or other methods to minimize damage if these facilities are located in a state responsibility area or very high fire hazard severity zone.

Policy SSI-3.4 Adequate Infrastructure. Design adequate infrastructure if a new development is located in a state responsibility area (SRA) or in a very high fire hazard severity zone (VHFHSZ) or high fire hazard severity zone (HFHSZ) as indicated on the City of Morgan Hill Wildland Urban Interface map (adopted March 18, 2009), including safe access for emergency response vehicles, visible street signs, and water supplies for structural fire suppression.

Policy SSI-3.5 Fire Risks. Work cooperatively with CAL FIRE and other public agencies with responsibility for fire protection to reduce fire risks in Morgan Hill.

Policy SSI-3.6 Fire Hazard Severity Zones. Continue to support special High Fire Hazard Severity Zone requirements.

Policy SSI-3.7 Inspection Program. Maintain a long range inspection program for fire prevention with highest priority established by the level of occupancy (high density uses – hotels apartments, offices, theaters and churches) and the nature of occupancy (schools, hospitals, jails and nursing homes). Update all information regarding hazardous areas to reflect current knowledge. (South County Joint Area Plan 15.11)

Goal SSI-11 Efficient police, fire, and emergency medical response and services, and access to local medical facilities.

Policy SSI-11.1 Staffing. Provide police and fire staffing and facilities as necessary to provide adequate public safety protection.

Policy SSI-11.2 Prevention through Design. Promote police and fire security considerations in all structures by ensuring that crime and fire prevention concepts are considered in development and design.

Policy SSI-11.3 Medical Services. Encourage provision of a full range of medical services in the city, including an acute care hospital.

Goal SSI-12 Reduce risk to life and property associated with emergencies and natural and manmade disasters.

Policy SSI-12.1 Emergency Response Public Awareness. Promote public awareness of potential disaster scenarios for Morgan Hill and encourage individual preparedness.

Policy SSI-12.2 Emergency Response Education. Provide education and support to neighborhood- or block level efforts to prepare for disasters.

Policy SSI-12.3 Disaster Preparedness. Maintain an adequate level of disaster response preparedness through careful review of proposed developments and through staff training in and exercise of the local hazard mitigation plan.

Policy SSI-12.4 Maintenance of Emergency Access Routes. Require that emergency access routes be kept free of traffic impediments.

Policy SSI-12.5 Emergency Response Plan. Maintain comprehensive Emergency Response Plans.

Policy SSI-12.6 Accessibility. Continue restricting development in areas of poor accessibility. Discourage development in areas where access is provided by a single road that could be damaged by faulting or landslides, or where access could be cut off by wildfires, trapping residents or workers. (South County Joint Area Plan 15.07)

Goal HC-3 Usable, complete, well-maintained, safe, and high-quality activities and amenities, including active and passive parks and recreational facilities, community gardens, and trails that are accessible to all ages, functional abilities, and socio-economic groups.

Policy HC-3.20 Safety. Incorporate fire and police services into the design review process for new parks, recreation facilities, and trails.

3.17.3 Methodology and Approach to Impact Analysis

This section describes the methodology and approach to impact analysis for public services. The impact analysis focuses on reasonably foreseeable effects of the Project based on a review of local planning documents and maps. Based on the review of these local planning documents and maps, the analysis determines whether the Project would result in significant impacts related to public services. The analysis considers temporary impacts, or short-term impacts that may occur during the 7-year construction period, as well as permanent impacts, or impacts considered to be long-term and/or that would result from ongoing facility operations and maintenance. The baseline used for the analysis of potential impacts to public services is the existing conditions baseline, which consists of conditions at time of the EIR preparation as modified by FOCP implementation.

The direct and indirect effects of the Project are described and evaluated according to significance criteria from Appendix G of the *CEQA Guidelines*. The impact assessment in this section has been described by Project component in two parts, one for the construction-related impacts and another for the operations and maintenances-related impacts for both the Seismic

Retrofit components and the Conservation Measure components. The Project components are described in **Table 2-1** of Chapter 2, *Project Description*. Additional information on impact assessment approach by Project component is provided below.

3.17.3.1 Seismic Retrofit Construction

The location and nature of Seismic Retrofit construction activities are considered in the context of existing public services, wherein they provide service to areas within or immediately adjacent to the study area. The impact analysis considers the potential for construction of the Seismic Retrofit component to result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for fire protection and police protection services. The potential for Seismic Retrofit components construction activities to require new or physically altered public services facilities is evaluated.

As described in Section 3.0, *Introduction*, the baseline for evaluating Seismic Retrofit components construction effects is the existing conditions following completion of the FOCP upgrades to the existing dam and reservoir facilities.

3.17.3.2 Conservation Measures Construction

The potential for conservation measure construction activities to require new or physically altered public services facilities is evaluated. As described in Section 3.0, *Introduction,* the baseline used for evaluating impacts to public services is the existing conditions baseline, which consists of existing conditions at the time of the EIR preparation as modified by FOCP implementation. Construction activity impacts are re-evaluated for the following Conservation Measures:

- Ogier Ponds CM
- Maintenance of the North Channel Reach ~~Extension~~
- Maintenance Activities at Live Oak Restoration Reach
- Sediment Augmentation Program
- Phase 2 Coyote Percolation Dam CM

3.17.3.3 Construction Monitoring

Construction monitoring activities are not considered in the public services impact analysis, as the construction monitoring plans and activities would involve data and information collection and assessment within the existing Valley Water facilities and would not result in direct or indirect adverse impacts to public services. Thus, construction monitoring is not discussed further in this section.

3.17.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

The analysis considers the impacts related to public services that would result from operational changes proposed for nonemergency flow releases following completion of the Seismic Retrofit components construction, as described in Chapter 2, *Project Description*. As described in Section 3.0, *Introduction*, the baseline used for the analysis of potential impacts to utilities consists of existing conditions at time of the EIR preparation as modified by FOCP implementation.

Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam per Valley Water's existing DMP. Maintenance of the Anderson Dam facilities was evaluated previously in the Final DMP Program EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). The DMP found no impacts on public services would result. Impacts on public services related to post-construction maintenance activities would not differ from those impacts identified in the DMP EIR. Furthermore, previously identified DMP impacts would not be exacerbated with implementation of the Project. Therefore, no new impacts would occur as a result of post-construction dam maintenance activities. For these reasons, post-construction dam maintenance activities are not discussed further in this section.

3.17.3.5 Post-Construction Conservation Measures Operations and Maintenance

The Conservation Measures components focus on improving fish habitat (e.g., gravel augmentation, separation of Coyote Creek from Ogier Ponds, and fish passage enhancement). Conservation measures would operate passively, without mechanical or human intervention, in conjunction with Anderson Dam Reservoir flow releases. Conservation measures would be reviewed to ensure that they are satisfying success criteria.

The operations and maintenance of the Conservation Measure components would not result in a need for new or expanded public service facilities. BMPs, discussed in Section 3.17.3.7., will be implemented as part of the Project that would minimize potential impacts related to public services during operation and maintenance activities. Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). Therefore, operations and maintenance of Conservation Measures would not result in an impact related to public services. Thus, these topics are not discussed further in this section.

3.17.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of ~~project~~ Project flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because these activities would not require police or fire protection services, or otherwise generate the need for expanded services such that it would affect the environment.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. These impacts are considered here at a programmatic level, because the detailed characteristics, timing, and/or locations of the proposed adaptive measures are not known at the time of EIR preparation. Project-specific CEQA review would be undertaken in the future, as necessary, when specific projects are proposed and project-specific details are available.

3.17.3.7 Applicable Best Management Practices and VHP Conditions

As noted in Chapter 2, *Project Description*, Valley Water would incorporate a range of BMPs, including measures from the VHP, to avoid and minimize adverse effects on the environment that could result from the Project. All relevant BMPs for the Project are included in Appendix A, *Best Management Practices and Santa Clara Valley Habitat ~~Conservation~~ Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures ~~Incorporated in the Project.~~* There are no relevant VHP conditions that would apply to public services. BMPs relevant to public services include the following:

HM-8: Ensure Proper Vehicle and Equipment Fueling and Maintenance – Would reduce the potential for accidental upset of hazardous materials.

HM-9: Ensure Proper Hazardous Materials Management – Would reduce the potential for accidental upset of hazardous materials.

HM-12: Incorporate Fire Prevention Measures – Would reduce the potential for fire ignition.

TR-1: Use Suitable Public Safety Measures – Would reduce the potential for safety impacts on traffic.

3.17.3.8 Thresholds of Significance

For the purposes of this analysis, the Project would result in a significant impact on public services if it would:

PS-1: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for fire protection (criterion a.i)

PS-2: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for police protection (criterion a.ii).

3.17.3.9 Issues Dismissed from Further Review

CEQA Guidelines Appendix G suggests that projects may have a significant impact on public services if the project would result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for schools (criterion a.iii), parks (criterion a.iv), and other public facilities (criterion a.v). Because the Project would not affect enrollment for existing school facilities or contribute to any change in population or other land use modification that would affect the local school district, there would be no impact associated with the need to expand any school facilities and this threshold is dismissed from further environmental evaluation (criterion a.iii). Although the County-operated William F. James Boys Ranch juvenile detention facility is located immediately adjacent to the Project Area within 2,000 feet of the spillway, the Project would not conflict with the continued operation of this County-operated facility in a manner that would require new or expanded public service facilities; there would be no impact to this or any other non-police and non-fire public services or facilities, and this threshold is dismissed from further environmental evaluation (criterion a.v).

The Project's potential impacts to parks are discussed in Section 3.18, *Recreation*, under Impact REC-2 (criterion b).

3.17.4 Impact Analysis

***Impact PS-1: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection* (Less than Significant with Mitigation)**

Seismic Retrofit Construction

As discussed in Section 3.22, *Wildfire*, CAL FIRE has historically used Anderson Reservoir as a source of water for firefighting via helicopter. Even at its post-FOCP implementation condition at deadpool, the reservoir water depth far exceeds CAL FIRE's minimum depth requirements and clearance criteria for helicopter water retrieval operations and Anderson Reservoir is an available firefighting resource (Valley Water 2020). Following complete dewatering of the reservoir for construction (as proposed to occur during Year 2 and to remain dewatered until the proposed refilling during Year 6), CAL FIRE would be temporarily unable to access Anderson

Reservoir water for emergency fire protection services; however, multiple nearby water sources in the vicinity, including Coyote, Chesbro, and Uvas Reservoirs, that are available for firefighting uses would provide sufficient water for fire protection services during the construction of the Seismic Retrofit components. During a November 2, 2020, meeting between Valley Water and CAL FIRE, CAL FIRE did not express any concerns over lack of access to water for firefighting during the time when Anderson Reservoir is drawn down to deadpool or when drained completely during construction (Valley Water 2020). Therefore, temporary reduction in water supply provided by Anderson Reservoir for emergency services would not result in significant alterations to fire service ratios or response times due to increased distance to water supply sources, which would be maintained during Seismic Retrofit construction. Thus, there would be no need for the construction of new or the physical alteration of fire protection facilities as a result of the proposed dewatering during construction.

As discussed in Section 3.22, *Wildfire*, construction of the Seismic Retrofit components would include use of equipment that could generate sparks or extreme heat during the dry summer months when fire danger is the highest. The increased potential for accidental ignition of a wildfire as a result of Seismic Retrofit components construction could lead to the need for additional fire protection services and equipment. Implementation of BMP HM-12 (Incorporate Fire Prevention Measures) would minimize impacts by requiring on-site fire suppression equipment, spark arrestors on all equipment with internal combustion engines, and prohibiting smoking except in designated staging areas. Implementation of BMP HM-12 would minimize the risk of accidental ignition such that the Seismic Retrofit construction is unlikely to exacerbate wildfire risk and would not require additional firefighting facilities. Furthermore, construction would be required to comply with the requirements of the California Fire Code, which would require the removal of combustible materials, proper containment of oily, combustible materials, the development and implementation of pre-fire plans, compliance with the California Electrical Code for the provision of temporary electrical facilities, and provision of fire access within 100 feet of construction activities. Therefore, the increased risks of wildfires associated with the Seismic Retrofit construction would not result in the need for construction of new or the physical alteration of fire protection facilities.

As discussed in Section 3.10, *Hazards and Hazardous Materials*, construction of Seismic Retrofit components would involve use of hazardous materials, such as fuels. Hazardous materials (e.g., fuel, oil, or lubricant) may need to be stored temporarily at staging areas. Fueling and maintenance of vehicles and equipment would introduce the potential for upset or accident conditions, which could require fire protection services. Implementation of BMP HM-8 (Ensure Proper Vehicle and Equipment Fueling and Maintenance) and HM-9 (Ensure Proper Hazardous Materials Management) will minimize the potential of accidental upset of hazardous materials and, therefore, the potential need for increased fire protection services by ensuring proper vehicle and equipment fueling and maintenance methods are followed and implementing proper handling and storage of hazardous materials. Additional information regarding the impacts associated with the Seismic Retrofit construction on hazardous materials are discussed in Section 3.10, *Hazards and Hazardous Materials*. Therefore, hazardous material used during construction would not result in the need for the construction of new or the physical alteration of fire protection facilities.

As discussed in both Section 3.19, *Transportation* and the Section 3.10, *Hazards and Hazardous Materials*, the Seismic Retrofit construction would generate a temporary increase in vehicle traffic in the immediate vicinity of the construction area from workers, equipment deliveries, and trucks during its 7-year construction period. Increased vehicle traffic would have an impact on emergency service vehicle response times, including fire protection services. Additionally, a portion of Cochrane Road would be temporarily closed to through traffic on four separate occasions during construction (see Section 2.5.2.3 for additional details). However, the road could be used by fire protection vehicles in the event of an emergency.

As discussed in Section 3.19, *Transportation*, access for emergency vehicles would be accommodated through construction zones and road or lane closures, as necessary Furthermore, traffic impacts on emergency response would be minimized through implementation of BMP TR-1 (Incorporate Public Safety Measures) which requires implementation of construction warning signs, safety fencing, and detours. However, a significant impact related to emergency response time, that might require construction of new temporary emergency access roads that might cause significant impacts, would still remain. Implementation of **Mitigation Measure PS-1** will further reduce impacts on emergency response by requiring the preparation and implementation of a TMP and coordination with local and State agencies, including fire protection services and first responders. In addition, as discussed in Section 3.22, *Wildfire*, **Mitigation Measure WF-1** would minimize the impact of road closures on emergency access ~~of an identified temporary refuge area (Woodchopper's Flat Picnic Area)~~ by requiring coordination with local and state emergency response and fire agencies and preparation of Response and Evacuation Strategy (RES) to maintain adequate emergency response and evacuation routes throughout construction of the Project in locations where Project construction substantially interferes with emergency access and evacuation ~~identify an alternative temporary refuge area or provide emergency access~~ during construction of the seismic retrofit components in the event of a wildfire. Therefore, there would be no need to construct new temporary emergency access roads. With implementation of these mitigation measures, the construction of Seismic Retrofit components would not have a significant impact on response times that would require new or physically altered firefighting facilities.

Although Seismic Retrofit construction could result in an increase in calls for fire protection services, implementation of **Mitigation Measure PS-1**, which will require preparation of a TMP and coordination with agencies to minimize impacts on emergency response times, and **Mitigation Measure WF-1**, which will require coordination with local and State emergency response agencies and ~~to~~ preparation of a RES ~~identify an alternative temporary refuge area~~, will help ensure that the Seismic Retrofit construction will not require new or physically altered fire facilities to maintain acceptable performance standards. As such, construction of Seismic Retrofit components would not result in significant impacts associated with an increased need for new or physically altered fire protection facilities. Therefore, impacts would be less than significant with mitigation.

Conservation Measure Construction

Construction activities associated with Conservation Measure components, including the Ogier Ponds CM, the Phase 2 Coyote Percolation Dam CM, Maintenance of the North Channel Reach ~~Extension~~, Sediment Augmentation Program, and Maintenance Activities at the Live Oak Restoration Reach, would be similar to those described above for the Seismic Retrofit components but on a smaller scale. Construction of the Conservation Measures components would pose a risk of accidental ignition of a wildfire, use and storage of hazardous materials and associated risk of upset, and temporary increases and disruptions in vehicle traffic in and around construction work areas due to operation and temporary storage of large construction equipment, construction worker trips to and from the sites, and transportation of construction material which may lead to increased needs for fire protection services and equipment and impede emergency response times.

However, as described above, implementation of BMPs HM-8, HM-9, and TR-1 will minimize impacts associated with hazardous materials and traffic disruptions by ensuring proper vehicle and equipment fueling and maintenance methods are followed, implementing proper handling and storage of hazardous materials, and implementing construction warning signs, safety fencing, and detours. However, there would still be a significant impact related to impeding emergency response time from traffic disruptions, which might require construction of new temporary emergency access roads, which could cause significant impacts. With implementation of **Mitigation Measure PS-1**, which requires preparation of a TMP and coordination with fire protection services and first responders would reduce these risks, and **Mitigation Measure WF-1**, which requires coordination with local and State emergency response agencies ~~to~~ and preparation of a RES ~~identify an alternative temporary refuge area,~~ construction of the Conservation Measures components would not result in significant impacts associated with an increased need for new or physically altered fire protection facilities. Impacts would be less than significant with mitigation.

Post-Construction Anderson Dam Facilities Operations

Following construction of the Seismic Retrofit components, Anderson Reservoir capacity would be restored to its unrestricted capacity, which is over 88,8800-AF ~~capacity~~, which would then be able to support firefighting services in the region. Post-construction releases from Anderson Reservoir into Coyote Creek would conform to FAHCE operating rule curves, as described in Chapter 2, *Project Description*. Operational changes to reservoir flow releases would not require equipment that could result in an accidental ignition of a wildfire or result in disruptions to vehicle traffic on roadways that could impede emergency response time. In addition, operation of post-construction dam facilities would not require road closures that would impede emergency response times in such a way as to require the construction of new fire protection facilities. Thus, post-construction Anderson Dam facilities operations would not result in significant impacts associated with an increased need for new or physically altered fire protection facilities. Impacts would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek watershed such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These actions would occur when conservation measures are not functioning as intended or not meeting measurable objectives. Adaptive actions would occur at Anderson Reservoir and within the Coyote Creek floodplain and may involve the use of construction equipment that could result in an accidental ignition of wildfire and use hazardous materials that may be accidentally spilled, both of which could require potential need for increased fire protection services. However, implementation of BMP HM-8, HM-9, and HM-12 will require that proper vehicle and equipment fueling and maintenance methods are followed, that proper handling and storage of hazardous materials measures are implemented, and that fire prevention methods are implementing including, maintaining onsite fire suppression equipment and park arrestors on all equipment with internal combustion engines, and prohibiting smoking except in designated staging areas. Therefore, post-construction Project and FAHCE adaptive management measures would not result in significant impacts associated with an increased need for new or physically altered fire protection facilities. Impacts would be less than significant.

Significance Conclusion Summary

Water in Anderson Reservoir would be temporarily unavailable to CAL FIRE during construction after Dam Construction Year 2; however, during consultation, CAL FIRE had not expressed any concerns over lack of access to water and there are other, nearby sources of water available to support aerial firefighting methods. Additional temporary impacts on fire protection services would include accidental ignition of a wildfire, use of hazardous materials that may require additional fire protection services, and temporary increases and disruptions to vehicle traffic in the vicinity of the Project Area, which could impede emergency response timing.

Implementation of BMPs HM-12, HM-8, and HM-9 will minimize the risk of accidental ignition though: maintaining onsite fire suppression equipment and park arrestors on all equipment with internal combustion engines, and prohibiting smoking except in designated staging areas; ensuring proper vehicle and equipment fueling and maintenance methods are followed; and, ensuring that proper handling and storage of hazardous materials measures are implemented. BMP TR-1 will also require the implementation of construction warning signs, safety fencing, and detours which would minimize potential impacts on emergency response times.

However, a significant impact related to emergency response time, that might require construction of new temporary emergency access roads that might cause significant impacts, would still remain. Implementation of **Mitigation Measure PS-1**, which requires preparation of a TMP and coordination with fire protection services and first responders, and **Mitigation Measure WF-1**, which requires coordination with emergency response agencies and preparation of a RES, will reduce potential impacts associated with impeding emergency response times to a less-than-significant level. Because the Project would not generate substantial demand for additional fire protection and the Project would not significantly affect average response times or other performance metrics, the Project as mitigated would not require the provision of new or physically altered fire protection facilities. Therefore, this impact would be **less than significant with mitigation.**

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

Before construction of Project components, Valley Water and its contractors will prepare and implement a TMP to minimize traffic delays and safety hazards that may result from lane restrictions or closures in the work zone. TMP strategies will manage ~~improve~~ the mobility as well as safety for the traveling public and construction workers and will be consistent with applicable provisions of the Caltrans Transportation Management Plan Guidelines (2015). Overall TMP strategies ~~shall~~ will include:

- Public Information – Valley Water will keep the local and state agencies, as well as the public informed at the beginning of the Project, and periodically as construction proceeds with work zone information using the Project website, communication with selected stakeholders, and public outreach meetings.

- Motorist Information – Motorists will be provided with information regarding the work zone using Changeable Message Signs and Portable Changeable Message Signs. These signs notify the users of lane and road closures, work activities, traffic queues, delay, or travel time information.
- Incident Management – Incidents occurring in or near work zones will be addressed by employing construction tow services, and dedicated law enforcement and other first responders as necessary.
- Construction will be coordinated with the CHP, CAL FIRE, and other state and local agencies such as the Morgan Hill Fire Department, the San José Fire Department, and SSCFPD that provide public and/or emergency services for the study area. These agencies would be made aware of any traffic management issues and would share that information with first responders.
- Construction worker evacuation routes – Efficient construction worker evacuation routes will be designated, including use of the of north and south haul roads.

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) ~~Emergency Action Plan~~

Refer to Section 3.22, *Wildfire*.

***Impact PS-2: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection* (Less than Significant with Mitigation)**

Seismic Retrofit Construction

Law enforcement and public safety services in the vicinity of the Seismic Retrofit construction area are provided by a combination of departments from the County, City of San José, and City of Morgan Hill. As described in the fire protection service analysis above, temporary construction of Seismic Retrofit components would result in the potential for accidental wildland fire ignition, which would be minimized with the inclusion of BMP HM-12. Furthermore, construction would be required to comply with the requirements of the California Fire Code, which would further reduce the potential for accidental ignition. Implementation of BMP HM-12 and California Fire Code requirements will reduce the risk of accidental ignition such that the Project would not impact police service ratios or require the expansion or construction of additional police services related to fires.

The construction site would contain equipment and materials for construction of the Seismic Retrofit components. Valley Water's contractor would provide security to minimize the potential for theft from the construction site. Therefore, this aspect of construction would not require additional police services.

Seismic Retrofit components would generate a temporary increase in vehicle traffic in the immediate vicinity of the Project area from workers, equipment deliveries, and trucks. Additionally, a portion of Cochrane Road would be temporarily closed to through-traffic on four separate occasions during construction (see Section 2.5.2.3 for additional details). This represents a significant impact related to the possible construction of new or expanded police facilities associated with the potential need for temporary emergency access roads that could cause significant impacts. Traffic impacts on emergency response will be reduced through implementation of BMP TR-1 which requires implementation of construction warning signs, safety fencing, and detours, but the potential need for temporary emergency access road will still exist. Implementation of **Mitigation Measure PS-1**, which requires preparation of a TMP and coordination with local agencies, and **Mitigation Measure WF-1**, which requires coordination with local and state emergency response agencies <u>and preparation of a RES</u>, will reduce impacts on emergency police services to less-than-significant levels because there would be no need to construct new temporary emergency access roads. Although construction traffic levels and the temporary closure of Cochrane Road would increase emergency service response times, construction would not otherwise disrupt emergency police service response to the point that would require the construction or expansion of police facilities. With the inclusion of BMP TR-1 and the implementation of **Mitigation Measure PS-1**, the Santa Clara County Sheriff's Office did not foresee a significant effect on response times from the Project (Davis, personal communication, 2022).

As discussed above for Impact PS-1, construction of the Seismic Retrofit components would involve use and storage of hazardous materials, such as fuels. Fueling and maintenance of vehicles and equipment within the Seismic Retrofit construction area would introduce the potential for upset or accident conditions, which could require police or emergency response services in the event of a spill. Implementation of BMP HM-8 and HM-9 will minimize the potential for accidental upset of hazardous materials and thus minimize the need for an increase of police services by ensuring proper vehicle and equipment fueling and maintenance methods are followed and implementing proper handling and storage of hazardous materials.

BMPs HM-8, HM-9, HM-12, and TR-1 will minimize Seismic Retrofit competent impacts on police services. With implementation of and **Mitigation Measures PS-1** and **WF-1**, Seismic Retrofit construction will not generate substantial demand for police protection and will not significantly impact response times or other performance metrics such that the Seismic Retrofit construction would require the provision of new or physically altered governmental police protection facilities, the construction of which could cause significant environmental impacts. Therefore, this impact would be less than significant with mitigation.

Conservation Measure Construction

Construction activities associated with Conservation Measure components, including the Ogier Ponds CM, the Phase 2 Coyote Percolation Dam CM, <u>Maintenance of the</u> North Channel <u>Reach</u> ~~Extension~~, Sediment Augmentation Program, and Maintenance Activities at the Live Oak Restoration Reach, have the potential to result in similar impacts to police facilities as those described above for construction of the Seismic Retrofit. Potential impacts include accidental ignition of a wildfire, use and storage of hazardous materials and associated risk of upset, and temporary increases and disruptions in vehicle traffic in and around construction work areas due to operation and temporary storage of large construction equipment, construction worker trips to and from the sites, and transportation of construction material. These impacts may lead to an increased need for police protection and emergency responders or increase response times.

As described above, implementation of BMPs HM-8, HM-9, and TR-1 will minimize impacts associated with hazardous materials and traffic disruptions by requiring proper vehicle and equipment fueling and maintenance methods to be followed, implementing proper handling and storage of hazardous materials, and implementing construction warning signs, safety fencing, and detours. However, a significant impact related to impeding emergency response time from traffic disruptions would still remain due to the potential need for temporary emergency access roads.

Implementation of **Mitigation Measure PS-1**, which requires preparation of a TMP and coordination with fire protection services and first responders would reduce these risks, and **Mitigation Measure WF-1**, which requires coordination with local and state emergency response agencies <u>and preparation of a RES</u>, will mitigate this impact to less-than-significant levels. With these mitigation measures, construction of the Conservation Measures components would not result in significant impacts that would result in substantially increased need for new or physically altered police protection facilities. Impacts would be less than significant with mitigation.

Post-Construction Anderson Dam Facilities Operations

Post-construction releases from Anderson Reservoir into Coyote Creek would conform to FAHCE operating rule curves. Operational changes to reservoir flow releases would not require equipment that could result in an accidental ignition of a wildfire or result in disruptions to vehicle traffic on roadways that could led to an increased need for police protection services or impede emergency response time. Thus, post-construction Anderson Dam facilities operations would not result in new significant impacts associated with an increased demand for additional police protection that would result in a need for new or physically altered police protection facilities. Impacts would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek watershed such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These actions would occur when conservation measures are not functioning as intended or not meeting measurable objectives. Adaptive actions would occur within Anderson Reservoir and the Coyote Creek floodplain and may involve the use of construction equipment that could result in an accidental ignition of wildfire and use hazardous materials that may be accidentally spilled, both of which could require potential need for increased police protection services. However, implementation of BMP HM-8, HM-9, and HM-12 will require that proper vehicle and equipment fueling and maintenance methods are followed, that proper handling and storage of hazardous materials measures are implemented, and fire prevention methods are implemented, including maintaining on-site fire suppression equipment and park arrestors on all equipment with internal combustion engines, and prohibiting smoking except in designated staging areas. Therefore, post-construction Project and FAHCE adaptive management measures would not result in significant impacts associated with an increased need for new or physically altered police protection facilities. Impacts would be less than significant.

Significance Conclusion Summary

Impacts on police protection services include accidental ignition of a wildfire, temporary increases and disruptions to vehicle traffic in the vicinity of the Project that impedes emergency response timing, and increased potential for accidental upset of hazardous materials. Implementation of BMPs HM-12, HM-8, and HM-9 will minimize the risk of accidental ignition by maintaining onsite fire suppression equipment and park arrestors on all equipment with internal combustion engines, and prohibiting smoking except in designated staging areas; ensuring proper vehicle and equipment fueling and maintenance methods are followed; and ensuring that proper handling and storage of hazardous materials measures are implemented, respectively. Additionally, BMP TR-1 would require the implementation of construction warning signs, safety fencing, and detours which would minimize potential impacts on emergency response times. Traffic impacts on emergency response will be reduced through implementation of BMP TR-1, but the potential need for temporary emergency access road will still exist, a significant impact. Implementation of **Mitigation Measure PS-1**, which requires preparation of a TMP and coordination with police protection services and first responders, and **Mitigation Measure WF-1**, which requires coordination with emergency response agencies and preparation of a RES, will reduce potential impacts associated with impeding emergency response times to a less-than-significant level. Because the Project would not significantly affect average response times or other performance metrics nor generate substantial demand for additional police protection, the Project as mitigated would not require provision of new or physically altered police protection facilities, the construction of which could cause significant environmental impacts. Therefore, this impact would be **less than significant with mitigation**.

Mitigation Measures

PS-1 *Prepare and Implement Traffic Management Plan. Refer to Impact PS-1 above.*

WF-1 *Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) ~~Emergency Action Plan~~ Refer to Section 3.22, Wildfire.*

3.17.5 Cumulative Impacts

The geographic study area for the cumulative impact analysis for public services is the service areas of the police and fire protection resources that serve the Project Area in the communities of the county, San José, and Morgan Hill.

This section describes the Project’s contribution to cumulative public services impacts, as summarized in **Table 3.17-1**.

Table 3.17-1. Summary of Project Impact Contribution to Cumulative Public Service Impacts

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact PS-1: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection	No	No	NCC	PS-1 WF-1	No
Cumulative Impact PS-2: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or	No	No	NCC	PS-1 WF-1	No

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
other performance objectives for police protection					

Key: NCC = not cumulatively considerable

***Cumulative Impact PS-1: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection* (Not Cumulatively Considerable)**

Additional temporary impacts on fire protection services would include accidental ignition of a wildfire, use of hazardous materials that may require additional fire protection services, and temporary increases and disruptions to vehicle traffic in the Project vicinity, which could impede emergency response timing. Implementation of BMPs HM-12, HM-8, and HM-9 will minimize the risk of accidental ignition though: maintaining on-site fire suppression equipment and park arrestors on all equipment with internal combustion engines and prohibiting smoking except in designated staging areas; ensuring proper vehicle and equipment fueling and maintenance methods are followed; and, ensuring that proper handling and storage of hazardous materials measures are implemented. BMP TR-1 will also require the implementation of construction warning signs, safety fencing, and detours which would minimize potential impacts on emergency response times.

However, even with BMP TR-1, a significant impact related to emergency response time from construction traffic, that might require construction of new temporary emergency access roads that might cause significant impacts, would still remain. Implementation of **Mitigation Measure PS-1,** which requires preparation of a TMP and coordination with fire protection services and first responders, and **Mitigation Measure WF-1**, which requires coordination with emergency response agencies and preparation of a RES, will reduce potential impacts associated with impeding emergency response times to a less-than-significant level.

Cumulative Effects of Project with the FOCP

~~As described in Section 3.17, "Public Services," the FOCP required closure of Woodchopper's Flat Picnic Area which a is designated as a temporary refuge area during a wildfire. The Woodchopper's Flat would remain closed throughout construction but would be restored and reopened following construction of the Project. The other elements of the~~ FOCP-related activities are at discrete and separate locations from Project activities and would not contribute to a cumulatively significant impact on fire protection services.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Buildout of the Santa Clara Housing Element, which would occur concurrently with Project construction, was determined to have a less-than-significant impact on fire protection services

(Santa Clara County 2023). Buildout of Envision San José 2040, also to occur concurrently with Project construction, was determined to have a less-than-significant impact on fire protection services with implementation of proposed general plan policies (San Jose 2023 ~~2011~~). Similarly, buildout of the Morgan Hill General Plan 2035 was determined to have a less-than-significant impact on fire protection services with implementation of proposed general plan policies (Morgan Hill 2016).

Additionally, development projects within the county, San José and Morgan Hill would be constructed at the same time as Project (over the course of 7 years). Those lead agencies would be required to complete CEQA compliance prior to project approval to avoid, reduce, or minimize potential impacts on the environment, including fire protection services. Also, these projects would not generate substantial traffic in the same area as the Project. Therefore, the cumulative impact on fire protection services resulting from the Project in combination with other probable future projects, programs, and plans would not be significant.

Significance Conclusion Summary

The construction of the Seismic Retrofit component would have a significant impact to fire response time, but this is at the project level. **Mitigation Measures PS-1 and WF-1** would reduce this impact to less-than-significant levels. The Project would not combine with the FOCP or other future projects in a manner that would cause a cumulatively significant impact to fire protection. The Project impact on construction or expansion of fire facilities would be **not cumulatively considerable.**

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) ~~Emergency Action Plan~~

***Cumulative Impact PS-2: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection* (Not Cumulatively Considerable)**

Impacts on police protection services include accidental ignition of a wildfire, temporary increases and disruptions to vehicle traffic in the Project vicinity would that impede emergency response timing and increase potential for accidental upset of hazardous materials. Implementation of BMPs HM-12, HM-8, and HM-9 would minimize the risk of accidental ignition by maintaining on-site fire suppression equipment and park arrestors on all equipment with internal combustion engines and prohibiting smoking except in designated staging areas; ensuring proper vehicle and equipment fueling and maintenance methods are followed; and ensuring that proper handling and storage of hazardous materials measures are implemented, respectively. Additionally, BMP TR-1 would require the implementation of construction warning signs, safety fencing, and detours which would minimize potential impacts on emergency response times.

However, even with BMP TR-1, the potential need for temporary emergency access road will still exist, a significant impact. Implementation of **Mitigation Measure PS-1**, which requires preparation of a TMP and coordination with police protection services and first responders, and **Mitigation Measure WF-1**, which requires coordination with emergency response agencies and preparation of a RES, will reduce potential impacts associated with impeding emergency response times to a less-than-significant level.

Cumulative Effects of Project with the FOCP

The FOCP would be completed before Project-related construction activities begin, and elements of the FOCP are at discrete and separate locations from Project activities that would not create a cumulative effect on police protection services.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Buildout of the Santa Clara Housing Element, which would occur concurrently with Project construction, was determined to have a less-than-significant impact on police protection services (Santa Clara County 2023). Buildout of Envision San José 2040, also to occur concurrently with Project construction, was determined to have a less-than-significant impact on police protection services with implementation of proposed general plan policies (San Jose 2023 ~~2011~~). Similarly, buildout of the Morgan Hill General Plan 2035 was determined to have a less-than-significant impact on police protection services with implementation of proposed general plan policies (Morgan Hill 2016).

Additionally, development projects within the county, San José and Morgan Hill would be constructed at the same time as Project (over the course of 7 years). Those lead agencies would be required to complete CEQA compliance prior to project approval to avoid, reduce, or minimize potential impacts on the environment, including police protection services. Also, these projects would not generate substantial traffic in the same area as the Project. Therefore, the cumulative impact on police protection services resulting from the Project in combination with other probable future projects, programs, and plans would not be significant.

Significance Conclusion Summary

The construction of the Seismic Retrofit component would have a significant impact to police response time, but this is at the project level. **Mitigation Measures PS-1 and WF-1** would reduce this impact to less-than-significant levels. The Project would not combine with the FOCP or other future projects in a manner that would cause a cumulatively significant impact to police protection. The Project's impact on construction or expansion of police facilities would be **not cumulatively considerable.**

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) ~~Emergency Action Plan~~

3.17.6 References

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3.18 Recreation

This section evaluates the Project impacts on recreational resources, facilities, and opportunities within the three study areas, defined below. These include both land-based and water-based recreational resources and the areas that support them. Recreational opportunities that have been considered include hiking, camping, picnicking, fishing (i.e., angling), wildlife viewing, bicycling, horseback riding, day use amenities, trail use, and powered and nonpowered boating.

The study areas include:

(1) recreational areas that could be directly affected by construction activities related to the seismic retrofit and conservation measure components (i.e., closures or disruptions to recreational areas from construction-related activities and ground disturbance);

(2) recreational areas that could be affected by increased usage that would occur as a result of closures or disruptions happening within or adjacent to the Project area; and,

(3) Anderson Reservoir, Coyote Creek, and other natural resources (e.g., connecting water features [e.g., streams and creeks], wetlands, and trees) within park and recreational areas that may be affected by operational changes related to implementation of the Project.

For the purpose of this evaluation, the study areas are based on the assumption that boating and angling recreationalists would travel up to 25 miles from the Project area within Santa Clara County (County) to reach an alternate facility, and other users (picnickers/hikers who generally originate within walking distance of Anderson Reservoir) would travel up to 5 miles from the Project area to reach an alternative recreational facility or opportunity for picnicking and potentially further to regional parks in the County for hiking, nature viewing, and other activities.

3.18.1 Environmental Setting

The environmental setting describes the existing conditions of recreational resources in the study areas. The environmental setting is based on three different baseline conditions that form the basis for comparing Project impacts for recreational resources against the baseline. The existing conditions baseline reflects reasonable assumptions of the recreational setting following the implementation of the FOCP, based on available information at the time of EIR preparation (2022). The existing conditions baseline would be used for evaluating the Seismic Retrofit and Conservation Measure construction impacts. For evaluating post-construction operations impacts, the Pre-FERC Order Baseline and a future conditions baseline are used; see below discussion for evaluating impacts of Anderson Reservoir operations.

Information about the environmental setting for recreation was primarily gathered from websites and documents of the SCCPRD, California State Parks, City of Morgan Hill Department of Parks and Recreation, City of San José Department of Parks, ~~and~~ Recreation, and Neighborhood Services, Midpeninsula Regional Open Space District, and Santa Clara Open Space Authority.

Table 3.18-1 lists recreational facilities within the study areas and Project vicinity, summarizes the facilities and amenities offered at each location, and uses that each area supports. The table lists facilities based on their distance from the Project Area. **Figure 3.18-1** depicts the locations of recreational facilities within the study areas. The first two parks in **Table 3.18-1**, Anderson Lake County Park and Coyote Creek Parkway, essentially encompass the Project Area. The remaining parks listed in **Table 3.18-1** may be impacted by the displacement of recreators that would typically use Anderson Lake County Park and/or Coyote Creek Parkway.

Table 3.18-1. Recreational Facilities in the Study Areas

Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
1	Anderson Lake County Park (including the Rosendin Park Area)	County Parks	✓	4,287	Reservoir, paved and unpaved multi-use trails, picnic areas, boat launch, equestrian staging area	Horseback riding, hiking, fishing, non-power boating, power boating, angling, historic site, interpretive program, picnicking, nature trails, reservable group picnics, kayak, trails	Open year round; 8:00 a.m. to sunset	Currently closed to boating due to ~~dam~~ construction activities at Anderson Dam (FOCP), along with select recreational areas closed	0.0	✓	✓	✓
2	Coyote Creek Parkway	County Parks	✓	866	Paved and unpaved multi-use trails, connects to Anderson Lake County Park and Hellyer County Park	Biking, horseback riding, hiking, fishing, historic site, wildlife viewing, picnicking, unpaved and paved trails	Open year round; 8:00 a.m. to sunset		0.0		✓	✓
3	Metcalf Park	City of San José		6	Picnic areas (non-reservable), sand volleyball court, basketball courts, playground, BBQ area, street parking, restrooms	Picnicking, sports activities, volleyball, basketball, children's activities	Open year round; sunrise to 1 hour after sunset		0.0			✓
4	Basking Ridge Park	City of San José		8	Playground, picnic area, BBQ area, open grass area, paved trails, creek, street parking	Children's activities, picnicking, nature viewing, walking	Open year round; sunrise to 1 hour after sunset		0.5			✓
5	Serra Park	City of Morgan Hill		3	Tennis courts, open grass areas, picnic area	Tennis, nature viewing, picnicking, walking	Open year round; 6:00 a.m. to 10:00 p.m.		0.5			✓
6	Los Paseos Park	City of San José		12	Picnic areas, exercise court, tennis courts (lighted), turf area for informal sports, playground, community center, restroom, parking, open grass area	Reservable group picnics, sport activities, tennis, children's activities, walking, nature viewing	Open year round; sunrise to 1 hour after sunset		0.6			✓
7	Lantana/Wisteria Community Park	City of Morgan Hill		1	Playground, picnic area, open grass areas, street parking	Children's activities, picnicking, nature viewing, walking	Open year round; 6:00 a.m. to 10:00 p.m.		0.6			✓
8	Mission Ranch Park	City of Morgan Hill		2	Playgrounds, open grass areas, street parking, picnic areas	Children's activities, nature viewing, walking, picnicking	Open year round; 6:00 a.m. to 10:00 p.m.		0.6			✓
9	Coyote Lake-Harvey Bear Ranch County Park	County Parks	✓	6,730	Reservoir, stream, campsites, boat launch, paved and unpaved multi-use trails, picnic areas, amphitheater (outdoor), restroom, restroom with shower, parking	Biking, mountain biking, horseback riding, walking, hiking, fishing, family campsites, dogs (on-leash), RV camping, non-power boating, power boating, outdoor amphitheater, interpretive program, picnicking, nature trails, youth group overnight campsites, group overnight campsites, vista point	Open year round; 8:00 a.m. to sunset	Vehicle entry fees collected year-round; Coyote Lake periodically closes to boating due to low water levels	0.7	✓	✓	✓
10	Bautista Park	City of Morgan Hill		0.3	Playground, picnic area, open grass area, street parking	Playground, picnicking, walking	Open year round; 6:00 a.m. to 10:00 p.m.		0.7			✓
11	Avenida Espana Park	City of San José		1	Playgrounds, open grass areas, street parking	Children's activities, nature viewing, walking	Open year round; sunrise to 1 hour after sunset		0.9			✓

Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
12	Santa Teresa County Park	County Parks	✓	1,484	Golf club, equestrian staging area, picnic areas, archery range, unpaved multi-use trails, cultural venues, trailhead with parking, restroom, historic site	Biking, horseback riding, hiking, walking, archery, historic site, interpretive program, picnicking, golf course, reservable group picnics, dogs on leash, horseshoe pit, volleyball, mountain biking, nature viewing, wildlife viewing	Open year round; 8:00 a.m. to sunset	Vehicle entry fees are collected year-round	1.1			✓
13	Jackson Park	City of Morgan Hill		1	Playground, open grass area	Children's activities, nature viewing, walking	Open year round; 6:00 a.m. to 10:00 p.m.		1.2			✓
14	Henry W. Coe SP	California State Parks	✓	87,188	Unpaved multi-use trails, camp sites, picnic areas, ponds, lakes, creeks, rugged terrain	Hiking, mountain biking, backpacking, horseback riding, car camping, picnicking, photography, fishing, rugged terrain, wildlife viewing	Open year round; 24 hours	Temporary closures; see map	1.2		✓	✓
15	Silver Leaf Park	City of San José		6	Playground, picnic areas, open grass area, half-sized basketball court, BBQ area, street parking	Children's activities, nature viewing, walking, basketball, picnicking	Sunrise to an hour after sunset		1.3			✓
16	Golden Oak Park	City of San José		2	Playground, picnic area, circuit training stations, TRX and strength training area, corn hole gaming area	Children's activities, picnicking, circuit training stations, TRX and strength training area, corn hole gaming area, nature viewing	Open year round; sunrise to 1 hour after sunset		1.4			✓
17	Murphy Springs Park	City of Morgan Hill		0.5	Paved trail, open grass area, street parking	walking, nature viewing	Open year round; 6:00 a.m. to 11:00 p.m.		1.5			✓
18	Coyote Valley	SCVOSA	✓	348	Multi-use trail, restroom, equestrian staging area, parking, picnic areas	Picnicking, hiking, bicycling, equestrian, scenic views, wildlife viewing	7:00 a.m. to 6 p.m.		1.6			✓
19	Fox Hollow Park	City of Morgan Hill		0.2	Picnic area, half-sized basketball court, street parking	Walking, picnicking, basketball, nature viewing	Open year round; 6:00 a.m. to 10:00 p.m.		1.6			✓
20	George Page Park	City of San José		6	Playground, picnic areas, open grass area, soccer by permit only, tennis court, softball field, BBQ area, street parking	Walking, children's activities, picnicking, nature viewing, playground, tennis, soccer, softball	Open year round; sunrise to 1 hour after sunset		1.7			✓
21	Nordstrom Park	City of Morgan Hill		4	Paved trail, open grass area, small picnic area, half-sized basketball court, street parking	Walking, picnicking, nature viewing, basketball	Open year round; 6:00 a.m. to 10:00 p.m.		1.8			✓
22	Bernal Gulnac Joice Ranch	County Parks	✓	20	Unpaved trails, interpretive programs, open grass area, school programs, garden, barn, picnic tables, rugged terrain; connects to Santa Teresa County Park	Hiking, historic site, wildlife viewing, picnicking, unpaved trails, interpretive program, picnicking, nature trails, rugged terrain	Open year round; 8:00 a.m. to sunset		2.0			✓
23	Belle Estates Park	City of Morgan Hill		0.5	Playground, paved trail, and open grass area, street parking	Playground, walking, and nature viewing	Open year round; 6:00 a.m. to 10:00 p.m.		2.2			✓

Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
24	Ramac Park	City of San José		11	Playground, reserved picnic areas, open grass area, soccer by permit only, tennis court, softball field, half-sized basketball court, parking, restrooms	Walking, children's activities, picnicking, nature viewing, soccer, tennis court, softball, basketball	Open year round; sunrise to 1 hour after sunset		2.2			✓
25	Galvan Park	City of Morgan Hill		7	Playground, open grass areas, small picnic area, reservable group picnic areas, BBQ areas, multi-purpose sports fields, handball, half-sized basketball court, parking	Playground, walking, nature viewing, picnicking, multi-purpose sports fields, handball, basketball	Open year round; 6:00 a.m. to 10:00 p.m.		2.3			✓
26	Stone Creek Park	City of Morgan Hill		1	Playground, paved trail, open grass area, small picnic area, BBQ area, half-sized basketball court, street parking	Playground, walking, nature viewing picnicking, basketball	Open year round; 6:00 a.m. to 10:00 p.m.		2.3			✓
27	Palmia Park	City of San José		4	Playground, picnic areas, open grass area, half-sized basketball courts, tennis court, BBQ area, street parking	Playground, walking, nature viewing picnicking, basketball	Open year round; sunrise to 1 hour after sunset		2.4			✓
28	Century Oaks Park	City of San José		18	Playground, picnic areas, open grass area, half-sized basketball courts, tennis court, street parking	Children's activities, nature viewing, walking, picnicking, open fields	Open year round; sunrise to 1 hour after sunset	Opening soon	2.4			✓
29	Shady Oaks Park	City of San José		8	Playground, picnic areas, paved trails, open grass area, half-sized basketball courts, exercise court, BBQ area, street parking; connects to Coyote Creek Trail	Children's activities, walking and hiking trails, nature viewing, walking, picnicking, open fields, basketball, outdoor fitness equipment	Open year round; sunrise to 1 hour after sunset		2.5			✓
30	La Colina Park	City of San José		22	Playground, picnic areas, unpaved and paved trails, open grass area, Children's water feature, permit only soccer field, exercise court, BBQ area, restroom, parking	Children's activities, walking and hiking trails, nature viewing, picnicking, open fields, soccer	Open year round; sunrise to 1 hour after sunset	Children's water feature currently closed	2.6			✓
31	Calero Reservoir County Park	County Parks	✓	4,462	Reservoir, unpaved trails, boat launching, power boating, sailing, fishing, water-skiing and jet-skiing, picnic areas, BBQ area, parking, restrooms; Serpentine Loop Trail connects to Longwall Canyon Trail in the Open Space Authority's Cañada del Oro Open Space Preserve	Hiking, mountain biking, trails, fishing (catch and release), sailing, power boating, horseback riding, kayaking, wildlife viewing, picnicking, dogs allowed in all areas of park on 6ft leash or less, except for all trails south of Bald Peaks trail, interpretive programs and outdoor projects	Open year round; 8:00 a.m. to sunset	Vehicle entry fees are collected year-round; no fee at trailhead staging area	2.7	✓	✓	✓
32	Calero Park	City of San José		4	Playground, picnic areas, paved and unpaved trails, open grass area	Children's activities, walking, hiking, open fields, nature viewing, picnicking	Open year round; sunrise to 1 hour after sunset		3.0			✓
33	Scenic Meadows	City of San José		19	Playground, picnic areas, paved and unpaved trails, open grass area	Children's activities, walking, trails, hiking, open fields, nature viewing, picnicking	Open year round; sunrise to 1 hour after sunset		3.0			✓

Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
34	Miner Park	City of San José		5	Playground, picnic areas, open grass area, exercise court; street parking	Children's activities, walking, nature viewing, picnicking, open fields, outdoor fitness equipment	Open year round; sunrise to 1 hour after sunset		3.1			✓
35	Great Oaks Park	City of San José		12	Playground, picnic areas, open grass area, BBQ area, skate park, softball field, permit only soccer field, Basketball courts, street parking, restroom	Sports activities, children's activities, walking, nature viewing, picnicking, open fields	Open year round; sunrise to 1 hour after sunset		3.2			✓
36	Chesbro Reservoir County Park	County Parks	✓	244	Picnic areas, fishing	Fishing, picnicking, wildlife viewing, scenic views, dogs allowed in all areas of park on 6ft leash or less	Open year round; 8:00 a.m. to sunset	Periodically closes to boating due to low water levels	3.4		✓	✓
37	Chynoweth Park	City of San José		3	Picnic areas, BBQ area, playground, street parking	Children's activities, walking, picnicking, open fields	Open year round; sunrise to 1 hour after sunset		3.4			✓
38	Coy Park	City of San José		4	Picnic areas, playground, exercise court, street parking	Children's activities, walking, picnicking, open fields, outdoor fitness equipment	Open year round; sunrise to 1 hour after sunset		3.6			✓
39	Hellyer County Park	County Parks	✓	182	Paved and unpaved multi-use trails, fishing, dogs (on-leash), dog park (off-leash), interpretive program, picnic areas, reservable group picnics, playgrounds, Splash pad at playground, disc golf, horseshoes, Olympic-size velodrome, volleyball, biking, nature trails, walking, restrooms, parking	Fishing, dogs (on leash), dog parks (off-leash), hiking, running, interpretive programs, picnicking, reservable group picnicking, children's activities, disc golf, horseshoes, velodrome, volleyball, biking, nature trails, paved trails, walking, monthly public programs	Open year round; 8:00 a.m. to sunset	Vehicle entry fees; fishing is allowed year-round at Cotton Lake and during fishing season in Coyote Creek	3.7		✓	✓
40	Canyon Creek Park	City of San José		1	Picnic areas, playground, open grass area, street parking	Children's activities, walking, nature viewing, picnicking, open fields	Open year round; sunrise to 1 hour after sunset		3.7			✓
41	Paradise Park	City of Morgan Hill		7	Playground, small picnic areas, ball fields, multi-purpose sports fields, open grass area, street parking	Walking, children's activities, nature viewing, open fields, sports activities, picnicking	Open year round; 6:00 a.m. to 10:00 p.m.		3.9			✓
42	Comanche Park	City of San José		3	Playground, small picnic areas, street parking	Walking, children's activities, nature viewing, picnicking	Open year round; sunrise to 1 hour after sunset		3.9			✓
43	Mill Creek Park	City of Morgan Hill		1	Playground, small picnic areas, street parking	Walking, children's activities, nature viewing, picnicking	Open year round; 6:00 a.m. to 10:00 p.m.		4.0			✓
44	Silver Creek Linear Park	City of San José		53	Playground, reservable picnic areas at Meadows Picnic area, paved trail, basketball court, unlighted tennis courts, exercise courses, unpaved and paved trail	Walking, children's activities, nature viewing, picnicking, sports activities, open fields, outdoor fitness equipment	Open year round; sunrise to 1 hour after sunset		4.0			✓

Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
45	Martial Cottle County Park	County Parks	✓	288	Multi-use trails, dogs allowed, picnic areas, reservable group picnic areas, biking, equestrian area, paved trails, visitor center, restrooms	Biking, trails, walking, horseback riding, wildlife viewing, picnicking, skaters, non-motorized scooters use on paved trails, dogs allowed in all areas of park on 6ft leash or less, open areas, monthly public programs	Vehicle entry fees ; Open year round; 8:00 a.m. to sunset		4.1			✓
46	Danna Rock Park	City of San José		10	Playground, picnic area, BBQ area, half basketball court, street parking	Children's activities, nature viewing, walking, picnicking, sports activities, open fields	Open year round; sunrise to 1 hour after sunset		4.1			✓
47	Evergreen Park	City of San José		15	Playground, picnic area, BBQ area, restrooms, parking lot	Children's activities, nature viewing, walking, picnicking, open fields	Open year round; sunrise to 1 hour after sunset		4.2			✓
48	Carrabelle Park	City of San José		5	Picnic areas, children's water play feature, playground, street parking	Children's activities, nature viewing, walking, picnicking, open fields	Open year round; sunrise to 1 hour after sunset		4.2			✓
49	Melody Park	City of San José		4	Picnic areas, BBQ area, playground, street parking	Children's activities, nature viewing, walking, picnicking, open fields	Open year round; sunrise to 1 hour after sunset		4.4			✓
50	Montgomery Hill Park	City of San José		74	Picnic areas, unpaved trail, street parking, multiple trails	Hiking, nature viewing, walking, picnicking, open fields, multiple trails	Open year round; sunrise to 1 hour after sunset		4.4			✓
51	Howard Wiechert Park	City of Morgan Hill		1	Playground, half basketball court, street parking	Children's activities, nature viewing, walking, sports activities	Open year round; 6:00 a.m. to 10:00 p.m.		4.4			✓
52	Rancho Canada del Oro Open Space Preserve	SCVOSA	✓	1,469	Parking for cars and horse trailers, equestrian, unpaved trails, multi-use trail, accessible restrooms, picnic tables, paved and unpaved trails; wheelchair accessible at Llagas Creek Loop Trail	Multi-use trail, hiking, biking, biking, trails, walking, horseback riding, wildlife viewing, picnicking, wildlife viewing	7:00 a.m. to 6 p.m.		4.5			✓
53	Almaden Quicksilver County Park	County Parks	✓	4,166	Dogs allowed (except Casa Grande), picnic areas, cultural venues, biking, equestrian area, unpaved and paved trails, guided nature walks and school programs. visitor center, restrooms, mining museum, parking	Biking, mountain biking, trails, walking, horseback riding, wildlife viewing, picnicking, skaters, fishing (catch and release), dogs allowed in all areas of park on 6-foot leash or less (except Casa Grande), monthly public programs	Open year round; 8:00 a.m. to sunset		4.6		✓	✓
54	Parkview III Park	City of San José		5	Playground, picnic areas, unpaved trail, street parking, multiple trails	Children's activities, nature viewing, walking, picnicking, open fields	Open year round; sunrise to 1 hour after sunset		4.6			✓
55	Oak Creek Park	City of Morgan Hill		3	Playground, small picnic area, half basketball court, tennis court, street parking	Children's activities, nature viewing, walking, sports activities	Open year round; 6:00 a.m. to 10:00 p.m.		4.7			✓

Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
56	Falls Creek Park	City of San José		1	Playground, picnic areas, street parking	Children's activities, walking, picnicking, open fields	Open year round; sunrise to 1 hour after sunset		4.7			✓
57	Cahalan Park	City of San José		10	Playground, reservable and non-reservable picnic areas, street parking, restroom, basketball court, unlighted softball fields, unlighted tennis courts, soccer field (permit use only), half basketball court	Children's activities, walking, picnicking, open fields, sports activities	Open year round; sunrise to 1 hour after sunset		4.7			✓
58	Foothill Park	City of San José		7	Reservable and non-reservable picnic areas, street parking, unpaved trails	Hiking, nature viewing, walking, picnicking	Open year round; sunrise to 1 hour after sunset		4.8			✓
59	Ramblewood Park	City of San José		9	Reservable and non-reservable picnic areas, BBQ area, playground, restroom, street parking	Children's activities, walking, picnicking, open fields, nature viewing	Open year round; sunrise to 1 hour after sunset		4.9			✓
60	Playa del Rey Park	City of San José		3	Picnic areas, BBQ area, playground, half basketball court, street parking	Children's activities, walking, sports activities, picnicking, open fields, nature viewing	Open year round; sunrise to 1 hour after sunset		4.9			✓
61	Greystone Park	City of San José		4	Picnic areas, BBQ area, playground, restrooms, street parking	Children's activities, walking, sports activities, picnicking, open fields, nature viewing	Open year round; sunrise to 1 hour after sunset		4.9			✓
62	Parkview II Park	City of San José		3	Playground, street parking	Children's activities, walking, open fields, nature viewing	Open year round; sunrise to 1 hour after sunset		5.0			✓
63	Cathedral Oaks Park	City of San José		17	Street parking, unpaved trails	Walking, open fields, nature viewing	Open year round; sunrise to 1 hour after sunset		5.0			✓
64	Uvas Reservoir County Park	County Parks	✓	1,021	Dogs allowed, picnic areas, reservoir, equestrian, unpaved and paved trails, restroom, parking	Trails, walking, equestrian, wildlife viewing, picnicking, skaters, fishing, dogs allowed in all areas of park on 6ft leash or less	Open year round; 8:00 a.m. to sunset	Periodically closes to boating due to low water levels	5.4		✓	✓
65	Joseph D. Grant County Park	County Parks	✓	10,910	Paved and unpaved multi-use trails, rugged terrain, restrooms, parking, ponds, fishing, family campsites, group overnight campsites, youth group overnight campsites, amphitheater (outdoor), dogs (on leash), cultural venues, interpretive program, weddings and receptions, picnic areas, reservable group picnics, equestrian	Wildlife viewing, nature trails, rugged terrain, scenic views, horseback riding, picnicking, unpaved and paved trails, walking, fishing, hiking, trails, camping, group camping, biking, mountain bikes, dogs allowed in all areas of park on 6ft leash or less, paved and unpaved multi-use trails	Open year round; 8:00 a.m. to sunset		5.4		✓	✓
66	Almaden Lake Park	City of San José	✓	63	Lake, creek, paved trails, non-reservable and reservable picnic areas, restroom, parking, basketball court, bocce ball, horseshoes, trail, concession stand (seasonal), amphitheater, playground, dogs allowed (leash required), public telephone, fishing. The trail system	Picnicking, wildlife viewing, children's activities, walking, sports activities, picnicking, nature viewing, fishing, trails	Open year round; 8:00 a.m. to sunset	Parking fee	5.8		✓	✓

Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
					links to Los Alamitos Creek Trail to the south and Guadalupe River Trail.							
67	Arcadia Ballpark	City of San José	✓	15	Sports park, paved walkways, grass field, hot concessions grill, restrooms, shaded stadium armchair seating, mini synthetic ball field, sport-themed playground, parking, picnic areas, pet-friendly (must be on a leash)	Picnicking, walking, sports park, reserve a field (seasonal basis), softball leagues (seasonal basis)	Seasonal; 8:00 a.m. to 10 p.m.		6.4			✓
68	Sierra Azul Preserve	MPROSD	✓	18,696	Paved and unpaved multi-use trails, multiple trails, rugged terrain, restrooms, parking, dogs (on leash and on designated trails), interpretive program, monthly public programs, picnic areas, reservable group picnics, equestrian, public telephone	Hiking (all trails), bicycling (designated trails), horseback riding (designated trails), dogs on leash (designated trails), wildlife viewing, nature viewing, picnicking, trails, rugged terrain	Open a half-hour before sunrise until a half-hour after sunset Mount Umunhum area open closes at sunset		6.7			✓
69	Lake Cunningham Park	City of San José	✓	207	Lake, creek, picnic area, playgrounds, non-reservable and reservable picnic areas, parking, trail, restrooms, fitness center, San Jose Action Sports Park (skate park, bike park), equipment rental, public pay phone; Lake Cunningham is also home to Raging Waters.	Walking, paved trail, children's activities, walking, sports activities, picnicking, nature viewing, trails	Open year round; 8:00 a.m. to sunset; San Jose Action Sports Park Hours are Wednesday - Friday: 3 p.m. to 7 p.m.	Parking fee The bike park temporarily closed	7.1		✓	✓
70	Kelley Park	City of San José	✓	121	Creek, picnic area, playgrounds, non-reservable and reservable picnic areas, BBQ area, parking, restrooms, disc golf course, amphitheater, wedding venues (Leininger Wisteria Arbor, Kelley amphitheater, Okayama room). Happy hollow park and zoo (separate fees), Japanese friendship Garden, History Park, disc golf course are also onsite.	Children's activities, walking, paved trails, bicycling, picnicking, nature viewing, open areas, zoo	Open year round; 8:00 a.m. to sunset	Parking fee; K-4 parking lot and disc golf course temporarily closed	7.6			✓
71	Uvas Canyon County Park	County Parks	✓	1,147	Paved and unpaved multi-use trails, streams, rugged terrain, restrooms, parking, ponds, family campsites, group overnight campsites, youth group overnight campsites, ADA campsite, restroom with shower, amphitheater, dogs (on leash), picnic areas, reservable group picnics	Wildlife viewing, nature trails, rugged terrain, nature sites, scenic views, picnicking, unpaved and paved trails, walking, hiking, trails, camping, group camping, dogs allowed in all areas of park on 6ft leash or less, paved, and unpaved trails	Open year round; 8:00 a.m. to sunset	Gates close at sunset; no re-entry after gates are closed Camping fees Reservation required before entering Uvas Canyon	8.3			✓

Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
72	Emma Prusch Farm Park	City of San José	✓	38	Agricultural-based Park, picnic area, playgrounds, non-reservable and reservable picnic areas, BBQ area, parking, restrooms, Meeting Hall, 4H livestock barn, barn, rose garden, fruit orchard, community garden, science center, The Hatchery Preschool, school tours, summer classes/camp, group hay wagon rides, host group events, community farm	Walking, jogging, planting, children's activities, paved trails, bicycling, picnicking, nature viewing, open areas, classes and summer camps, tours, open grass	Open year round; 8:00 a.m. to sunset		8.4			✓
73	Chitactac-Adams County Park	County Parks	✓	4	Trail, creek, restrooms, parking, interpretive trail, amphitheater, cultural venue, picnic area	Wildlife viewing, nature trails, nature sites, scenic views, picnicking, unpaved and paved trails, walking, hiking, self-guided interpretive walk, guided educational programs	Open year round; 8:00 a.m. to sunset	No vehicle entry fees	9.0			✓
74	Mt. Madonna County Park	County Parks	✓	4,619	Visitor center, parking, picnic areas, reservable group picnics, historic site, restrooms, multi-use trails, self-guided nature trail, equestrian, amphitheater (outdoor), archery range, camping, family campsites, RV camping, Yurts camping, interpretive program Weddings and receptions,	Wildlife viewing, nature trails, scenic views, picnicking, walking, hiking, trails, camping, archery, horseback riding, dogs allowed in all areas of park on 6ft leash or less, paved and unpaved multi-use trails, monthly public programs,	Open year round; 8:00 a.m. to sunset	Vehicle entry fee; fees for use of group picnic and group camping areas	9.1			✓
75	Guadalupe River Park	City of San José	✓	30	Creek, parking, playground, public bathrooms; accessible to Guadalupe Gardens (San Jose Heritage Rose Garden, Historic orchard, Community Garden, Courtyard and Taylor Street Rock Gardens, Rotary Play garden)	Walking, jogging, children's activities, paved trails, bicycling, picnicking, wildlife viewing, nature viewing, open areas, open grass	Open year round; 8:00 a.m. to sunset		10.0			✓
76	Los Gatos Creek County Park	County Parks	✓	121	Picnic areas, reservable group picnics, fishing, fly-casting, remote control boating, interpretive wildlife preserve, programs, parking, restrooms, paved trails, paved and unpaved trails, nature site, pond, streams, dam,	Wildlife viewing, nature trails, scenic views, fishing, fly-casting, remote control boating, bicycling, picnicking, walking, hiking, trails, dogs allowed in all areas of park on 6ft leash or less, dog park, paved and unpaved trails	Open year round; 8:00 a.m. to sunset	Park fees	10.5		✓	✓
77	Alum Rock Park	City of San José	✓	672	Playground, picnic areas, reservable group picnics, restroom, parking, BBQ area, paved and unpaved multi-use trails, creek, rugged terrain, Youth Center, educational programs, visitor center	Children's activities, nature viewing, walking, hiking, horseback riding, bicycling, family, and group picnicking, summer camps and educational programs, open grass area	Open year round; sunrise to 1 hour after sunset	Parking fee	10.8			✓

Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
78	Penitencia Creek County Park	County Parks	✓	13	Nature center, playground, paved and unpaved multi-use trails, pond, creek, restrooms, parking, street parking, dogs (on leash), picnic area, multiple trails	Children's activities, wildlife viewing, nature trails, scenic views, picnicking, unpaved and paved trails, walking, hiking, trails, biking, dogs allowed in all areas of park on 6ft leash or less, open areas	Open year round; 8:00 a.m. to sunset	Some trail portions are as yet undeveloped	10.9			✓
79	Vasona County Park	County Parks	✓	155	Fishing, lake, paddle boat rental (early spring to fall), dogs (on leash), interpretive program, picnic areas, reservable group picnics, parking, restrooms, playgrounds, horseshoes, volleyball, paved and unpaved trails, Youth Science Institute	Fishing, dogs (on leash), interpretive program, orienteering, picnicking, reservable group picnics, playgrounds, horseshoes, volleyball, biking, nature trails, paved trails, walking, wildlife viewing, nature trails, scenic views, hiking, trails, dogs allowed in all areas of park on 6ft leash or less	Open year round; 8:00 a.m. to sunset	Park fees	11.0		✓	✓
80	Sierra Vista Open Space Preserve	SCVOSA	✓	507	Parking for cars and horse trailers, equestrian, unpaved trails, multi-use trail, restrooms, picnic tables, paved and unpaved trails	Multi-use trail, hiking, biking, biking, trails, walking, horseback riding, wildlife viewing, picnicking, wildlife viewing, rugged terrain	7:00 a.m. to 6 p.m.		11.5			✓
81	Lexington Reservoir County Park	County Parks	✓	961	Fishing, reservoir, non-power boating, dogs (on leash), interpretive program, picnics, parking, restrooms, paved and unpaved trails; access the Jones Trail and Saint Joseph's Hill Open Space Preserve.	Fishing, dogs (on leash), interpretive program, picnicking, reservable group picnics, biking, mountain biking, nature trails, paved trails, walking, wildlife viewing, nature trails, scenic views, hiking, trails, dogs allowed in all areas of park on 6ft leash or less	Open year round; 8:00 a.m. to sunset Boats must be off the water 30 minutes before sunset.	Open for boating by online reservation Vessels allowed to launch are non-power, hand-launch only, including canoes, kayaks, float tubes, and stand-up paddleboards. Lake use fee and a vehicle entry fee	11.7	✓	✓	✓
82	St. Joseph's Hill	MPROSD	✓	181	Paved and unpaved multi-use trails, equestrian, rugged terrain, limited parking, dogs (on leash and on designated trails)	Hiking (all trails), bicycling (designated trails), horseback riding (designated trails), dogs on leash (designated trails), wildlife viewing, vista point, nature viewing, trails, rugged terrain	Open a half-hour before sunrise until a half-hour after sunset		11.9			✓
83	El Sereno	MPROSD	✓	1,609	Paved and unpaved multi-use trails, multiple trails, equestrian, limited parking, roadside parking	Hiking (all trails), horseback riding (designated trails), wildlife viewing, vista point, nature viewing, trails, rugged terrain	Open a half-hour before sunrise until a half-hour after sunset		12.8			✓

Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
84	Bear Creek Redwoods	MPROSD	✓	1,386	Lake, creek, paved and unpaved multi-use trails, easy-access trail, picnic areas, equestrian, Stables (permit only), parking, equestrian parking area, restrooms	Picnicking, hiking (all trails), bicycling (all trails), permit-only equestrian trail (designated trails), wildlife viewing, vista point, nature viewing, trails, rugged terrain	Open a half-hour before sunrise until a half-hour after sunset	Partial trail closures due to storm damage	13.0			✓
85	Sanborn County Park	County Parks	✓	3,480	Parking, reservoir, creek, streams, picnic areas, reservable group picnics, historic site, restrooms, restroom with shower, multi-use trails, self-guided nature trail, fishing, amphitheater (outdoor), camping, family campsites, RV camping, hike-in group camping, hike-in camping, interpretive program, weddings and receptions, volleyball, biking, mountain biking, horseshoes	Wildlife viewing, nature trails, rugged terrain, scenic views, fishing, picnicking, walking, hiking, biking, multi-use trails, sports activities, camping, dogs allowed on 6ft leash or less, paved and unpaved multi-use trails	Open year round; 8:00 a.m. to sunset	Vehicle fees collected year-round Summit Rock and campground are seasonally closed	13.9		✓	✓
86	Villa Montalvo County Park	County Parks	✓	167	Parking area, restrooms, trails, stream, amphitheater (outdoor), Villa Montalvo Arts Center	Wildlife viewing, nature trails, scenic views, picnicking, walking, dogs allowed on 6ft leash or less, paved and unpaved trails	Open year round; 8:00 a.m. to sunset	Vehicle fees	14.5			✓
87	Ed R. Levin County Park	County Parks	✓	1,567	Parking area, lake, pond, restrooms, picnic areas, reservable picnic areas, golf course paved and unpaved trails, off-leash dog park, fishing, volleyball, horseshoes, biking, historic site, hang glider launch site	Wildlife viewing, nature trails, multi-use trails, scenic views, horseback riding, picnicking, hiking, walking, biking, youth programs, sports activities, rugged terrain, hang gliding, dogs allowed on 6ft leash or less, paved and unpaved trails, dogs are also allowed on-leash in parking lots, fishing, picnic areas, and all trails north of Calaveras Road	Open year round; 8:00 a.m. to sunset	Vehicle fees Partial trail closures due to storm damage	14.9		✓	✓
88	Fremont Older	MPROSD	✓	733	Paved and unpaved multi-use trails, reservoir, equestrian, picnic areas, rugged terrain, limited parking, roadside parking, restrooms, dogs (on leash and on designated trails)	Hiking (all trails), bicycling (designated trails), horseback riding (designated trails), Dogs on leash (all trails), wildlife viewing, vista point, nature viewing, trails, rugged terrain, picnicking	Open a half-hour before sunrise until a half-hour after sunset	Toyon Trail segments are subject to seasonal closure	16.3			✓
89	Stevens Creek County Park	County Parks	✓	1,061	Parking, reservoir, creek, dam, creek, boat launch ramp, picnic areas, reservable group picnics, historic site, restrooms, multi-use trails, fishing, archery range, disc golf course, interpretive program, volleyball, biking, mountain biking, horseshoes	Wildlife viewing, nature trails, rugged terrain, scenic views, fishing, picnicking, walking, hiking, non-power boating, horseback riding, fishing, kayaking, biking, multi-use trails, disc golf, sports activities, camping, dogs allowed on 6ft leash or less (not allowed in water, creek, or Zinfandel trail),	Open year round; 8:00 a.m. to sunset	Vehicle entry fee Reservoir periodically closes due to low water levels	17.0	✓	✓	✓

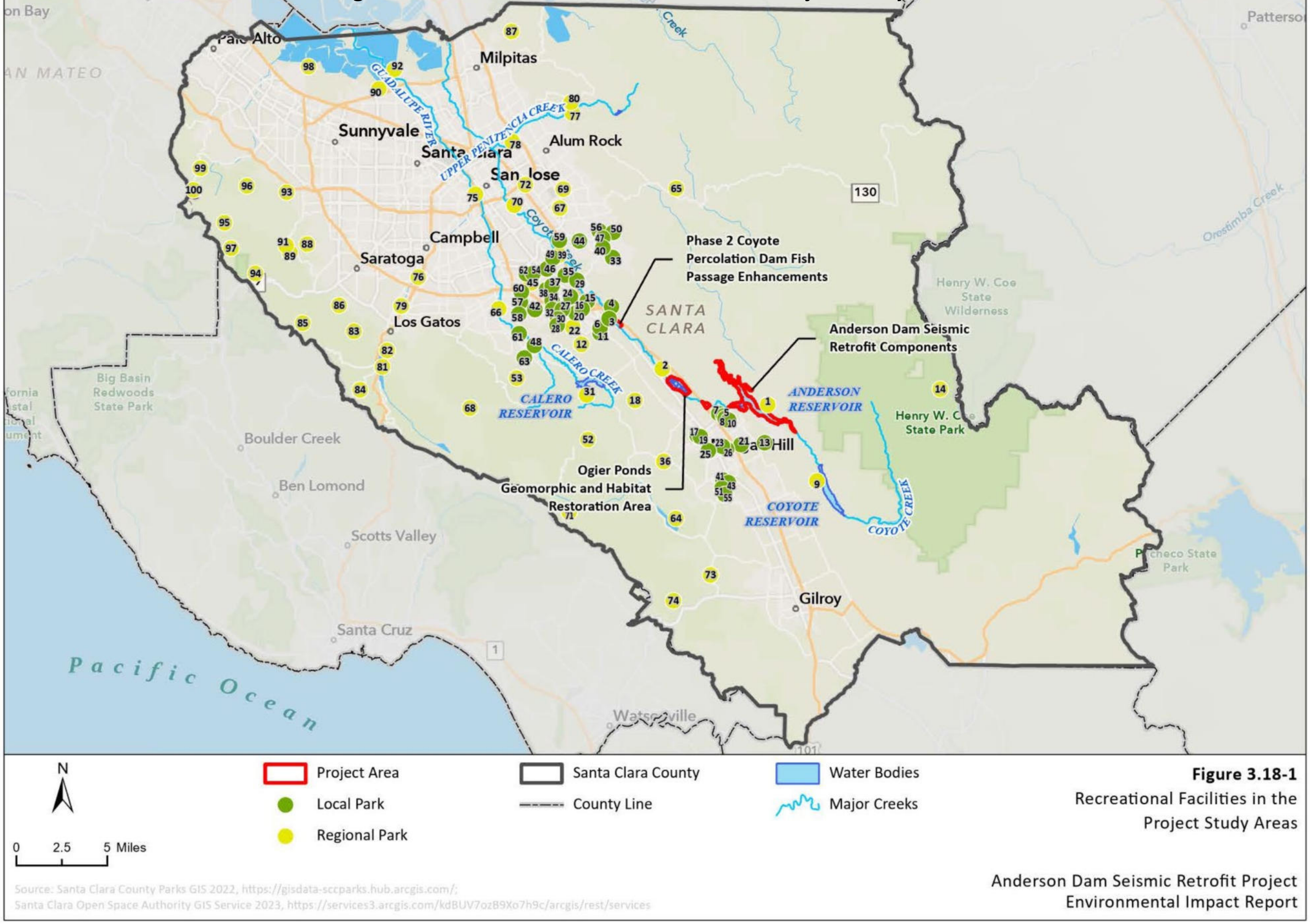
Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
						paved and unpaved multi-use trails, archery, interpretive programs		Public transit is available to Stevens Creek County Park.				
90	Sunnyvale Baylands County Park	County Parks	✓	251	Picnic areas, parking, restrooms, playground, trails, natural preserved wetland areas seasonal wetlands, playground; Adjacent to the park is the Twin Creeks Sports complex	Picnicking, children’s activities, wildlife viewing, nature trails, picnicking, walking, hiking, paved and unpaved trails,	Open year round; 8:00 a.m. to sunset	Vehicle entry fee	17.3			✓
91	Picchetti Ranch	MPROSD	✓	293	Paved and unpaved multi-use trails, pond, equestrian, picnic areas, rugged terrain, limited parking, roadside parking, restrooms, winery (historic building), seasonal wetland	Hiking (all trails), walking, horseback riding (designated trails), wildlife viewing, vista point, nature viewing, trails, rugged terrain, picnicking	Open a half-hour before sunrise until a half-hour after sunset		17.6			✓
92	Alviso Marina (County)	County Parks	✓	18	Unpaved trail, self-guided tours, boat launch, parking, picnic area, restrooms, educational programs, bay views; access to Don Edwards San Francisco National Wildlife Refuge	Kayak, non-power boating, wildlife viewing, vista point, nature viewing, trails, dogs allowed on 6ft leash or less (allowed in the County Park's pathways and picnic areas, but are not allowed on the trails, levees and boardwalk), picnicking, biking, walking, hiking	Open year round; 8:00 a.m. to sunset	No vehicle or launching fees Temporary trail closures due to construction	17.8	✓		✓
93	Rancho San Antonio County Park	County Parks	✓	292	Paved and unpaved multi-use trails, equestrian, picnic areas, rugged terrain, carpool parking, parking, restrooms, Deer Hollow Farm (historic), model aircraft field, backpack campground (permit only), public phones; MROSD now manages the entire park.	Hiking (all trails), jogging, walking, bicycling (paved trails only), horseback riding (designated trails), easy access (designated trails) wildlife viewing, vista point, nature viewing, trails, rugged terrain, picnicking, model aircraft field, working farm with farm animals, open grass areas	Open year round; 8:00 a.m. to sunset	Bicycles allowed on paved trails Equestrians are permitted on most trails in the Open Space Preserve.	18.2			✓
94	Saratoga Gap	MPROSD	✓	1,583	Paved and unpaved multi-use trails equestrian, picnic areas, rugged terrain, limited parking, roadside parking, benches	Hiking (all trails), bicycling (all trails), horseback riding (all trails), wildlife viewing, vista point, nature viewing, trails, rugged terrain	Open a half-hour before sunrise until a half-hour after sunset		18.4			✓
95	Monte Bello Preserve	MPROSD	✓	3,360	Nature center, creek, multi-use trails, multiple trails, easy access trail camping (permit required), equestrian, picnic areas, rugged terrain, parking, restrooms, public phone, tunnel, benches; access to Los Trancos Preserve	Hiking (all trails), bicycling (designated trails), horseback riding (designated trails), easy access (designated trails), camping (designated areas), wildlife viewing, vista point, nature viewing, trails, rugged terrain	Open a half-hour before sunrise until a half-hour after sunset	Temporary trail closures for bicyclists and equestrians due to wet conditions	18.5			✓
96	Rancho San Antonio	MPROSD	✓	2,128	Paved and unpaved multi-use trails, equestrian, picnic areas, rugged terrain, carpool parking, parking, restrooms, Deer Hollow Farm	Hiking (all trails), bicycling (designated trails), horseback riding (designated trails), easy access (designated trails) wildlife	Open a half-hour before sunrise until a half-hour after sunset	Temporary trail closures for bicyclists and	19.0			✓

Map Number	Name	Owner	Regional Park	Area (acres)	Amenities	Recreational uses	Hours of Operation	Operational Notes	Distance from Project Area	Boating	Angling	Land Based
					(historic), model aircraft field, backpack campground (permit only), public phones	viewing, vista point, nature viewing, trails, rugged terrain, picnicking, model aircraft field, working farm with farm animals		equestrians due to wet conditions				
97	Upper Stevens Creek County Park	County Parks	✓	1,287	Paved and unpaved multi-use trails, trailhead with roadside parking, picnic area, equestrian staging	Wildlife viewing, nature viewing, trails, picnicking, bicycling (designated trails), walking, hiking, horseback riding, rugged terrain	Open year round; 8:00 a.m. to sunset	Vehicle entry fee	20.1			✓
98	Stevens Creek Shoreline Nature Study Area	MPROSD	✓	54	Paved and unpaved trails, parking, roadside parking, restrooms; access to Mountain View Shoreline Park and Bay Trail	Hiking (all trails), walking, easy access (designated trails) wildlife viewing, vista point, nature viewing, trails	Open a half-hour before sunrise until a half-hour after sunset		21.2			✓
99	Foothills Preserve	MPROSD	✓	224	Multi-use trails, unpaved trails, roadside parking, parking, benches, equestrian	Hiking (all trails), dogs on leash (all trails), walking, horseback riding (all trails), wildlife viewing, vista point, nature viewing, trails	Open a half-hour before sunrise until a half-hour after sunset		23.3			✓
100	Los Trancos Preserve	MPROSD	✓	274	Multi-use trails, unpaved trails, roadside parking, parking, equestrian; access to Foothills Park (City of Palo Alto) and Monte Bello Open Space Preserve	Hiking (all trails), horseback riding (designated trails), rugged terrain	Open a half-hour before sunrise until a half-hour after sunset		23.4			✓

Sources: SCCPRD 2021b, 2021c, 2021d, 2021e, 2021f, 2021g, 2020a, 202b, 2020c, 2020d, 2020e, 2020f, 2020g, 2020h, 2020i, 2020j, 2020k, 2020l, 2016a, <u>2006</u> ~~2007~~; City of San José 2021a, 2021b,2021c, 2021d, 2021e, 2021f, 2021g; City of Gilroy 2021; City of Morgan Hill 2018; California State Parks 2021; Santa Clara Valley Open Space Authority (SCVOSA) 2021a, 2021b; Midpeninsula Regional Open Space District (MROSD) 2021a

Key: California State Parks = California Department of Parks and Recreation; City of Morgan Hill = City of Morgan Hill Parks and Recreation Department; City of San José = City of San José Parks, Recreation, and Neighborhood Services Department; County Parks = Santa Clara County Parks and Recreation Department; MPROSD = Midpeninsula Regional Open Space District; SCVOSA = Santa Clara Valley Open Space Authority

Figure 3.18-1. Recreational Facilities in the Project Study Areas



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3.18.1.1 Santa Clara County Parks and Recreation Department

Pre-FERC Order Conditions Baseline

The SCCPRD owns and/or maintains 28 parks encompassing approximately 52,000 acres, including Anderson Lake County Park, where the Anderson Reservoir and Dam are located. Half the County's 28 parks incorporate or abut Valley Water property. Under an existing agreement between the SCCPRD and Valley Water, the SCCPRD has the authority to make available for public recreation ten reservoirs and five ponds owned and operated by Valley Water. The SCCPRD's regional parks are typically more than 200 acres (i.e., much larger than local neighborhood or community parks). In addition to Anderson Lake County Park, other County parks near the Project include the Coyote Creek Parkway, Calero County Park, Coyote Lake–Harvey Bear Ranch, and Hellyer County Park. Activities available at the County parks include, but are not limited to, biking, hiking, horseback riding, interpretive (educational) programs, picnicking, fishing, power and non-power boating, water-related recreation (other than swimming), camping, and wildlife viewing (SCCPRD 2021a).

Appendix N, *Recreation ~~Technical~~ Appendix*, provides supporting data collected by the SCCPRD about recreational facility usage for the County park facilities. As summarized in Appendix N, the average annual attendance at the County's parks between 1999 and 2014 was 2,569,072 visitors. In 1999, which had the highest attendance reported over the 15-year period, the total number of visitors to all of the County's parks was 3,524,168. The lowest attendance reported was in 2006 (1,791,991). Data for general day-use attendance at the individual County parks are available for 2011 to 2015. The annual total number of day-use visitors for all 23 of the County's parks in 2015 was about 3,066,763. Countywide, in both 2014 and 2015, almost half (about 50 percent) of the visitors stated that they were hiking or running. Biking was the second most popular activity (about 22.5 percent). Picnicking totaled approximately 17 percent.

In 2015, Anderson Lake County Park received 46,167 day-use visitors, including hikers, anglers, picnickers, and bicyclists. This visitation ranks it 15 of 23 for most annual general day-use attendance; in 2014, it was ranked 17 of 23. In addition, in 2015, Anderson Lake County Park had 17,665 boating visitors. This visitation ranks it 3 of 7 for boating uses.

In 2015, Coyote Creek Parkway South[1] received 148,866 visitors, which ranks it 16 of 23 for most annual general day-use attendance; in 2014, it was ranked 11 of 23.

Anderson Lake County Park

Anderson Lake County Park is a 4,275-acre park that features Anderson Reservoir and includes recreational amenities including local and regional trails, Rosendin Park Area, Jackson Ranch Historic Park, Burnett Park Area, multiple picnic areas (e.g., Live Oak Picnic Area, former Toyon Picnic Area, and Woodchoppers Flat Picnic Area), Anderson Reservoir boat launch and parking area, Anderson Lake County Park Visitor's Center and Park Office, and the Anderson Lake County Park Maintenance facility. The Toyon picnic area was closed under the FOCP. The park provides a connection to the Coyote Creek Parkway multiple use trails and recreation areas within the

[1] Coyote Creek Parkway South is a 9.2-mile level paved trail (with a separate unpaved path for horses) that goes from Metcalf Park in San José to Anderson Lake Visitor Center. ~~This portion of Coyote Creek Parkway is, therefore, in the study area.~~ Coyote Creek Parkway North is a 12.4-mile nearly level paved trail from Williams Street to Metcalf Park in San José.

Coyote Creek Parkway, including the Coyote Creek Trail, additional picnic areas and rest areas, Ogier Ponds, and a remote-control model airplane field. Anderson Lake County Park has been historically open year-round and charges vehicle entry fees (SCCPRD 2021b). Anderson Lake County Park is operated by SCCPRD, but it is located on property owned by the County and Valley Water and spans portions of Morgan Hill and San José and unincorporated Santa Clara County.

Figure 3.18-2a–Figure 3.18-2d illustrates existing recreational resources in the Project area, specifically at Anderson Lake County Park and Coyote Creek Parkway, including parklands, water features, trails, and picnic areas.

Prior to the FOCP and water storage capacity restrictions within Anderson Reservoir, the reservoir provided a 7-mile long, 953-surface-acre lake that allowed for power and non-power boating and fishing (SCCPRD 2021b). Parking for vehicles and boat trailers was available in a fee-required boat parking lot at the top of the dam. Water-related activities allowed at the reservoir included boating, jet skiing, waterskiing, wakeboarding, tubing, paddle boarding, and kayaking. Swimming has not been an allowable use in the reservoir at any time, due to restrictions by the Santa Clara County Public Health Department. When water levels have been historically low, no watercraft of any type, including float tubes, have been allowed to launch into the waterway.[2] Access to boating facilities has varied in the past due to water levels. For example, in 2013, Anderson Reservoir was open to power and non-power boats (SCCPRD 2013). In contrast, in 2018, Anderson and Coyote Reservoirs were closed for power and non-power boating due to low water levels. For the 2019 off-season (beginning August 19, 2019), Anderson and Coyote Reservoirs were closed to all boating, including power boats, kayaks, and float tubes due to low water levels.

The paved road along the dam crest has historically provided additional parking and scenic views. Recreators have been able to access the shoreline of the lake for walking, fishing, and relaxing from informal trails on both sides of the dam crest. A number of unmarked trails are available on the north side of the lake. The Woodchoppers Flat Picnic Area is located on the south end of the lake and is accessible by boat or by vehicle from East Dunne Avenue (SCCPRD 2017). The Jackson Ranch Historic site is also located on the south end of the lake and can be accessed from East Dunne Avenue, although it is closed to the public.

Historically, fishing has occurred year-round at Anderson Reservoir. Even when the water levels are low and the boat launch is closed, anglers are often observed fishing from the shore. The reservoir contains a wide variety of game fish species, including largemouth bass, carp, bluegill, crappie, sunfish, and catfish. The County recommends catch-and-release fishing because mercury and PCBs have accumulated in the reservoir at levels that pose potential risks to human health (~~SCCPRD~~ Santa Clara County 2013, OEHHA CalEPA 2017 ~~2004~~). For more information related to existing and typical fish species, refer to Section 3.4, *Biological Resources – Fisheries Resources*.

[2] Because historically Anderson Reservoir is either open or closed to on-water recreation depending upon water levels, this variable condition is considered to be the baseline for the purposes of the environmental analysis.

As shown in **Figure 3.18-2a** and **Figure 3.18-2b**, the Burnett Entrance (trailhead and parking area), is accessible from Burnett Avenue or via the Nature Trail that originates at the Anderson Lake Visitor Center on Malaguerra Avenue. The Live Oak Entrance, off Cochrane Road, is a part of Anderson Lake County Park that includes open space under a tree canopy, dozens of picnic tables, and the Serpentine Trail, which is a narrow dirt trail that was popular with hikers prior to the FOCP closure of this trail. The Live Oak Picnic Area includes large barbecue pits, restrooms, water fountains, and seating for up to 100 people. Reservations and additional fees are required for use of the group site (SCCPRD 2021). Additionally, more than two dozen picnic tables are available, many of which have small barbecues.

Figure 3.18-2a. Recreational Facilities in the Project Area

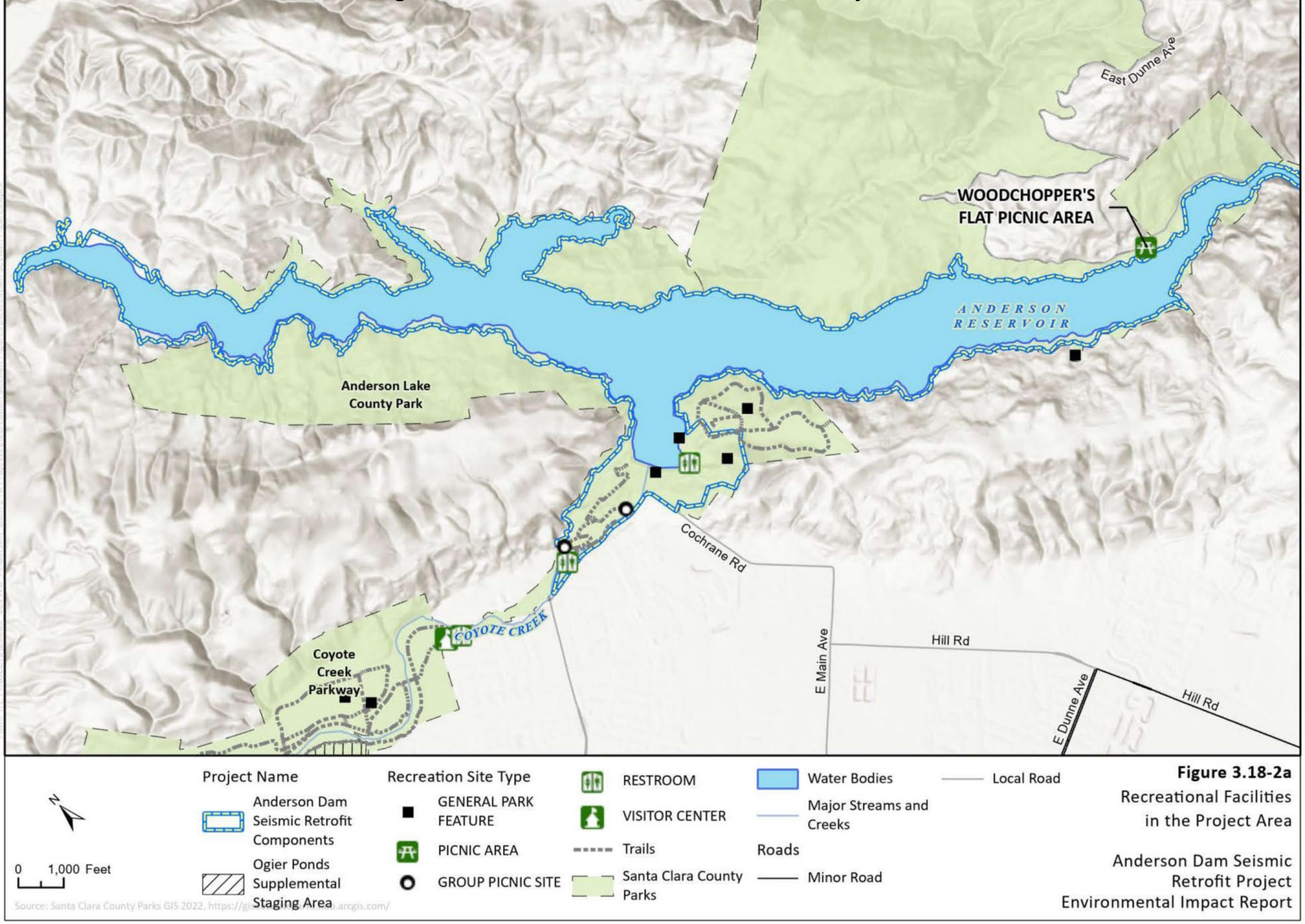


Figure 3.18-2b. Recreational Facilities in the Project Area

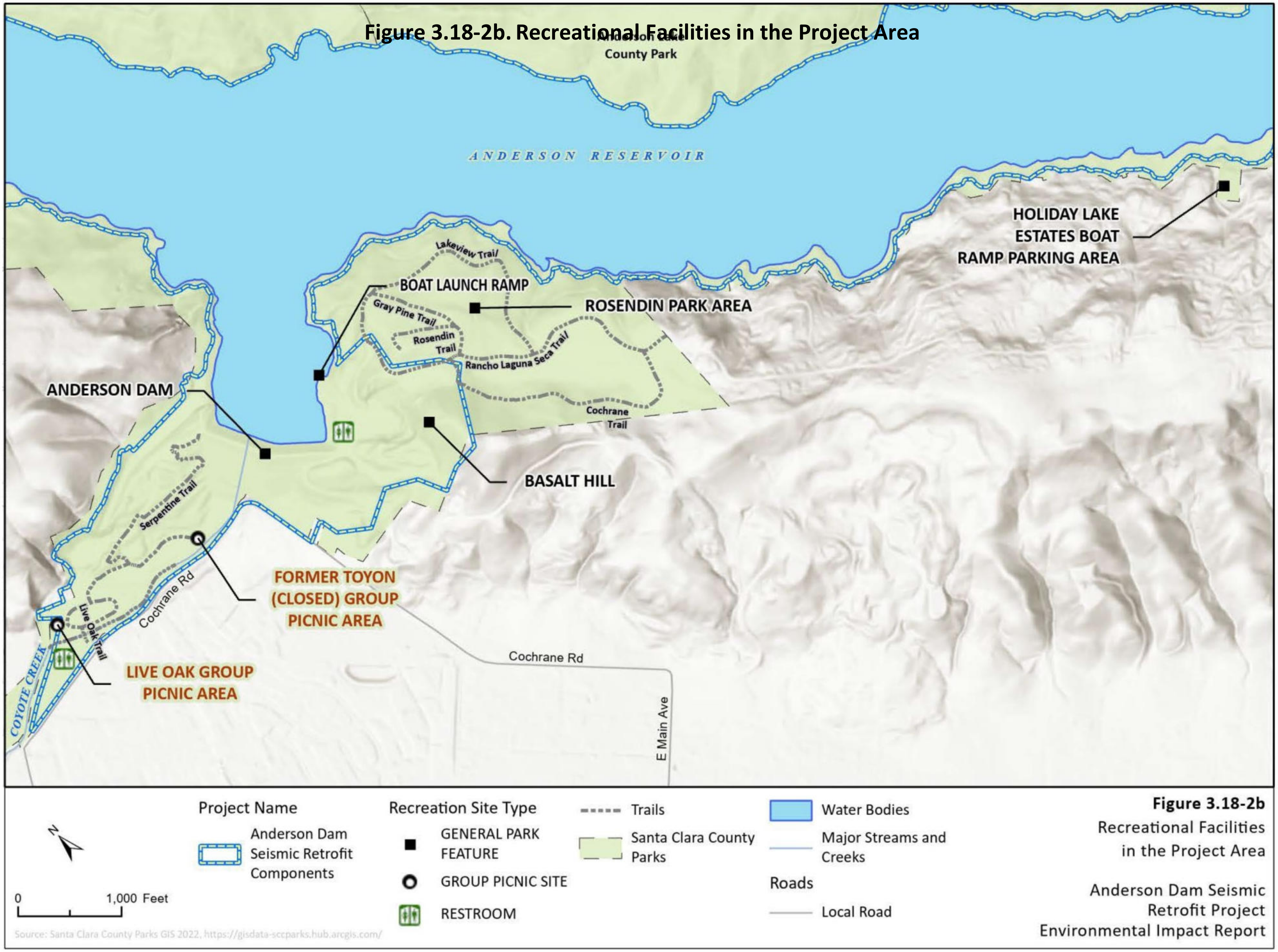
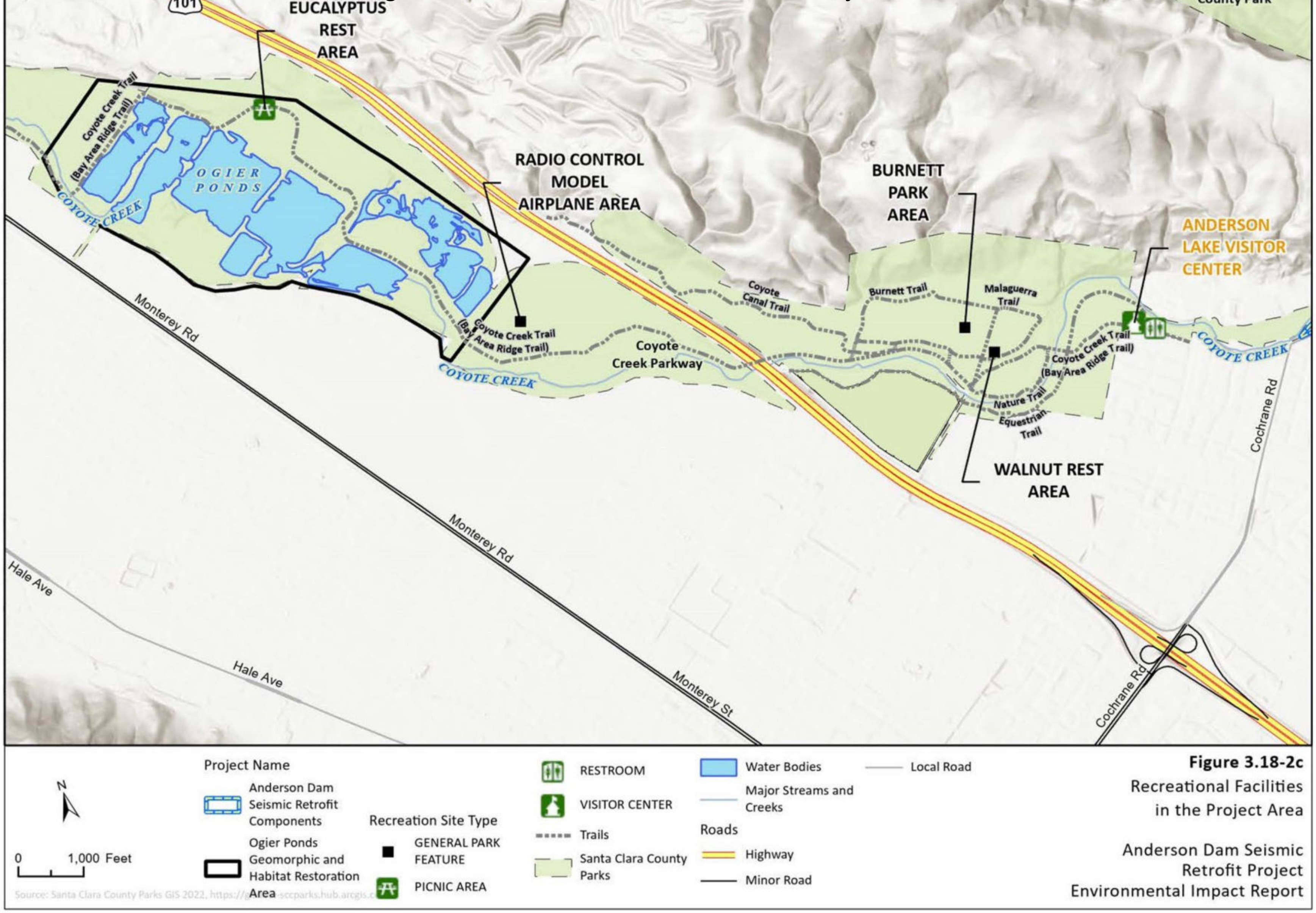


Figure 3.18-2c. Recreational Facilities in the Project Area



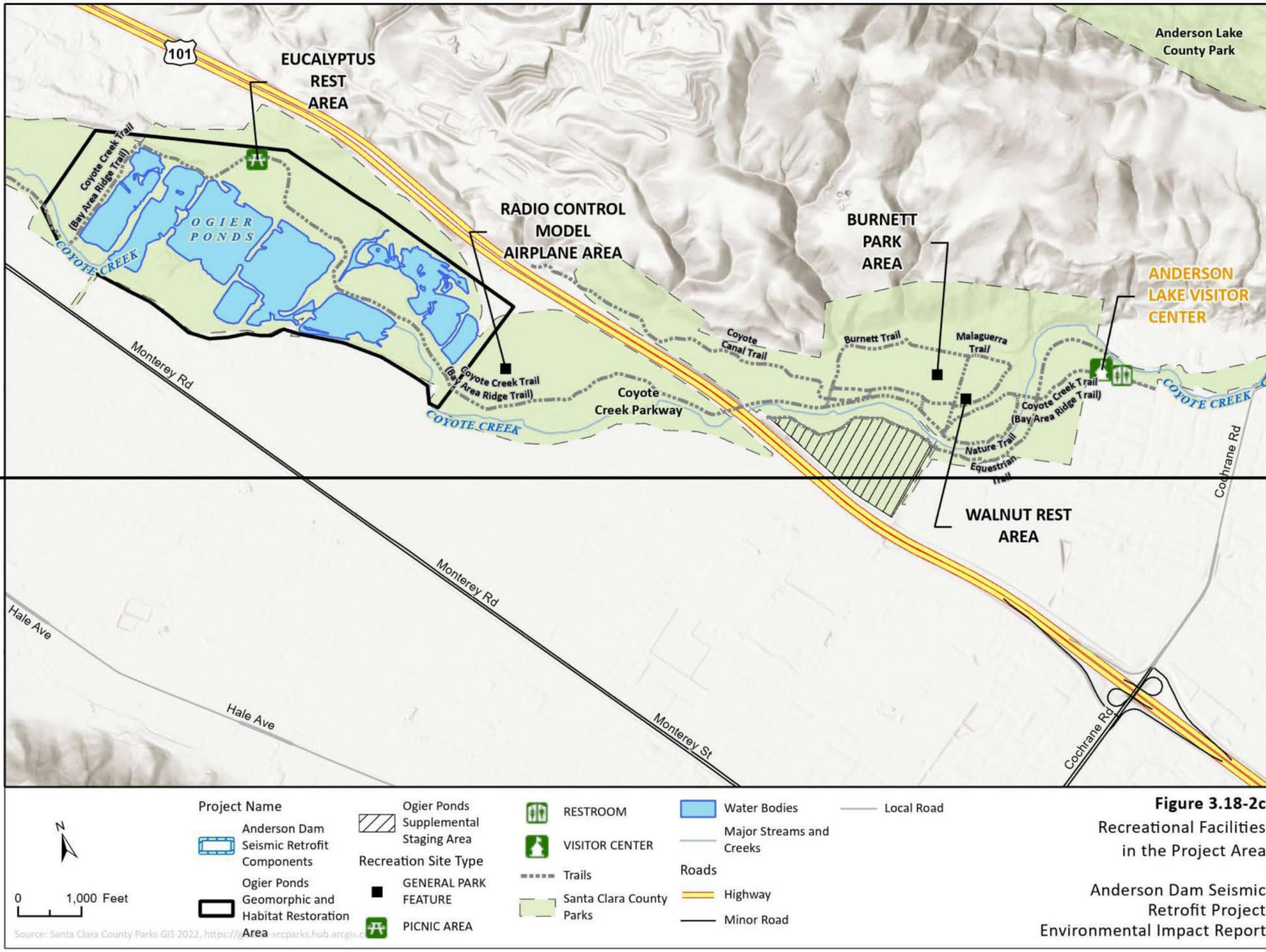
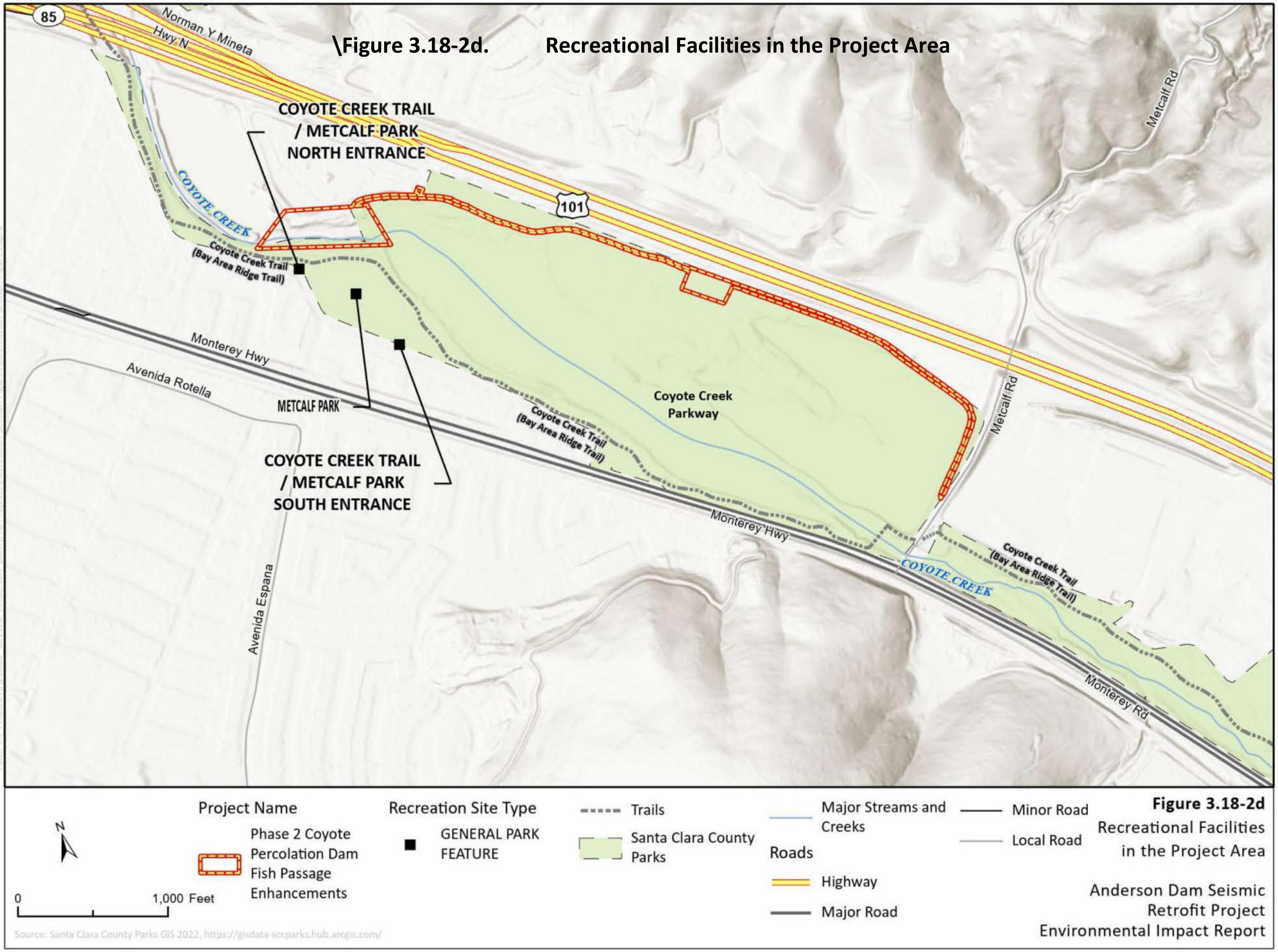


Figure 3.18-2c
Recreational Facilities in the Project Area

Anderson Dam Seismic Retrofit Project Environmental Impact Report

\Figure 3.18-2d. Recreational Facilities in the Project Area



Historically, there have been two parking lots along Cochrane Road. Both lots provide easy access to the park. West of the Live Oak Group Picnic Area, the Coyote Creek Parkway begins, connecting Anderson Lake County Park with Hellyer County Park, discussed in more detail below (**Figure 3.18-2b–Figure 3.18-2d**). The Anderson Lake County Park Visitor's Center is located at the western end of Malaguerra Avenue and provides parking and access to the Coyote Creek Parkway.

Directly south of the boat launch parking area, there are undesignated trails leading up to Basalt Hill that provide hiking and scenic viewing opportunities for recreators (**Figure 3.18-2b**). Slightly farther to the east, the Rosendin Park Area is situated in the hills between the lake and the Holiday Lake Estates community. Several popular rocky dirt trails, including the Lakeview ~~Lake View~~ Trail, Grey Pine Trail, and Rancho Laguna Seca Trail are used by hikers, mountain bikers, and dog walkers. The trails cross through different habitats and provide views of the lake and nearby mountains. Parking is available in the County Park parking lot near the boat launch area for a fee. No public street parking is allowed within Holiday Lake Estates.

Coyote Creek Parkway

Coyote Creek Parkway is a 15-mile multi-use parkway in southern Santa Clara County, serving bicyclists, rollerbladers, hikers, equestrians, anglers, picnickers, wildlife viewers, dogs on leash and their owners, members of the Academy of Model Aeronautics and Santa Clara County Model Aircraft Skypark, and model airfield users (SCCPRD 2023a). In addition, fishing is also allowed in Coyote Creek during fishing season (i.e., April through November) (SCCPRD 2017).

Coyote Creek Parkway contains a number of paved and unpaved multi-use trails which connect Anderson Lake County Park with Hellyer County Park (refer to **Figure 3.18-2a–Figure 3.18-2d**). The scenic parkway begins west of the Live Oak Picnic Area downstream of Anderson Dam and runs parallel to Coyote Creek for 15 miles, extending to Hellyer County Park north of US 101. This recreational area consists of a relatively flat and tree-lined trail along Coyote Creek. The trail alignment is lined by oak, cottonwood, and sycamore trees. The parkway provides a number of recreational opportunities, including biking, horseback riding, hiking, and picnicking (SCCPRD 2017). During the fishing season, multi-use trails in this region may be used by anglers to access reaches of Coyote Creek. The Coyote Creek Trail (which is also a segment of the Bay Area Ridge Trail) extends from the southern terminus at Malaguerra Avenue along Coyote Creek within the parkway to the northern terminus in Hellyer County Park at Tully Road. In addition, an 8-mile-long equestrian trail runs roughly parallel to the Coyote Creek Trail, a paved pathway available for pedestrians, bicyclists and hikers. An equestrian staging area and horse trailer parking are located at Burnett Avenue. A 1-mile-long, self-guided nature trail is provided for visitors who would like to learn about the wildlife and riparian habitat within the parkway. Rest areas and emergency call boxes are located throughout the parkway, but no potable water is available along the trail. The parkway also includes Ogier Ponds (although access is restricted) and Metcalf Ponds, described in more detail below.

As described above, the Coyote Creek Trail is a portion of the Bay Area Ridge Trail within the Project area. The Bay Area Ridge Trail is a regional trail network that provides approximately 400 miles of trail around the Bay Area (Bay Area Ridge Trail Council 2022). A portion of the Bay Area Ridge Trail is proposed to traverse along the western and eastern side of Anderson Reservoir (Bay Area Ridge Trail Council 2017). The western portion of the Bay Area Ridge Trail is proposed to cross over the top of the dam and then connect to the existing Bay Area Ridge Trail downstream of the dam. The eastern portion of the trail is proposed to travel around the entire eastern side of the Anderson Reservoir and connect to the Coyote-Bear County Park. The Bay Area Ridge Trail, as discussed below under "Trails and Other Land-Based Uses," is a regional trail that connects the Project area to the rest of the larger Bay Area.

Ogier Ponds

Ogier Ponds is located 5 miles downstream and northwest of Anderson Dam. This recreational area is situated in the middle of the Coyote Creek active floodplain and consists of approximately 600 acres of land and water which are owned and managed by SCCPRD. The site includes multiple public use trails and a radio-controlled model airplane field. The northeast limit of the ponded area is bordered by the Perry's Hill area, which SCCPRD plans to develop into a public recreation area in the future (SCCPRD 2006). Ogier Ponds connects with the paved Coyote Creek Trail, providing recreational opportunities for hiking and biking, and is a popular site for birding, sightseeing, and fishing within the ponds. Informal levee trails are also located between the ponds. No recreational facilities (e.g., picnic tables or bathrooms) are located at the ponds themselves, and boating and watercraft (e.g., kayaks and canoes) within the ponds are currently prohibited.

Coyote Percolation Pond (Metcalf Pond and Parkway Lakes)

Coyote Percolation Pond, also known as Metcalf Pond and Parkway Lakes, is accessible from the Coyote Creek Trail and provides recreational opportunities for birding, hiking, and fishing. No recreational facilities (e.g., picnic tables or bathrooms) are located at the pond, and boating and watercraft (e.g., kayaks, canoes, and paddleboards) are prohibited within the pond itself.

Existing Conditions Baseline

The existing conditions baseline in all parks is substantially the same as the Pre-FERC Order Conditions Baseline, except that, starting October 1, 2020, construction and operation of the FOCP necessitated the closure of Anderson Reservoir to all recreational water-related activities, including boating and fishing along the entire reservoir shoreline, and the closure of the following recreational areas within Anderson Lake County Park:

- Toyon Group Picnic and Parking Areas, Serpentine Trail, Dam Crest informational trails, and Woodchoppers Flat Picnic Area
- Boat and vehicle parking areas, and the boat launch ramp
- Coyote Road from the toe of the dam to the boat and vehicle parking areas
- Lakeview ~~Lake View~~ Trail from the boat launch ramp parking area trailhead to the westernmost junction with the Rancho Laguna Seca Trail (SCCPRD 2021b)

Of these areas, the Toyon Group Picnic and Parking Area will remain permanently closed.[3] All other recreational areas would remain temporarily closed through the duration of the Project and would be restored and reopened following construction completion.

[3] The Toyon Group Picnic Area was permanently removed as part of the FERC-Ordered Compliance Project (FOCP).

Table 3.18-2 shows visitation in Anderson Lake County Park and Coyote Creek Parkway in 2015 by recreational use type compared to visitation in all County parks. (See Appendix N for details and other years). More recently, the County reported 5,482,718 annual visitors (SCCPRD 2023b).

Table 3.18-2. Anderson Lake County Park and Coyote Creek Parkway Visitation 1999-2015 by Activity Type

Activity Type	All County Parks	Anderson Lake County Park	Percentage	Coyote Creek Parkway	Percentage
Land-Based	2,950,693	41,321	1.4%	197,294	6.7%
Angling	116,070	4,846	4.2%	1,608	1.4%
Boating	123,682	17,665	14.3%	not available	n/a
Total	3,190,445	63,832	2.0%	198,902	6.2%

Source: Appendix N ~~SCCPRD 2015c.~~

Notes:

[a] Among boating types, only kayaking is permitted in Coyote Creek. Visitation data for kayaking at Coyote Creek are not available.

3.18.1.2 Other Recreational Facilities

Multiple other recreational facilities outside of the Project Area are located within the study area (i.e., within 5 miles of the Project area for local parks that offer land-used based activities, and regional parks and parks with lakes or reservoirs in the county that offer boating and angling opportunities). These other recreational facilities are managed by several local jurisdictions and agencies, as described below and listed in **Table 3.18-1**. These agencies offer recreational opportunities similar to those found in Anderson Lake County Park and Coyote Creek Parkway.

- California State Parks owns and operates Henry W. Coe State Park, located slightly east of the Project Area. Recreational opportunities include hiking, camping, nature viewing, angling, and horse riding (DPR 2023b).
- The City of Morgan Hill Parks and Recreation Department operates 29 parks that provide opportunities for picnicking, swimming, tennis, and other outdoor activities (City of Morgan Hill 2009), and three park areas affiliated with Morgan Hill's Downtown Park Program (Nob Hill Trail Park, Railroad Park, and Third Street Creek Park).
- The City of San José Department of Parks and Recreation oversees nine regional parks, 207 neighborhood parks, 290 park playgrounds, 48 community centers, and 61 ~~operates more than 200 parks, including 60~~ miles of scenic trails (City of San José 2021h). The City of San José parks provide opportunities for on- and off-leash dog walking, fishing, golfing, hiking, horse-riding, biking, swimming, and many other activities.
- The Midpeninsula Regional Open Space District (MROSD) oversees more than 65,000 acres of greenbelt in 26 open space preserves in the San Francisco Bay Area. Twelve are in the land-based recreational use study area. The largest of these preserves, Sierra Azul, is near the Project area (MROSD 2022 ~~2021b~~). Recreational opportunities at Sierra Azul include hiking, bicycling, horse riding, and nature viewing (MROSD 2021b~~c~~).
- Santa Clara Valley Open Space Authority (SCVOSA) preserves more than 26,000 acres of natural areas in the county, except those within the boundaries of MROSD and Gilroy.

Some of these lands are open to the public and offer recreational opportunities, including hiking, bicycling, horse riding, picnicking, and nature viewing (SCVOSA 2021c).

Boating

Other parks in the boating and angling study area offer boating (power boats, non-power boats, and kayaks) at the following locations: Alviso Marina, Anderson Lake, Calero Reservoir, Coyote Lake-Harvey Bear Ranch, Lexington Reservoir, Stevens Creek Reservoir, and Vasona Lake County Parks under SCCPRD management (Appendix N ~~SCCPRD 2015c~~).

Typically, boating has been a popular seasonal activity in the region. Peak boating season generally runs from early spring through early fall. The season varies from year to year depending on water levels and other conditions. For example, in 2013, the peak season ran from mid-April through mid-October. During those months, Alviso Marina, Coyote Reservoir, and Calero Reservoir were open to power and non-power boats, and Stevens Creek and Lexington Reservoirs were open to non-power boats (SCCPRD 2013). Similarly, for the 2017 to 2018 off-season (beginning October 15, 2017), Stevens Creek and Lexington Reservoirs were temporarily closed to boating, while Calero Reservoir and Alviso Marina remained open for boating and watercraft activities during this period (SCCPRD 2016~~c~~, 2017a).

Table 3.18-1 lists recreational areas within the study areas, indicating areas historically known to offer water-related recreational facilities and a current (2021) status of operation.

As summarized in Appendix N, according to data for annual boating attendance from 2015, the total number of people who visited the SCCRD's facilities for boating was 123,682, approximately 4 percent of the total County park attendance for that year (Appendix N ~~SCCPRD 2015c~~). Of those attending for boating, Alviso Marina received 41 percent of the boaters in County parks, Lexington Reservoir received 26 percent, and Coyote Lake received 11 percent. Visitation statistics by use type are not available for the City of San José Parks.

Angling

Several parks and recreation agencies, including SCCPRD, DPR, and the City of San José, manage recreational facilities in the boating and angling study area that offer angling opportunities other than Anderson Lake County Park and Coyote Creek Parkway. A fishing license is required for angling at these recreational areas, which are described in more detail below. In general, anglers are advised to catch and release rather than catch for consumption because of the risk of consuming methylmercury in fish caught in reservoirs.

Santa Clara County Parks and Recreation Department

SCCPRD manages 15 parks within the study area that allow angling: Anderson Lake, Calero Reservoir, Chesbro Reservoir, Coyote Creek Parkway, Coyote Lake Harvey Bear Ranch, Almaden-Quicksilver, Uvas Reservoir, Joseph D. Grant, Hellyer, Los Gatos Creek, Vasona Lake, Lexington Reservoir, Ed R. Levin, Sanborn, and Stevens Creek County Parks (SCCPRD 2023c). Except for Coyote Lake Harvey Bear Ranch County Park, Calero County Park, and Lexington Reservoir, where boating is allowed, fishing is from the banks.

As summarized in Appendix N, according to data for annual angling attendance from 2015, the total number of people who visited the County's parks for angling was 126,583, approximately 4 percent of the total County Park attendance for that year (Appendix N ~~SCCPRD 2015c~~). Of those attending for angling, Uvas Reservoir had the highest percentage of anglers, at 20 percent of the total angling users. Chesbro Reservoir and Los Gatos Creek had 15 percent each of the total angling users.

California Department of Parks and Recreation

Henry W. Coe State Park offers fishing from the banks of multiple ponds and small lakes. While spring is generally the best season for fishing (Pine Ridge Association 2021), fishing is allowed year-round. None of the ponds and lakes are accessible by car, and the closest ponds located near visitor centers are at least 4.5 miles away. Visitation statistics for anglers are not available for Henry W. Coe State Park.

City of San José

City of San José Parks, Recreation, and Neighborhood Services Department manages two parks in the study area that allow fishing from the banks: Almaden Lake Regional Park and Lake Cummingham Park (City of San José Parks, Recreation, and Neighborhood Services n.d.~~.a; The Outdoorsman 2023a, 2023b~~). Boating at these two parks are not allowed. Visitation statistics by use type are not available for City of San José Parks.

Trails and Other Land-Based Uses

Santa Clara County offers a wide variety of trail opportunities including hiking, biking, and horseback riding. Approximately 300 miles of hiking trails and more than 160 miles of bike trails, including off road biking opportunities from paved trails to single track mountain bike trails, are located within the county (SCCPRD 2016). Within the county, approximately 200 miles of hiking trails may also be used for equestrian use. According to the Countywide Trails Prioritization and Gaps Analysis, as of 2015, approximately 316 miles of County trails were complete, and another 471 miles of future trails had been identified (SCCPRD 2015a).

Trail restrictions or closures occur most commonly during winter because of conditions that lead to trail erosion, the creation of unofficial trails, or unexpected wildlife habitat impacts; other closures are based on impacts to threatened or endangered species, new trail construction, or trail maintenance (SCCPRD 2019). SCCPRD implements the following types of trail closures (SCCPRD 2019):

- Temporary closures: During the wet season, certain trails may be closed temporarily to running/hiking, equestrian, and mountain bike use, as well as during periods of flooding or other hazard; trails are evaluated daily for reopening.
- Seasonal closures: Trails may be closed to all user types, and generally for a longer duration, a set period of time, or for reoccurring time periods. These closures may result based on geographic location, topographical features, and soil types; these closures are based on safe trail access balanced with resource protection.
- Construction closures: Newly constructed trails may be closed for the first winter after construction until June 1 to allow the trail to settle, compact, and accumulate vegetation. These construction closures would provide a better and more stable trail system in the long term, and to meet County obligations to protect water quality and wildlife habitat (SCCPRD 2019).

In addition to the County trails, regional and municipal trails also exist throughout the county. Regional trails provide longer-distance trail opportunities that often extend beyond the boundaries of the county. The local or municipal trails that are owned and operated by the applicable municipalities generally provide connectivity between local parks and connect to other area trails, are often located in urban areas, and typically consist of paved trail systems. Trails in the study area include trails managed by CSJ, DPR, MROSD, SCVOSA, SCCPRD, and City of Morgan Hill.

As described above, the Bay Area Ridge Trail is a regional trail network that provides approximately 400 miles of trail and an additional 150 miles of planned trails around the Bay Area (**Figure 3.18-1**). Within the Project Area, the Coyote Creek Trail is a portion of the Bay Area Ridge Trail. Other segments of the Bay Area Ridge Trail are also located within the county and provide access to other County parks, providing a connecting corridor from the Project Area. A portion of the Bay Area Ridge Trail is proposed to connect Anderson Lake County Park to the Coyote-Bear County Park (Bay Area Ridge Trail 2017).

Other land-based uses in parks in the study area are picnicking, nature viewing, sports, and playground usage.

3.18.2 Regulatory Setting

This section summarizes State, regional, and local laws, regulations, policies, and plans pertinent to the evaluation of the Project impacts on parkland and recreational resources. No specific federal laws, regulations, or policies related to recreation are applicable to the Project.

3.18.2.1 State Laws, Regulations, and Policies

California Public Code 5400: Public Park Preservation Act of 1971

The Public Park Preservation Act of 1971 prohibits public entities from acquiring any property that is in use as a park at the time of acquisition from using such property for nonpark purposes, unless the acquiring entity provides compensation to the operating entity to replace the park and its facilities.

3.18.2.2 Regional and Local Laws, Regulations, and Policies

Santa Clara County General Plan

The Santa Clara County General Plan (County 1994) Parks and Recreation Countywide Issues and Policies section outlines three types of areas and facilities that can contribute both to meeting future recreation demands and to maintaining the county’s natural resources and beauty, including Regional Parks and Public Open Space Lands, Trails, and Scenic Highways.

The Parks and Recreation chapter provides strategies, policies, and implementation frameworks for parks and public open space lands, trails and pathways, and scenic highways. Key strategies and policies are listed below.

Regional Parks and Open Space Lands

- Strategy #1: Develop Parks and Open Space Lands
- Strategy #2: Improve Accessibility
- Strategy #3: Balance Recreation and Environmental Objectives
- Strategy #4 Facilitate Interjurisdictional Coordination
- Strategy #5: Encourage Private Sector and Non-Profit Involvement

Trails and Pathways

- Strategy #1: Plan for Trails
- Strategy #2: Provide Recreation, Transportation, and Other Public Trail Needs in Balance with Environmental and Land Owner Concerns
  - C-PR 24 As provided for in the Resource Conservation Chapter, trails shall be located to recognize the resources and hazards of the areas they traverse, and to be protective of sensitive habitat areas such as wetlands and riparian corridors and other areas where sensitive species may be adversely affected.
  - C-PR(i) 15 Prior to developing any new trail route for public use, prepare design and management plans that ensure provision of services necessary to provide for the safety and support of trail users and affected landowners, and respond to the unique safety and use concerns associated with highway safety, traffic operations, public transit, and businesses such as quality water source development, intensive agriculture, grazing, mining, railroads, and defense research and testing industries.
- Strategy #3: Implement the Planned Trails Network
- Strategy #4: Adequately Operate and Maintain Trails
  - C-PR 30 Trails shall be temporarily closed when conditions become unsafe or environmental resources are severely impacted. Such conditions could include soil erosion, flooding, fire hazard, environmental damage, or failure to follow the specific trail management plan.
  - C-PR(i) 19.6 Design trail access points to ensure that off-road motorized vehicles do not use trails except for maintenance and emergency purposes or wheelchair access.
- Strategy #5: Establish Priorities
- Strategy #6: Facilitate Inter-Jurisdictional Coordination
  - C-PR 33.5 Public improvement projects, such as road widenings, bridge construction, and flood control projects, that may impact existing or proposed trails should be designed to facilitate provision of shared use.

Santa Clara County Parks and Recreation Department 2018 Strategic Plan

Santa Clara County has an extensive history of countywide park planning and development managed by SCCPRD. Supported by a voter approved Park Charter Fund, the Parks and Recreation Department manages 28 parks comprising over 52,000 acres. Valley Water works in partnership with the SCCPRD to provide recreational opportunities at many of Valley Water's reservoirs and along over 70 miles of creek-side trails.

The 2018 Strategic Plan (SCCPRD 2018) outlines the process used to define the Parks and Recreation Department's vision statement and vision elements, and defines priorities, goals, strategies, actions, and practices for implementing the vision.

Countywide Trails Prioritization and Gaps Analysis

Santa Clara County Parks and Recreation Department (SCCPRD 2015a) completed an analysis of off-street trails, identifying priorities of "gap" trails. The Coyote Creek Trail was identified as having challenges related to funding, property acquisition, flood protection, riparian zone permitting, and infeasible segments.

Coyote Creek Parkway Integrated Resource Management Plan and Master Plan

The Coyote Creek Parkway Integrated Resource Management Plan and Master Plan is designed to balance the long-term resource management of the Coyote Creek Parkway (Parkway) corridor with recreational uses that directly reflect the mission and vision of the SCCPRD. This plan depicts, over a 20-year period, how the Parkway can be managed to provide a quality outdoor recreation experience while also enhancing the habitat for special status species, providing and improving ecological functions of Coyote Creek, including flood protection, and maintaining a riparian forest along Coyote Creek (SCCPRD 2006). Key goals and objectives are listed below.

Goal PR-1. Consistent with resource programs, retain existing recreational use areas and facilities where feasible.

Objective PR-1.1 Retain and enhance, where appropriate, existing recreation opportunities provided by lessees and permittees.

Goal PR-2 Enhance the multi-use trail system of the Parkway while providing manageable access points.

Objective PR-2.4 Provide connections to Regional, Sub-regional, and Connector trails as identified on the Countywide Trails Master Plan

Objective PR-2.8 Where feasible, relocate the Coyote Creek Trail outside the Coyote Creek floodplain.

Goal PR-3. Provide water-based outdoor recreation opportunities.

Objective PR-3.2 Maintain the existing Coyote Creek fishing program and tailor it in the future to reflect changes in the fishery.

Santa Clara County Countywide Trails Master Plan-Update

The Santa Clara County Countywide Trails Master Plan Update (SCCPRD 1995) and its Supplemental EIR were adopted by the Santa Clara County Board of Supervisors in 1995 and serve as guides for trail system development to improve trail connectivity throughout the region. An updated trail status map (SCCPRD 2015b) shows existing and proposed trail routes throughout the county, including several proposed segments of the Bay Area Ridge Trail around Anderson Lake and the proposed and existing Coyote Creek Trail segments that follow Coyote Creek and intersect with several Project components. In the EIR scoping comments, the County noted impacts to the Bay Area Ridge Trail as a concern; however, the Bay Area Ridge Trail has not been completed, except for a single disjointed segment within the Project area that would be closed during construction.

Coyote Lake – Harvey Bear Ranch County Park Natural Resource Management Plan

The Natural Resource Management Plan (NRMP) for Coyote Lake – Harvey Bear Ranch County Park, along with its associated Final Master Plan EIR, was developed in order to provide SCCPRD with natural resource management programs for the park (SCCPRD 2004). The NRMP considers the park's existing biological conditions, identifies recreational opportunities, and serves to guide the development of Coyote Lake-Harvey Bear Park. The NRMP explains the guiding principles for resource management and outlines specific resource management practices. The NRMP zone of influence does not overlap with the Project Area, except for biological monitoring activities that occur between Anderson Lake and Coyote Lake. As such, Valley Water shares all data sets and monitoring reports with SCCPRD, which could be used to supplement SCCPRD's monitoring commitments set forth in the NRMP.

Jointly Adopted Agreements Between Santa Clara County Board of Supervisors and Valley Water Board of Directors

On August 14, 2018, the Santa Clara County Board of Supervisors and Valley Water Board of Directors adopted a 5-year term joint resolution that approved a set of Shared Principles which provides a framework for the land use relationship between both agencies. The joint resolution also included a renewable 5-year term Memorandum of Agreement regarding the implementation of the Shared Principles; a Master License Agreement, which provides a means for establishing land access agreements; and a 20-year term Master Partnership Agreement.

The Master Partnership Agreement (Valley Water 2018) between Valley Water and the County provides a renewed commitment to partnership in the operation of Valley Water properties for public recreational use (Valley Water 2018). Sections of the agreement relevant to the Project include the following:

- Valley Water responsibility for repairing and/or replacing County improvements damaged or removed by Valley Water as part of Valley Water projects
- Requirement that Valley Water provide the County with an annual notice of the scheduled operational levels for each reservoir on Valley Water property for the remainder of the calendar year
- Requirement that Valley Water engage the County early in conceptual and subsequent planning and design for projects

City of Morgan Hill Bikeways, Trails, Parks, and Recreation Master Plan

The City of Morgan Hill Bikeways, Trails, Parks, and Recreation Master Plan (City of Morgan Hill 2017) was developed to guide the improvements and future development for planning, design, operation, and maintenance of the City's Parks and Recreation system over the next 20 years. The Parks and Recreation Commission developed the Master Plan to provide a comprehensive system of high-quality parks, trails, recreation facilities, and programs that meet existing and future needs of the community, enhance partnerships, contribute to the city's scenic quality, identity, and livability, and are sustained over time. The Bikeways, Trails, Parks, and Recreation Master Plan identifies community recreation facility needs, including pedestrian and bicycle trails, as well as creeks and waterways that are preferred sites for unpaved and paved pedestrian and bicycle trails.

Santa Clara Valley Water District Act and Related Policies

Valley Water operates as a state of California Special District with jurisdiction throughout Santa Clara County. The Santa Clara Valley Water District Act (District Act) defines the powers and purposes of Valley Water. According to the District Act, Valley Water's purpose includes comprehensive water management, including protecting beneficial uses. Regarding Valley Water's purpose to provide or maintain recreation, the District Act states that Valley Water's purpose includes "preserv[ing] open space in Santa Clara County and support[ing] the county park system."

Valley Water's Board Governance Policies are the official adopted policies of Valley Water's Board of Directors. Also known as Valley Water's Ends Policies, these policies help Valley Water accomplish its mission of providing "a healthy, safe, and enhanced quality of living in Santa Clara County through watershed stewardship and comprehensive management of water resources in a practical, cost-effective, and environmentally sensitive manner for current and future generations." The Ends Policies support ends-oriented management, in which management is directed by the desired outcome or condition. The following Ends Policies related to recreation, as revised by the Board of Directors in June 2021 are relevant to the Project's recreation impacts.

Policy No. E-2 Water Supply Services

2.3. Protect and maintain existing water infrastructure (i.e., Anderson Dam which creates an opportunity for water based recreation)

Policy No. E-4 Water Resources Stewardship

4.5. Engage the community to promote watershed stewardship by providing meaningful engagement in Valley Water programs for all people regardless of race, color, gender identity, disability status, national origin, tribe, culture, income, immigration status, or English language proficiency.

4.5.1. Provide appropriate and equal public access to Valley Water's streamside and watershed lands.

4.5.2. Engage and educate the community in stream and watershed protection.

4.5.3. Build partnerships to protect and enhance watersheds and aquatic ecosystems.

3.18.3 Methodology and Approach to Impact Analysis

This impact analysis describes whether construction and operation of the Project would result in significant adverse effects on recreational resources and the ability to access natural resources (such as angling) in the Project area and in the recreational resource study areas. The impact analysis focuses on two issues: (1) whether temporary and permanent closures of recreational facilities in the Project area would result in substantially increased use at alternate recreational facilities by displaced recreators such that substantial physical deterioration of the facility would occur or be accelerated and (2) whether Project-related restoration and modification of recreational facilities in the Project area would result in impacts on the environment.

For impacts on other recreational facilities related to Project closures, the location and nature of Project construction and operation and maintenance activities are considered in the context of existing recreational facilities or opportunities that could be affected by Project activities. Each Project component has been analyzed to determine whether Project construction or operation activities would result in substantial physical deterioration of existing recreational facilities both in the Project Area and in the Project vicinity within the study areas. The analysis of impacts on alternate recreational facilities that could experience deterioration as a result of the use by displaced recreators considers temporary impacts that may occur during the ~~7-~~ 8-year construction period, as well as permanent impacts, or impacts considered to be long-term and/or that would result from ongoing operations and maintenance activities.

In addition, this impact analysis considers impacts on the physical environment that would result from construction activities related to restoration or modification of recreational facilities as a result of Project implementation. The study area for this impact is the Project area.

The direct impacts of the Project are described and evaluated according to significance criteria from Appendix G of the *CEQA Guidelines*, discussed in “Thresholds of Significance” below.

This analysis is based on the following evaluations.

- Desktop evaluations performed using a GIS analysis of existing recreational resources managed by SCCPRD, the cities of Morgan Hill, San José, and Gilroy, MROSD, Santa Clara Valley Open Space Authority, and California State Parks
- Review of recreation amenities at parks in the study areas
- Review of recreation data, including SCCPRD visitation statistics
- Coordination with SCCPRD, including site visits and the application of agreements such as the Master Partnership Agreement

The potential temporary or permanent loss of recreational opportunities at any particular location is not itself an environmental impact under CEQA.

As stated immediately above, impacts on other existing recreational facilities in the study areas are related to temporary and permanent closures of facilities in Anderson Lake County Park and Coyote Creek Parkway. Anderson County Park would remain open during construction except for those areas that were closed under the FOCP. The areas that would remain closed include the continued permanent closure of the Toyon Group Picnic Area and Coyote Road across the dam crest, and the continued temporary closure during ongoing construction of Woodchopper’s Flat Picnic Area, Serpentine Trail, Dam Crest Informational Trails, Anderson Reservoir Boat Launch Ramp and associated parking areas, and portions of the Lakeview ~~Lake View~~ Trail, and Rancho Laguna Seca Trail. The Project would require the additional temporary closure of the Live Oak Picnic Area throughout the duration of Project construction and Rosendin Park Area, including all trails (i.e., Rancho Laguna Seca, Lakeview ~~Lake View~~, and Grey Pine Trails) during the initial blasting phase of construction. The partial closures of Rancho Laguna Seca and Cochrane trails would extend throughout the entire construction period. All other facilities within the Anderson Lake County Park, including the Jackson Ranch Historic Site, Burnett Park Area, Anderson Lake County Park Visitor’s Center and Park Office, Anderson Lake County Park

Maintenance facility, and other internal and regional trails would remain open to the public. The Live Oak Picnic Area would be used as a staging area throughout Project implementation. All park features would remain or be replaced onsite and in-kind following construction activities associated with the Project. Permanent modifications to the Live Oak Picnic Area would be limited to the required tree removal for Project implementation.

Valley Water confirmed at the September 5, 2013, public agency scoping meeting that the Live Oak Bridge would not be used for transportation of construction equipment or vehicles. A new temporary bridge crossing would be constructed to support construction equipment crossings over Coyote Creek throughout Project implementation.

All public use of vehicles on Coyote Road along the dam crest would be permanently closed as a result of Project implementation; however, pedestrian access would remain open post-construction. Parking along the dam crest would also be removed, and these parking spaces would be relocated to the expanded boat launch parking area. Other permanent design modifications would include realigning the Serpentine Trail, restoring trails and pedestrian access along the dam crest, which connects to the trails upslope of the boat launch parking area (known as the Rosendin area), and permanently modifying off-trail hiking trails in the BHBA. Upon completion of Project construction, recreational facilities and parking areas that were temporarily closed would be restored to pre-FOCP conditions, to the greatest extent feasible, with on-site and/or in-kind replacement of facilities.

Since the time of the NOP, SCCRD and Valley Water have coordinated closely and developed a Master Partnership Agreement to further establish a cooperative understanding between Valley Water and SCCRD about permanent changes and reconfigurations to County parklands and recreational facilities.

Impacts on fisheries habitat and the recovery of game fish populations are analyzed in Section 3.14, *Water Quality*, Section 3.15, *Water Supply*, and Section 3.4, *Biological Resources – Aquatic and Fisheries Resources*. Impacts to site access, egress and ingress, and traffic circulation during construction and post-construction are discussed in Section 3.19, *Transportation*.

Table 3.18-3 summarizes the changes to recreational facilities that could be affected by Project-related temporary and permanent closures. **Figure 3.18-3a–Figure 3.18-3d** indicates closures in the Project area.

1 **Table 3.18-3. Closures and Changes to Recreational Facilities in the Project Area**

Recreational Facility	Temporary Changes	Dates of Existing Conditions (FOCP) Closure	~~Dates of Project-Related~~ Construction Years Related to Temporary Closure	Duration of Project-Related Temporary Closures (years)	Permanent Changes
Anderson Reservoir	Closed during FOCP; closure would be extended under the Project.	October 2020 – 2024	Years 1-7 ~~2024 – 2032~~	8	After seismic retrofit construction, the reservoir will be capable of holding more water more frequently compared to the existing conditions baseline, allowing greater boating opportunities.[a]
Undeveloped land within Live Oak Picnic Area	Partial closure during all of FOCP. This facility would be entirely closed in December 2023 under FOCP and remain closed throughout seismic retrofit construction.	North Channel backwater and staging area near Coyote Discharge line partially closed from 2021 –2024 South Channel, portions of the North Channel, and portions of Live Oak Picnic area closed during December 2023 – 2024	Years 1-7 ~~2024 – 2032~~	8	This recreational facility would be restored after seismic retrofit construction.
Holiday Lake Estates Boat Ramp Parking Area	Boat ramp will be closed throughout FOCP and seismic retrofit construction.	October 2020 – 2024 (through seismic retrofit construction)	Years 1-7 ~~2024 – 2032~~	8	This recreational facility would be restored after seismic retrofit construction.

Recreational Facility	Temporary Changes	Dates of Existing Conditions (FOCP) Closure	~~Dates of Project-Related~~ Construction Years Related to Temporary Closure	Duration of Project-Related Temporary Closures (years)	Permanent Changes
Woodchopper's Flat Picnic Area	Closed throughout FOCP construction and would continue to be closed throughout seismic retrofit construction because the area is susceptible to erosion due to low reservoir levels and is unstable for park users.	October 2020 – 2024 (through seismic retrofit construction)	Years 1-7 ~~2024 – 2032~~	8	This recreational facility would be restored when Anderson Reservoir refills.
Dam Crest Trail, ~~Cochrane Trail,~~ and Serpentine Trail	Closed during FOCP and seismic retrofit construction	October 2020 – 2024 (through seismic retrofit construction)	Years 1-7 ~~2024 – 2032~~	8	No permanent loss of function are proposed at these recreational facilities.
Toyon Picnic Area	Not Applicable to the Project (Closed due to implementation of FOCP)	Closed since October 2020	Not applicable	Not applicable	This recreational facility remains closed permanently, except for the Serpentine trail connection from the Live Oak Area to the Dam Crest.[b]
Live Oak Picnic Area (creek portions)	Completely closed in December 2023 for FOCP and closed in entirety throughout seismic retrofit construction	2023-2024	Years 1-7 ~~2024 – 2032~~	8	Permanent changes to this recreational facility include tree replacement, installation of shade structure, and installation of weirs in the North and South Channel.

Recreational Facility	Temporary Changes	Dates of Existing Conditions (FOCP) Closure	~~Dates of Project-Related~~ Construction Years Related to Temporary Closure	Duration of Project-Related Temporary Closures (years)	Permanent Changes
Anderson Lake Boat Ramp Area	Already closed as part of FOCP and would remain closed to boating, hiking, and picnicking throughout the duration of seismic retrofit construction. Boat ramp and parking lot would be replaced and improved.	2020-2024	Years 1-7 ~~2024 – 2032~~	8	No permanent changes are proposed at this recreational facility.
Basalt Hill	Informal trails and area closed through FOCP and would remain closed throughout seismic retrofit construction. Trails system would be restored following seismic retrofit construction. Boat area would be enhanced with additional parking.	2020-2024	Years 1-7 ~~2024 – 2032~~	8	Approximately 0.8 acre of Basalt Hill would be permanently fenced off and closed at this recreational facility.
Rosendin Park Area	Portions of trails that lead to/from Anderson Boat Ramp closed through FOCP, and all trails in Rosendin Park Area would be closed during the initial blasting phase of construction of the seismic retrofit which would last for approximately 3-4 months. Trails closest to Basalt Hill Borrow Area would be closed for the duration of blasting.	2020-2024	Years 4, 5, and/or 6 ~~2024-2032~~	Complete closures would last for approximately 3-4 months; partial closures of Rancho Laguna Seca and Cochrane trails would extend throughout the entire construction period. Lakeview Trail, Gray Pine Trail, Rosendin Trail and portions of Rancho Laguna Seca and Cochrane Trails	No permanent changes are proposed at this recreational facility.

Recreational Facility	Temporary Changes	Dates of Existing Conditions (FOCP) Closure	~~Dates of Project-Related~~ Construction Years Related to Temporary Closure	Duration of Project-Related Temporary Closures (years)	Permanent Changes
				would remain closed for the duration of blasting. ~~12~~	
Coyote Creek Parkway, trail	Partially closed throughout construction of ~~Ogier Ponds~~ Phase 2 Coyote Percolation Dam conservation measure. Detours and traffic control would be needed for Coyote Creek Parkway trail during ~~Ogier Ponds~~ construction.	None	Years 1-2 ~~2030-2032~~	Intermittent closures over 2 years	No permanent changes are proposed at this recreational facility.
Coyote Creek Parkway, Ogier Ponds	No changes to Ogier Ponds. Related changes to Coyote Creek Parkway trail.	None	None	None	No permanent changes are proposed at this recreational facility.
Coyote Creek Parkway-Sediment Augmentation Program	None	None	None	None	No permanent changes are proposed at this recreational facility.
Coyote Percolation Dam	Informal trails and 10-foot buffer around dam along the access road closed during active construction of Phase 2.	None	Intermittent closures in Years 1- 2 ~~2030 – 2031~~	Intermittent closures over 2 ~~1~~ years	No permanent changes are proposed at this recreational facility.

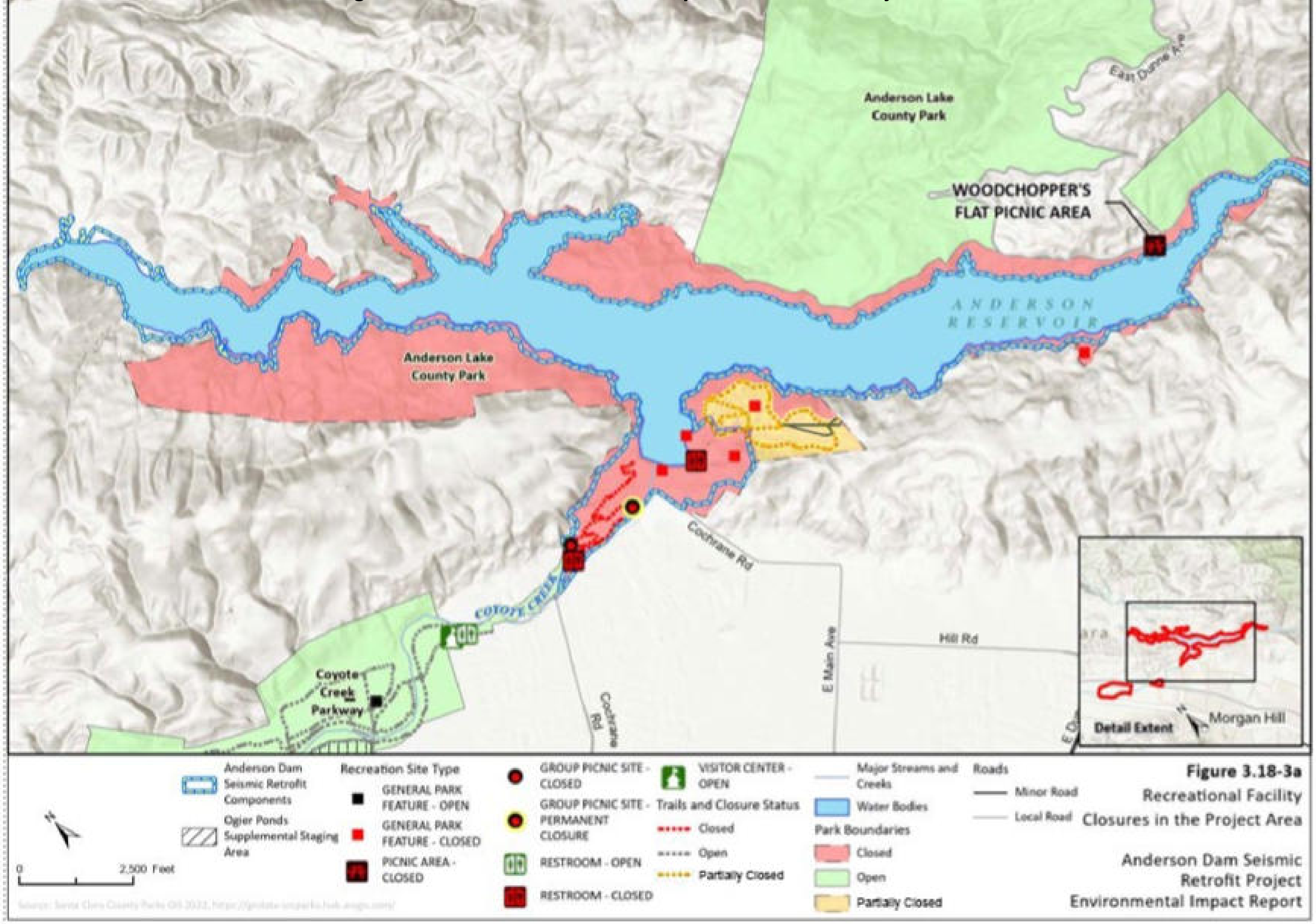
Notes:

[a] The spillway and capacity of the reservoir will remain the same compared to the Pre-FERC Order Conditions Baseline. Accordingly, rates of boating and angling are expected to return to the same or greater compared to Pre-FERC Order Conditions.

[b] Toyon picnic area was closed under the FOCP under the existing conditions baseline. Accordingly, the closure of this facility under seismic retrofit activities would not represent a change from baseline.

Key: FOCP = Federal Energy Regulatory Commission Order Compliance Project

Figure 3.18-3a. Recreational Facility Closures in the Project Area



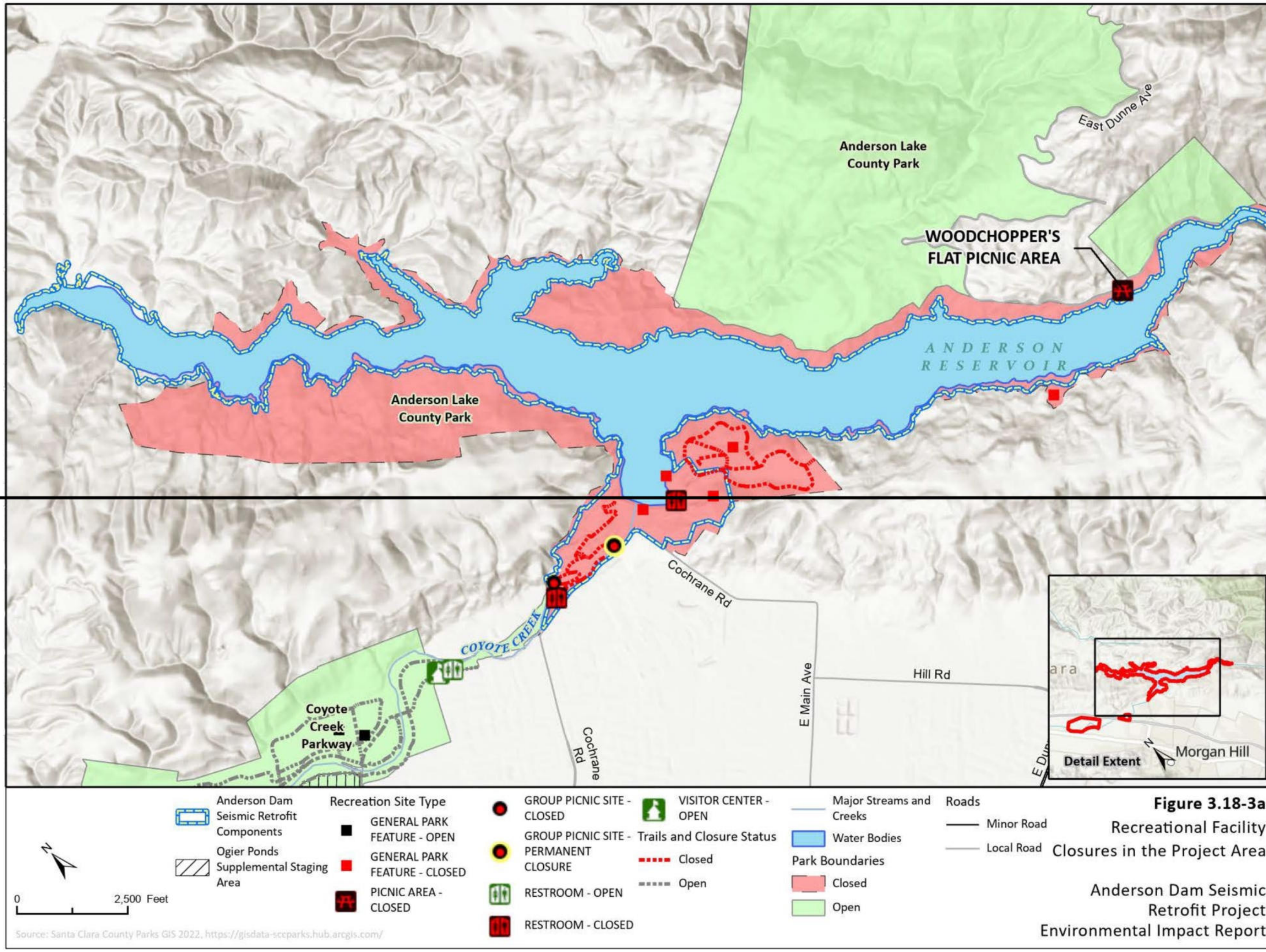
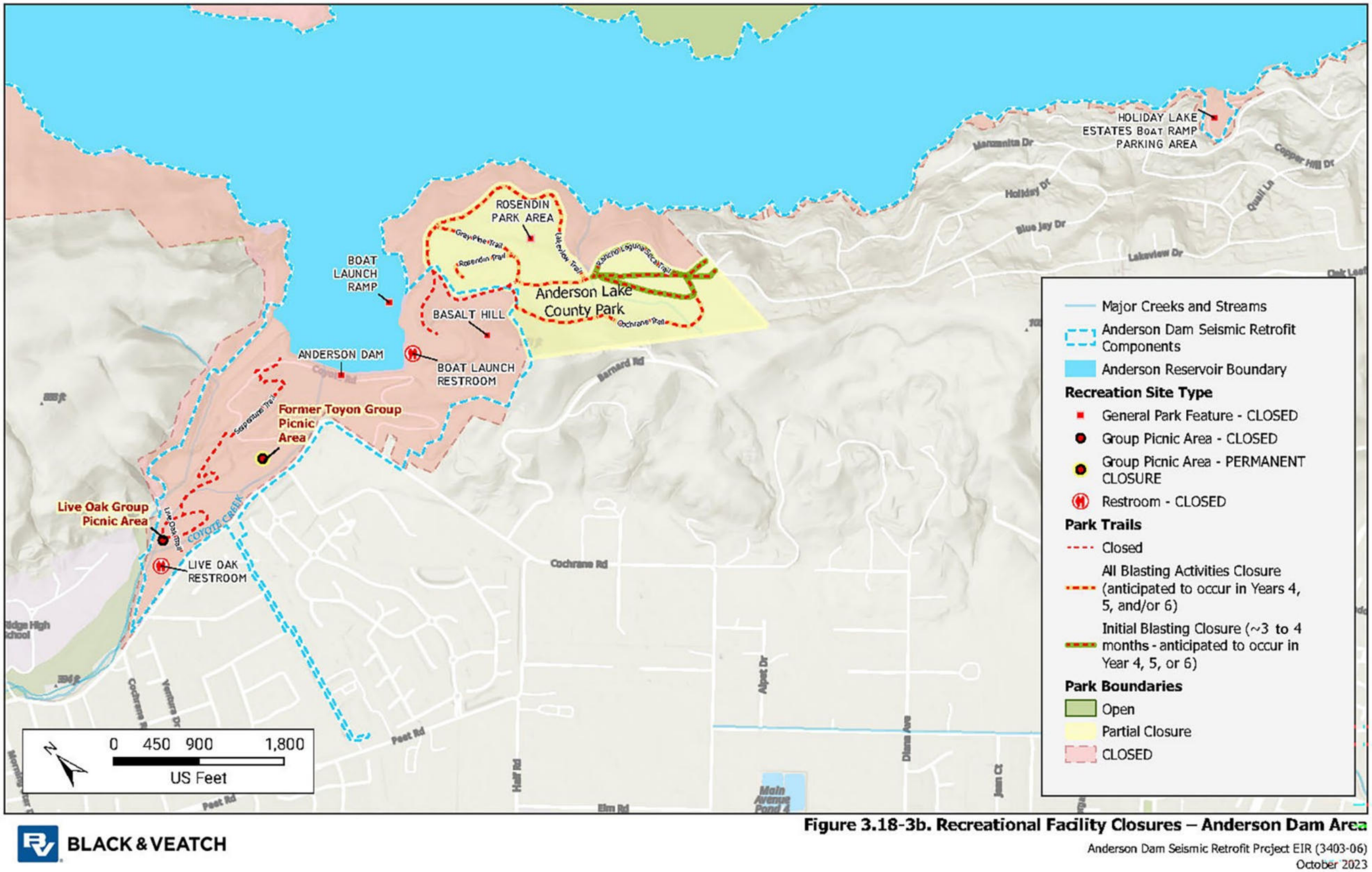


Figure 3.18-3a
Recreational Facility Closures in the Project Area

Anderson Dam Seismic Retrofit Project Environmental Impact Report

Figure 3.18-3b. Recreational Facility Closures in the Project Area



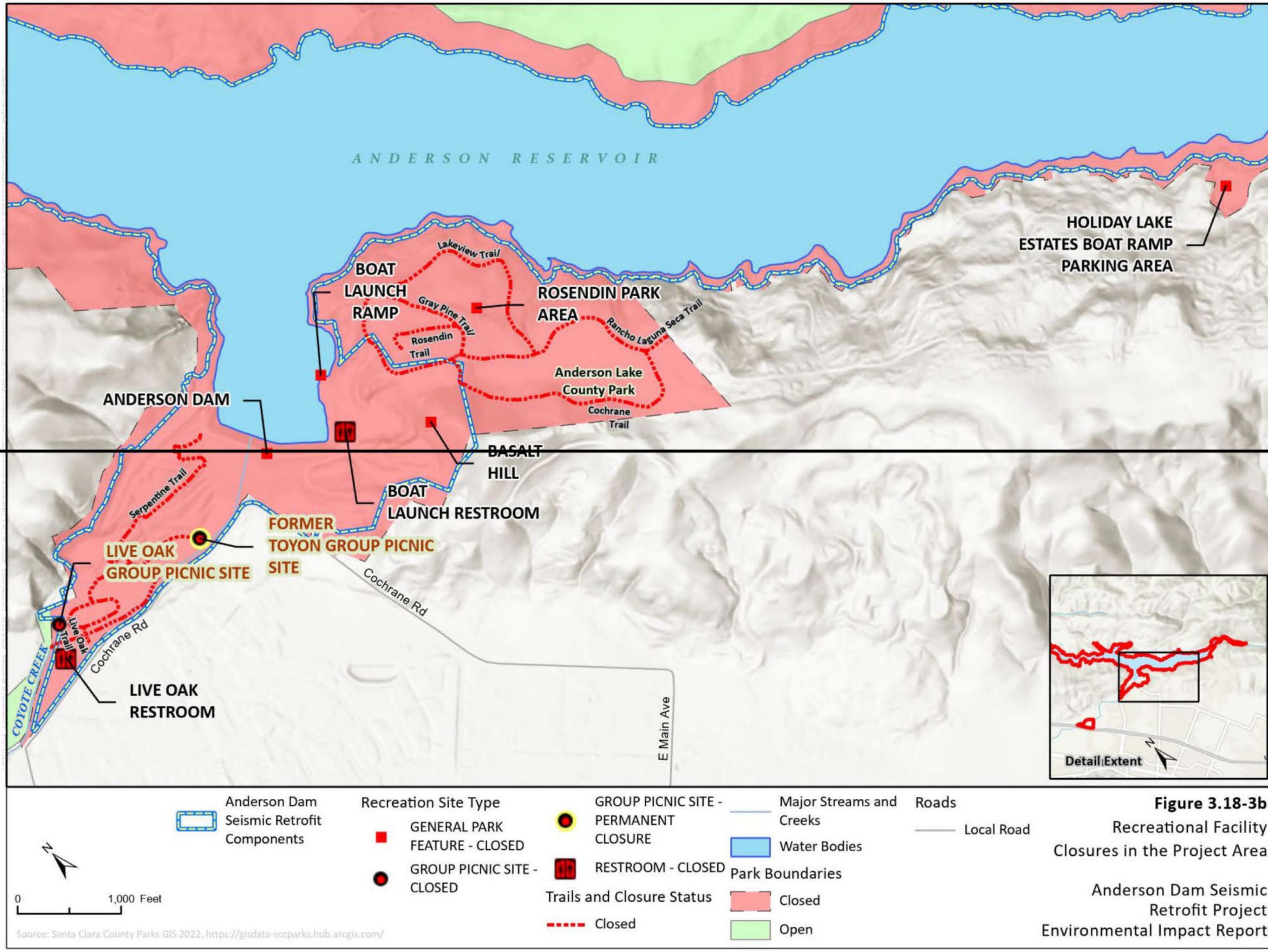
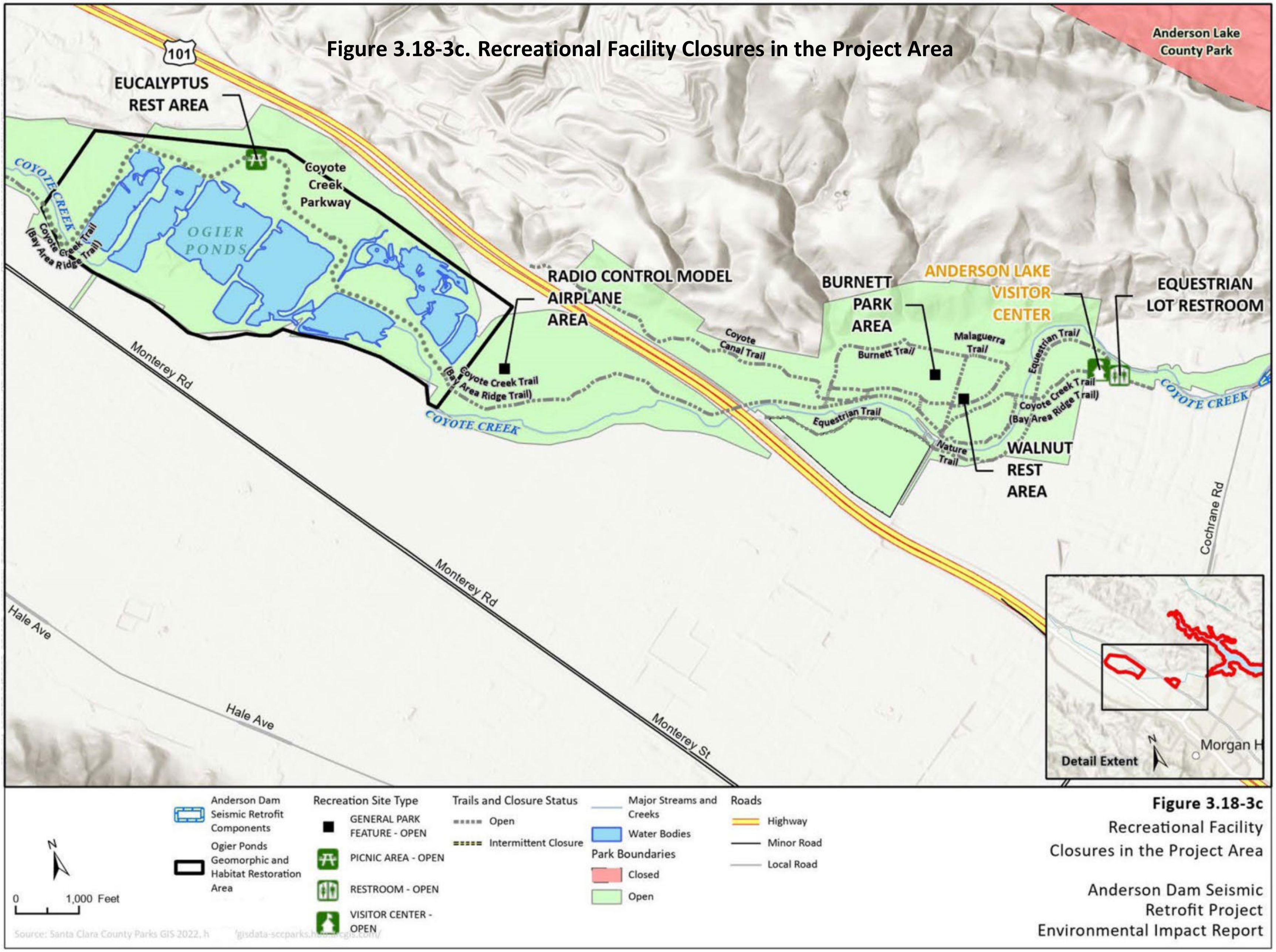


Figure 3.18-3b
Recreational Facility Closures in the Project Area

Anderson Dam Seismic Retrofit Project Environmental Impact Report

Figure 3.18-3c. Recreational Facility Closures in the Project Area



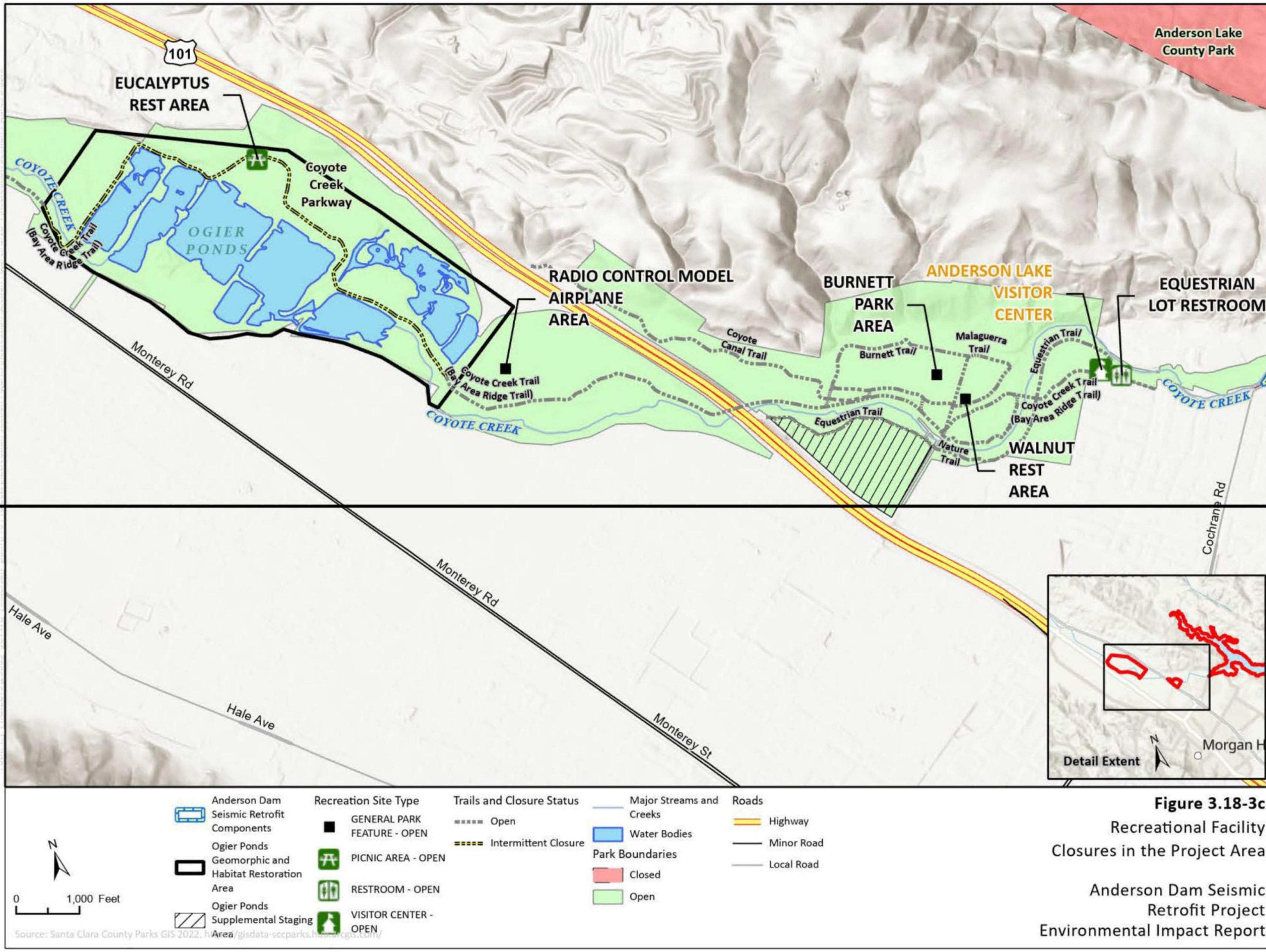
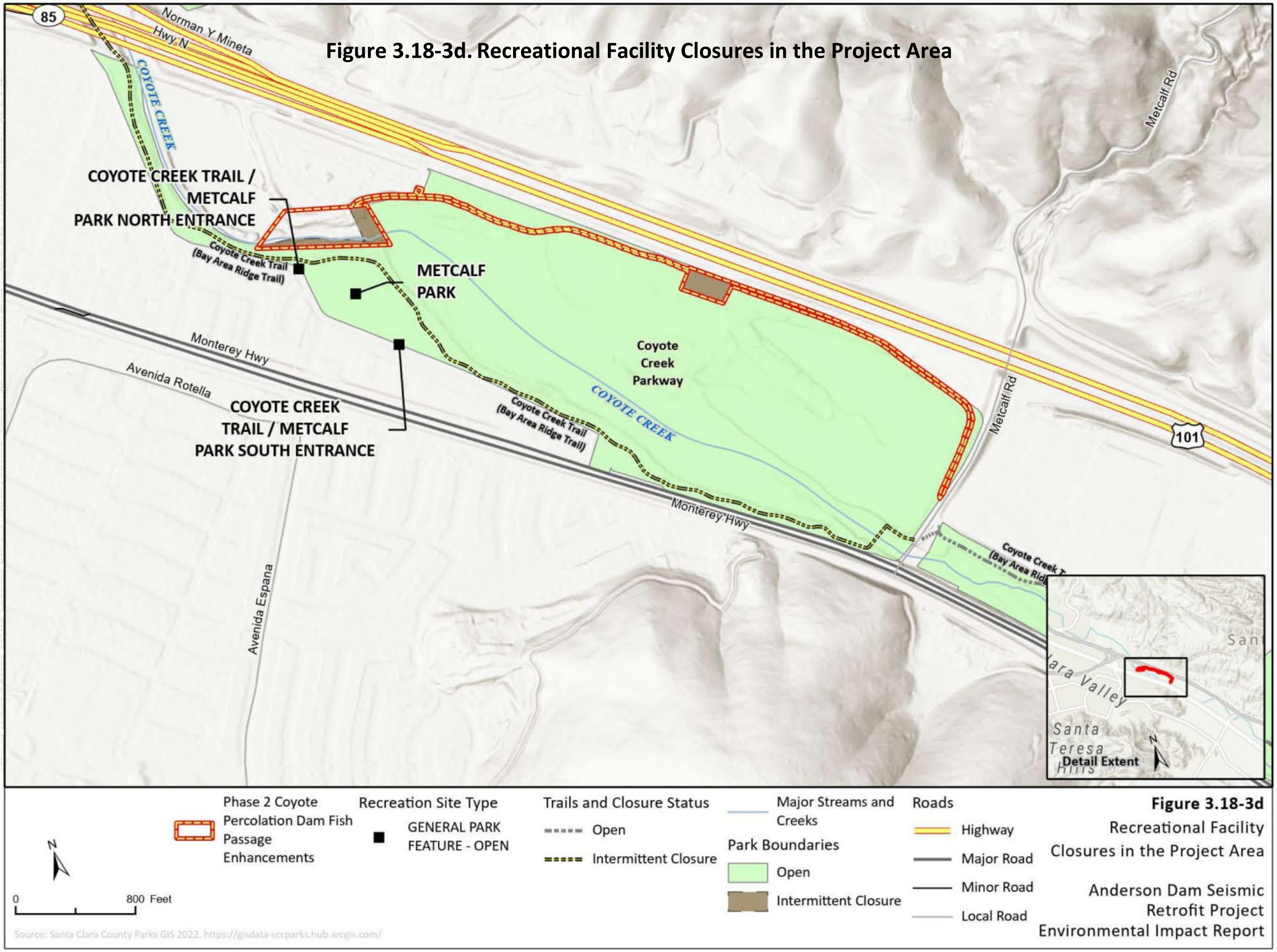


Figure 3.18-3c
Recreational Facility Closures in the Project Area

Anderson Dam Seismic Retrofit Project Environmental Impact Report

Figure 3.18-3d. Recreational Facility Closures in the Project Area



Impact analysis related to increased use of other boating facilities focuses on changes to recreational boating and fishing in Anderson Reservoir and nearby Ogier Ponds, as well as changes in water levels in Anderson Reservoir that could increase use of other boating facilities. Impact analysis related to increased use of other facilities focuses on whether Project-related changes to land-based recreational uses such as hiking, picnicking, and nature viewing and Project-related changes to angling opportunities would increase the use of other facilities.

As stated in the Introduction to this section, two study areas were defined for evaluating these impacts. For land-based recreational uses, the study area includes all parks within 5 miles from the Project Area plus all regional parks in the county. This study area assumes that some limited uses, such as picnicking, could be displaced to nearby city parks, but that other land-based uses, such as hiking and nature viewing, could be displaced to other more distant parks with similar qualities to those in the Project Area, including a wilderness experience, hiking opportunities, and opportunities for nature viewing. For boating and angling uses, the study area includes all regional reservoir/lake-containing parks in the county that allow boating and/or angling. This study area assumes that parks with water features that are similar to those at Anderson Lake County Park and Coyote Creek Parkway would be visited by displaced boaters and anglers.

To evaluate whether Project construction activities would result in substantial physical deterioration of existing recreational facilities both in the Project Area and in the Project vicinity within the study area, nearby facilities in the study area were evaluated to determine their proximity for serving displaced recreators during Project construction and operation, as well as the suitability of the alternate recreational facilities to fill the needs of displaced recreators. **Figure 3.18-1** and **Table 3.18-1** show recreational facilities that could serve hikers, nature viewers, picnickers, and other land uses in the land-based study area. **Figure 3.18-4** and **Table 3.18-1** show recreational facilities that could serve boaters and anglers in the boating and angling study area.

This impact analysis also considers impacts on the environment that would result from Project-related restoration or modification of recreational facilities. Those facilities listed in **Table 3.18-3** that would be affected by a temporary closure would be restored to their pre-Project and pre-FOCP capacity and conditions, and the pre-construction quality of recreational facilities would be restored. Those facilities in **Table 3.18-3** that would be affected by a permanent modification would be replaced by other facilities that are equal to or better than those that existed prior to issuance of the FERC Order and implementation of the FOCP. Specifically, permanent design modifications at Coyote Road along the dam crest include elimination of the loop road, the removal of 61 parking spaces along the dam crest, and the relocation of the 61 parking spaces to the Boat Launch Parking area, which would be permanently modified to accommodate those relocated parking spaces. In addition, although access along Coyote Road, would be restored, the portion along the dam crest would become a restricted access road for Valley Water and SCCPRD staff and would no longer be accessible to private vehicles but pedestrian use of the road across the dam crest would be maintained.

Figure 3.18-4. Boating and Angling Facilities in Santa Clara County

The assessment of impacts has been divided into construction-related impacts and operation-related impacts by Project component, as identified in **Table 2-1** of Chapter 2, *Project Description*. The following subsections provide information on baselines and other Project-component information relevant to impact analysis.

3.18.3.1 Seismic Retrofit Construction

As described in Section 3.0, *Introduction,* the existing conditions baseline for evaluating seismic retrofit construction effects is the existing conditions following completion of the FOCP upgrades to the existing dam and reservoir facilities (i.e., existing conditions modified by FOCP implementation).

The existing conditions baseline for impact analysis therefore assumes implementation of FOCP, which began in 2020. This baseline establishes which facilities are considered to be open or closed. However, this section also considers park visitation statistics from 2015 with respect to the question of whether decreased visitation of Project recreational facilities would result in sufficient displaced recreators to cause deterioration of alternate recreational facilities. To more accurately and conservatively portray Seismic Retrofit construction impacts, this older dataset was chosen for three reasons, summarized below:

- The 2015 date is a more accurate representation of visitation at Anderson Lake County Park than a more recent date because the reservoir was drawn down starting in 2017 due to a DSOD order, which lowered boating activity, and the reservoir was drawn down further starting in 2020 to deadpool in compliance with the FOCP, which ceased boating activity on the reservoir. Other visitation is also likely to have been less because of the lowering of the reservoir.
- The 2015 date was in the middle of drought conditions that lasted from 2011 to 2017 and predates the most recent drought conditions from 2020 to 2022.
- The 2015 date predates the COVID-19 pandemic, which skewed visitation statistics.

3.18.3.2 Conservation Measure Construction

As described in Section 3.0, *Introduction,* the baseline for evaluating Conservation Measure construction impacts is the existing conditions baseline (i.e., following completion of the FOCP upgrades to the existing dam and reservoir facilities). Similar to the analysis for the Seismic Retrofit construction, this section considers park visitation statistics from 2015 with respect to the question of whether decreased visitation of Project recreational facilities would result in sufficient displaced recreators to cause deterioration of alternate recreational facilities.

3.18.3.3 Construction Monitoring

Construction monitoring activities are not considered in the impact analysis, as monitoring would involve data and information collection and assessment and would not result in direct or indirect adverse impacts to recreational facilities. Thus, construction monitoring is not discussed further in this section.

3.18.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

This analysis considers the impacts to other off-site recreational resources that would result from operational changes proposed for nonemergency and emergency flow releases following completion of Anderson Dam facility upgrades and improvements, as described in Chapter 2, *Project Description*. This analysis evaluates whether the Project would result in increased average daily peak flows that could inundate existing recreational facilities and trails along downstream reaches for a sustained period and potentially result in increased use at other existing recreational facilities. The results of instream models (Valley Water 2022a) and regional maps were used to determine the location of existing recreational facilities where recreational facilities could be affected. As such, impacts on other recreational facilities from changes to Anderson Dam operations would be considered temporary, and are addressed under Impact Rec-1a only.

3.18.3.5 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because none of these activities would increase the use of, or redirect the use of, Project Area recreational facilities, or require the construction or expansion of recreational facilities, such that physical deterioration or environmental degradation would occur.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts of these adaptive actions are not evaluated in the impact analysis because they are expected to be minor and not increase the use of, or redirect the use of, Project Area recreational facilities, or require the construction or expansion of recreational facilities, such that physical deterioration or environmental degradation would occur. The BMPs and mitigation measure applied to the impacts of the Conservation Measures to achieve a less-than-significant level for recreational resources would be at least as adequate to achieve the same level of impact or less for the adaptive actions.

3.18.3.6 Applicable Best Management Practices and VHP Conditions

As noted in Chapter 2, *Project Description*, Valley Water would incorporate BMPs, VHP Conditions, and AMMs to avoid and minimize adverse effects on the environment that could result from the Project. All relevant BMPs for the Project are included in Appendix A, *Best Management Practices and Santa Clara Valley Habitat Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures* ~~*Incorporated in the Project*~~. In reference to recreation resources, applicable BMPs focus on public noticing, safety, reduction in construction-related impacts (e.g., dust, odor, traffic, and noise), and the timing of Project activities. No VHP conditions directly apply to recreational resources. BMPs relevant to recreational resources include the following:

GEN-36: Public Outreach – Would specify measures to notify the public of Project activities and allow for the public to adjust recreational use to other area facilities.

GEN-37: Implement Public Safety Measures – Would specify public safety measures to notify and warn the recreating public of Project measures and mitigate public safety at recreational facilities and trails.

~~**GEN-38:** Minimize Noise Disturbances to Residential Areas – Would specify maintenance practices that minimize disturbances to residential areas and recreational facilities and users.~~

GEN-39: Planning for Pedestrians, Traffic Flow, and Safety Measures – Would schedule bicycle and pedestrian facility closures outside the peak morning and afternoon periods to minimize the effect of Project measures on recreational access and use.

AQ-1: Use Dust Control Measures – Would ensure dust and air quality management measures, including implementation of BAAQMD's BMPs for dust suppression, relevant when considering impacts on recreators that may be present in the Project area.

AQ-2: Avoid Stockpiling Odorous Materials – Would avoid stockpiling odorous materials (for example, reservoir sediment containing high levels of hydrogen sulfide) within 1,000 feet of residential areas or other odor sensitive land uses, including recreational areas.

TR-1: Incorporate Public Safety Measures – Would requires installation of signs, safety fencing, and access to detours (if feasible) that provide adequate warning to the public of the construction work area.

3.18.8 Thresholds of Significance

For the purposes of this analysis, the Project would result in a significant impact on recreational resources if it would:

REC-1: 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 (criterion a).

To determine whether the Project would result in a significant impact falling under criterion (a), the environmental analysis below is divided into the following two subcategories:

REC-1a: Temporary increased use of neighboring recreational facilities; and,

REC-1b: Permanent loss of recreational facilities.

In addition, the Project would result in a significant impact on recreational resources if it would:

REC-2: Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment (criterion b).

3.18.3.7 Issues Dismissed from Further Review

CEQA Guidelines Appendix G suggests that projects may have a significant effect on recreational facilities if the Project would cause a substantial physical deterioration or would require construction or expansion of recreational facilities. However, the potential temporary or permanent loss of recreational opportunities at any particular location itself is not a physical environmental impact under CEQA. Rather, consistent with the *CEQA Guidelines*, for purposes of this EIR, impacts to be evaluated are whether such losses would cause increased use of alternative recreation facilities that may cause their deterioration, or whether the project requires expansion of recreation facilities which may have a physical environmental impact. Please note that the loss of recreational opportunities during Project construction would be temporary and would be reversed through Project restoration of recreational facilities.

Impacts from the Seismic Retrofit Construction component and Conservation Measure Construction component are discussed under Impact Rec-1a since they would be temporary impacts of the Project, and are not discussed under Impact Rec-1b since they would not cause permanent impacts on recreational facilities.

Maintenance of conservation measures within Coyote Creek would be conducted in accordance with existing Valley Water maintenance programs (e.g., DMP, SMP, BMPs, and AMMs) as listed in **Table 2-1**, in the Project Description. These measures would be implemented to minimize potential impacts to recreational facilities and opportunities during operations and maintenance activities. The conservation measures focus on improving fish habitat (e.g., gravel augmentation, separation of Coyote Creek from Ogier Ponds, fish passage enhancement). Operations and maintenance would not result in activities that have the potential to substantially affect recreational facilities or opportunities. Temporary disturbances to recreational users may occur during operations and maintenance (e.g., construction equipment operating near a trail that could generate noise temporarily affecting recreationalists). However, all work would be temporary and conducted in close coordination with SCCRD. These activities are not expected to limit recreational use and would therefore not contribute to the displacement of recreators to other recreational facilities, accelerating physical deterioration.

The Ogier Ponds CM would require permanent modifications to ponds (e.g., open waters), but no recreational facilities would be permanently affected (e.g., all informal levee trails would be restored post-construction). In addition, activities at the Ogier Ponds site would not affect the Coyote Creek Parkway to the east of the construction site, and access would be maintained throughout construction. Conservation Measures would operate passively, without mechanical or human intervention, in conjunction with Anderson Dam Reservoir flow releases. While data collection and assessment might indicate that certain Conservation Measures are not satisfying success criteria specified for those measures, such as habitat vegetation cover, presence of particular sized gravel and woody debris, or similar criteria, the actions that would be undertaken to attain prescribed success criteria would be similar to the methods described for implementation of the Conservation Measures.

As described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Anderson Dam was previously evaluated in the Final DMP Program EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). The DMP includes measures to reduce impacts to recreational facilities, including impacts of maintenance-related reservoir dewatering activities. DMP Mitigation Measure General-3 requires the preparation of reservoir-specific dewatering plans that consider the reduction of impacts on water-based recreational activities. Impacts on recreational facilities and opportunities related to post-construction maintenance activities would not differ substantially from those impacts identified in the DMP EIR. Furthermore, previously identified DMP impacts would not be exacerbated with implementation of the Project. Therefore, no new impacts would occur as a result of post-construction dam maintenance activities. For these reasons, post-construction dam facility maintenance activities are not discussed further in this section.

3.18.4 Impact Analysis

***Impact REC-1a: Temporary increased use of neighboring recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated* (Less than Significant with Mitigation)**

Seismic Retrofit Construction

Anderson Lake County Park has existing recreational amenities, including boating and angling, that are not currently available due to the closures required for the FOCP (SCCPRD 2021b) (refer to **Table 3.18-3** and **Figure 3.18-3**). These restrictions would remain in place through the duration of Seismic Retrofit construction, for approximately seven years. Construction for the Seismic Retrofit components would result in temporary closures of additional facilities, including the Live Oak Group Picnic Area, the Rosendin Park Area (to be fully closed during the initial blasting phase of construction with some trails being opened before and after the initial blasting phase), the Grey Pine Trail, and portions of the Rancho Laguna Seca Trail (which would remain partially closed throughout the duration of blasting), and Lakeview ~~Lake View~~ Trail. In addition, the Seismic Retrofit components would require the continued closure of the Boat Ramp and Boat Ramp Parking Area, and Serpentine Trail, including individual picnic tables, public restrooms, and parking for the duration of construction. Because the Serpentine Trail is not connected through existing trail linkages, the temporary closure due to the Project would not affect the greater Bay Area Ridge Trail connectivity.

In addition to direct effects (i.e., trail and facility closures), noise, dust, odors, and vibration from Seismic Retrofit construction activities could discourage recreational use in locations where nearby recreational facilities remain open (e.g., Bay Area Ridge Trail/Coyote Creek Trail, etc.). Implementation of BMP AQ-1 (Use Dust Control Measures) and BMP AQ-2 (Avoid Stockpiling Odorous Materials) would minimize dust and odors from construction activities. ~~Implementation of BMP GEN-38 (Minimize Noise Disturbances to Residential Areas) would limit work to occur only during normal working hours, equip construction equipment and vehicles with adequate mufflers, and restrict vehicle idling time to minimize noise generated by construction activities.~~ Implementation of BMP-TR-1 (Incorporate Public Safety Measures) would provide the public with construction warning signs, safety fencing, and access to detours (if feasible) during construction. Implementation of BMP GEN-36 (Public Outreach [which includes County coordination]), BMP GEN-37 (Implement Public Safety Measures), and BMP GEN-39 (Planning for Pedestrians, Traffic Flow, and Safety Measures) would also reduce impacts and contribute to public safety, and ensure the advance notification of recreators so that they may choose alternate recreational facilities during the construction period for the Seismic Retrofit component.

In the Pre-FERC Order condition, the Coyote Creek Trail and portions of Hellyer Park are periodically inundated by Coyote Creek because several low flow crossings, including the crossing the leads to Velodrome at Hellyer Park, when flows exceed 25 cfs (when measured at the Edenvale Stream Gage). Based on the hydrologic record between 1988 and 2020, the Edenvale Gage exceeds 25 cfs about 13% of the time (Valley Water, 2022 ~~2023~~, therefore the Pre-FERC Order condition included trail closures during winter storms. However, while the Seismic Retrofit construction is underway, releases to Coyote Creek have the potential to inundate additional parkland downstream of Anderson Dam because water will not be stored behind the dam while it is under construction. Flows from a 5 year-event (estimated to have a 20% chance of occurring annually) are expected to have larger peak flows compared to the Pre-FERC Order condition and would occur for a longer period of time. Peak flows would inundate portions of the Coyote Creek Trail and portions of Hellyer Park (see **Table 3.11-8**, **Table 3.11-9**, and Section 3.11, *Hydrology* for additional analysis). Generally, flows below 5,000 cfs would be more likely to occur, but flows greater than 6,000 cfs would be less likely to occur during the Seismic Retrofit construction. Due to the larger sized diversions during construction, the durations of flows exceeding 300 cfs would be slightly decreased during the Seismic Retrofit construction, as shown in **Table 3.11-9**.

There are 100 other recreational facilities in the study area (i.e., all parks within 5 miles of the Project area as well as regional parks in Santa Clara County), many of which include a variety of infrastructure and accommodate a wide range of recreational activities (see **Table 3.18-1** and **Figure 3.18-1**). Temporary impacts on recreational facilities resulting from the Seismic Retrofit components would be distributed across a large number of nearby recreational facilities, and it cannot be predicted which facility would be used by recreators seeking an alternate facility.

Coyote Creek does not accommodate recreational watercraft. Therefore, reduced downstream flow during construction operations would not displace recreators with kayaks to alternate boating facilities.

Anderson Reservoir has historically fluctuated yearly as to whether the reservoir would support boating, depending on water levels and natural environmental conditions. Therefore, it is not anticipated that parks featuring other reservoirs in the area that would absorb boaters displaced from the Seismic Retrofit components would have substantial physical deterioration of recreational facilities in the region or the acceleration of the physical deterioration of those facilities.

Based on 2015 data from the SCCPRD (see Appendix N), the number of individuals angling at Anderson Reservoir represented a small proportion (4.17 percent) of the total number of individuals angling at all County facilities. **Table 3.18-1** and **Figure 3.18-4** show that several neighboring areas provide opportunities for fishing from boats and/or shorelines. Specifically, the following parks within the region support fishing activities: Almaden Quicksilver County Park, Calero County Park, Chesbro Reservoir, Coyote Creek Parkway, Coyote Lake-Harvey Bear

Ranch County Park, Hellyer County Park, Henry W. Coe State Park, Joseph D. Grant County Park, Los Gatos Creek County Park, Mount Madonna County Park, Uvas Reservoir, and Vasona Lake County Park. While the Project would expand the duration for temporary closure of the reservoir by approximately seven years, these conditions would be similar to the existing conditions baseline, under which the reservoir is closed to anglers until the dam is retrofitted to meet FERC and DSOD safety requirements.

Data suggest that historically (i.e., prior to both FOCP and the Seismic Retrofit), Anderson Lake County Park has not been heavily visited for angling as compared to other recreational facilities in the area that offer angling opportunities. Because nearby facilities are currently accommodating anglers who have been unable to use Anderson Reservoir in recent years, it is likely that these same reservoirs would continue to accommodate anglers that would be temporarily displaced as a result construction of the Seismic Retrofit, despite the long period of facility closures (up to seven years). In addition, the proportion of SCCRD recreators visiting parks for angling activities is small compared to the overall anglers at SCCRD.

The downstream quality of seasonal angling conditions in Coyote Creek have been diminished during FOCP due to drawdown of the reservoir and FERC Order requirements to maintain the reservoir at or below deadpool. Angling conditions would continue to be diminished in Coyote Creek through the period of Seismic Retrofit construction and implementation of the Drawdown and Operations Plan, similar to the existing conditions baseline, as a result of reduced flow releases during Seismic Retrofit construction coupled with expansive drought conditions (refer to Section 3.14, “Water Quality”; Section 3.15, “Water Supply”; and Section 3.4, “Biological Resources – Aquatic and Fisheries Resources”).

As mentioned above, implementation of BMPs during construction of seismic improvements would ensure the advance notification of recreators so that they may choose alternate angling facilities during the construction period. Given the relatively small number of displaced anglers and the large number of alternative angling locations, the increased usage of other parks featuring fishing opportunities in the area that would accommodate anglers temporarily displaced from Seismic Retrofit construction would not result in substantial physical deterioration of recreational facilities in the region or the acceleration of the physical deterioration of those facilities. However, the modified releases to Coyote Creek could lead to larger releases and wider park closures during the wet season, which could result in physical deterioration of other recreational facilities or the acceleration of the physical deterioration of those facilities. Therefore, this impact would be significant.

Conservation Measure Construction

Construction of Conservation Measures in Coyote Creek Parkway and Metcalf Park could result in increases in the use of alternate recreational facilities and trails. As discussed in Chapter 2, *Project Description*, some conservation measures require temporary work crews to construct or maintain physical resources, which could result in the temporary disruption of, access to, and use of existing recreational facilities and trails. These changes, while temporary, could cause displaced users to seek alternative recreational facilities and trails in the three study areas. Certain activities, including Maintenance of the North Channel Reach ~~Extension~~ and maintenance of the Live Oak Restoration reach, will occur concurrent to the temporary park closures associate Seismic Retrofit construction (see above discussion related to the temporary park closures with Anderson Lake Park).

Specifically, construction work within Ogier Ponds and the Coyote Creek Parkway related to the Ogier Ponds CM would require temporary closures for recreators while the area is modified from the existing conditions baseline. Likewise, the Phase 2 Coyote Percolation Dam CM would require temporary closure of undeveloped parkland within Metcalf Park.

Appendix N, *Recreation ~~Technical~~ Appendix*, presents historical recreational usage information collected by SCCPRD. As shown in Appendix N, in 2015, Coyote Creek Parkway was attended by an estimated total of 197,294 people for land-based uses. As discussed above (see Section 3.18.2.1), the annual total number of day-use visitors other than anglers for all 28 of the County's parks in 2015 was about 2,950,693. Therefore, in 2015, the total number of individuals using Coyote Creek Parkway was small compared to the total number of individuals using all County facilities for land-based uses. Most of the users were hikers/runners, bicyclists, and equestrians using Coyote Creek Trail. Considering the number of alternative recreational facilities that offer land-based uses such as hiking/running, bicycling, and equestrian activities (see Table 3.18-1**)**, and the limited closures at Coyote Creek Parkway for construction activities, it is likely that regional and City parks would be able to accommodate any land-based recreators that might be temporarily displaced as a result of the construction of the conservation measures.

While construction of the Phase 2 Coyote Percolation Dam CM ~~some conservation measures~~ may disrupt recreational opportunities intermittently within Coyote Creek Parkway during the up to 2 year construction period, these effects would be temporary in any given location and ~~.~~ ~~During the construction period of the Ogier Ponds CM and the Phase 2 Coyote Perc Dam CM over three years and one year, respectively,~~ recreators would be accommodated at similar recreational facilities located in the study area (see **Table 3.18-1**). However, a relatively small number of recreators would be displaced. Further, the large number of recreational facilities in the study area collectively provide a variety of infrastructure and amenities to accommodate the temporary loss of recreational activities within the study area. Increased usage of other recreational facilities from temporary closures and disruptions would be distributed across these other recreational facilities. Accordingly, displaced recreators would not substantially increase recreational use of any specific facilities to a degree that would result in the substantial physical deterioration of any recreational facilities or the acceleration of the physical deterioration of those facilities.

~~It is possible that~~ While some recreational resources in Coyote Creek Parkway would remain open during Conservation Measures construction, ~~but~~ recreators might be discouraged from using them because of construction activities, restricted access, and reduced parking availability. However, adherence to the requirements of BMPs would reduce the effects. As discussed above, implementation of BMP-AQ-1 (Use Dust Control Measures) and BMP-AQ-2 (Avoid Stockpiling Odorous Materials) would minimize dust and odors from construction. ~~Implementation of BMP GEN-38 (Minimize Noise Disturbances to Residential Areas) would limit work to occur during normal working hours, equip construction equipment and vehicles with adequate mufflers, and restrict vehicle idling time to minimize noise generated by construction activities.~~ Implementation of BMP-TR-1 (Incorporate Public Safety Measures) would provide the public with construction warning signs, safety fencing, and access to detours (if feasible) during construction. Implementation of BMPs GEN-36 (Public Outreach), GEN-37 (Implement Public Safety Measures), and GEN-39 (Planning for Pedestrians, Traffic Flow, and Safety Measures) would reduce impacts and contribute to public safety, and ensure the advanced notification of recreators so that they may choose alternate recreational facilities during the Project construction period. Although some recreators would likely seek recreation at other facilities instead, impacts to existing neighborhood and regional parks or other recreational facilities in the study area related to physical deterioration that could be caused by increased use during construction of conservation measure components would be less than significant.

Presently, the use of boats and/or watercraft in Ogier Ponds, Coyote Percolation Pond, and Coyote Creek is prohibited. Construction of the conservation measures would not contribute to the displacement of boating facilities, and while less flow may be available in Coyote Creek during construction phase operations pursuant to the Drawdown and Operations Plan, the reduced flows would not affect use of boating of watercraft in Coyote Creek. Therefore, there would be no impact on alternate recreational facilities offering boating associated with conservation measure construction.

Construction of conservation measures that require work within and adjacent to Coyote Creek, Ogier Ponds, and Coyote Percolation Pond where fishing is permissible would result in temporary closures as a result of construction activities. This would result in an increased demand on the use of alternate facilities for angling by displaced recreators. Conservation measures that would involve construction work within areas in the vicinity of angling activities would include Ogier Ponds, the Coyote Percolation Pond, and sediment augmentation within individual reaches of Coyote Creek. Construction of the Ogier Ponds CM and the Phase 2 Coyote Percolation Dam CM would extend over a total of up to 5 ~~four~~ years beginning in construction years 1 and 6 ~~and 4~~, respectively. Closures would not be simultaneous but instead would be staged. Anglers would be accommodated during these intermittent closure period at other recreational facilities within the study area (see **Table 3.18-1**). However, the temporary closures could displace anglers who previously fished in Coyote Creek.

As shown in Appendix N, in 2015 Coyote Creek had light use for fishing compared to other facilities that offer fishing in the area (1,608 anglers compared to 116,070 throughout SCCRD). Therefore, while construction of the conservation measures may affect areas that anglers would utilize such as Ogier Ponds and Coyote Percolation Ponds, these impacts would be temporary and would affect a small population of fishing visitors in Santa Clara County. Any temporary impacts from increased usage of recreational facilities would be distributed across multiple recreational facilities (see **Table 3.18-1**). Further, these temporary impacts would occur over an approximately five ~~four~~-year collective conservation measure construction period in the locations indicated. However, the closures would not occur all at the same time but instead would be staged. Because the number of displaced anglers would be small, closures would be short term and staggered, and multiple facilities exist where anglers could be accommodated, the use of any individual alternate recreational facility by displaced recreators (see **Table 3.18-1**) would not increase use to a degree that would result in substantial physical deterioration of recreational facilities or the acceleration of the physical deterioration of those facilities.

Habitat restoration and fish improvements in Coyote Creek would consist of the Ogier Ponds CM, ~~Anderson Dam Outlet~~ Maintenance of the North Channel Reach ~~Extension~~, Maintenance Activities at the Live Oak Restoration Reach, Sediment Augmentation Program, and Phase 2 Coyote Percolation Dam CM. Although habitat improvements within Coyote Creek may change, the opportunity for anglers to fish along Coyote Creek would not change. Therefore, changes in anglers along Coyote Creek are not expected to substantially change.

Implementation of BMPs GEN-36 (Public Outreach), GEN-37 (Implement Public Safety Measures), and GEN-39 (Planning for Pedestrians, Traffic Flow, and Safety Measures) would ensure the advance notification of recreators so that they may choose alternate recreational facilities during the Conservation Measure construction period. Based on the above analysis, impacts to other existing recreational facilities by displaced anglers in response to conservation measure implementation would be less than significant.

Post-Construction Anderson Dam Facilities Operations

Following construction of the Seismic Retrofit, Anderson Reservoir capacity would be unrestricted for the first time since 2008, well before the FERC Order. Normal operations at the range of water levels in the reservoir associated with unrestricted capacity is described by the WEAP modeled future conditions baseline. Post-Project releases from the unrestricted Anderson Reservoir into Coyote Creek would conform to FAHCE Settlement Agreement operating rule curves. The improved reliability of the dam structure would allow for storage of water to a higher elevation compared to pre-FERC order conditions within the reservoir, improving reservoir depths when hydrologic conditions allow greater storage, as well as reduced risk of a catastrophic failure that could adversely affect recreational facilities and amenities in the region.

Under the pre-FERC order baseline, some downstream recreational facilities in Coyote Creek Parkway, such as portions of the Coyote Creek Trail, the Live Oak Picnic Area, and portions of Hellyer Park, are at risk of temporary inundation from storm events. As stated above, in the Pre-FERC Order conditions it is estimated that the low-flow crossings along Coyote Creek Trail are closed 13 percent of the time. As described in Section 3.11, "Hydrology," during post-construction Anderson Dam facilities operations, there would continue to be a risk of temporary inundation of these facilities during storm events, but those facilities would be inundated less frequently. In fact, as stated in Impact HYD-1(iv), the maximum modeled storm event that could briefly inundate these facilities for a few days would occur very rarely (approximately 0.04 percent of the time over the 49-year study period).

Based on the above analysis, impacts to existing recreational facilities by inundation from post-construction Anderson Dam facilities operations would be less than significant.

Significance Conclusion Summary

Portions of Anderson Lake County Park, Coyote Creek Parkway, Ogier Ponds, and the Coyote Percolation Pond would be temporarily closed during construction of the Project improvements, affecting a small percentage of visitors recreational facilities in the study area. While construction activities would disrupt recreational opportunities, these effects would be temporary in nature. Currently, some of these areas are already closed as a result of the FOCP. Displaced recreators from new and expanded closures resulting from the Project would be accommodated by and distributed among the large number of nearby recreational facilities described in **Table 3.18-1**. In addition, drawdown of the reservoir during construction could affect the recreational experience for hikers, picnickers, and other land-based recreators, potentially causing them to seek recreational opportunities at other facilities.

However, because the recreators would be distributed among the nearby recreational facilities and because the proportion of total users of SCCPRD that would be displaced is small, this temporary change in park visitation is unlikely to result in adverse impacts to those other recreational facilities beyond ordinary wear and tear. However, due to the modified flows expected in Coyote Creek during Seismic Retrofit construction, larger portions of the Coyote

Creek Trail and Hellyer Park may be inundated, causing recreators to concentrate within the portions of the facility that remain open. The concentrated use of the open areas, in combination with high water conditions, could result in impacts to SCCDPR facilities**. Mitigation Measure REC-1** would require Valley Water to provide funding for and implementation of future relocation and/or modification of recreational facilities within the Coyote Creek corridor to mitigate for inundation and other Project impacts on those facilities improvements ~~reimburse the SCCDR for maintenance activities that are triggered by flow events during Seismic Retrofit construction that are greater than 500 cfs (the existing outlet's maximum capacity),~~ which would reduce Seismic Retrofit component construction impacts to less than significant levels, therefore this impact would be **less than significant with mitigation**.

While construction of Conservation Measures similarly would disrupt recreational opportunities, these impacts would generally be short-term in any given location and temporary in nature. Although the temporary closures would span multiple months and years, construction would affect a small proportion of all visitors to SCCPRD, and these displaced recreators would be distributed across a large number of alternative facilities.

Some recreational resources in the Coyote Creek Parkway and Anderson Lake County Park would remain open, but recreators may be discouraged from using them because of construction activities, restricted access, and reduced parking availability. As discussed above, implementation of BMPs would reduce impacts and contribute to enhancing public safety, and would ensure the advanced notification of recreators so that they may choose alternate recreational facilities during the Project construction period.

Anderson Reservoir has been closed to recreational boating and angling, necessitated by the FOCP, and would not be reopened until the Seismic Retrofit improvements are complete and the reservoir has met FERC and DSOD safety requirements. Seismic Retrofit construction would extend the existing closure of Anderson Reservoir through Project construction by an additional 7 years, for a total of 11 ~~10~~ years. Displaced boaters would continue utilizing other reservoirs and water bodies during Project construction. Historically displaced recreators have traveled to other reservoirs and water bodies as a result of Anderson Reservoir closures due to natural environmental causes, and therefore the deterioration of other reservoirs by additional boating use would not substantially change from existing conditions. There is also no boating allowed downstream of Anderson Dam on Coyote Creek, so there would be no displacement of boaters downstream of the dam.

Anderson Reservoir has been closed for fishing throughout the construction of FOCP and would not be reopened for fishing until the seismic retrofit improvements are constructed meet FERC and DSOD safety requirements and the recreational area facilities are restored. Reduced flows in Coyote Creek resulting from construction phase implementation of the Drawdown and Operations Plan would also reduce flows and angling opportunities within Coyote Creek. In 2015, Anderson Lake County Park accommodated approximately 4,846 anglers, a small proportion of SCCRD anglers. Coyote Creek Parkway accommodated an additional 1,608 anglers, also a small proportion of SCCRD anglers. During this same year, there were 16 other parks that accommodated anglers, seven of which had greater attendance numbers than Anderson Lake and Coyote Parkway areas. Because of their history of accommodating substantially larger numbers than Anderson Lake and Coyote Parkway, other fishing areas in the region would likely accommodate the demand for fishing throughout the period of construction, despite the length of closures without substantial deterioration of those other recreational facilities.

Mitigation Measures

REC-1. ~~Maintenance Reimbursement for~~ Funding and Implementation of Park Facility Improvements within the Coyote Creek Corridor ~~Closures During High Flow Events.~~

Consistent with a December 2024 agreement between Valley Water and Santa Clara County, Valley Water will contribute funding to support SCCDPR's future relocation and/or modification of recreational facilities within the Coyote Creek corridor to mitigate for inundation and other Project impacts on those facilities. Improvements would include repairs, relocation, and/or realignment of trails, bank stabilization, and installation of bridges and culvert crossings. The County will be responsible for the planning, design, and construction of these improvements, which will not be implemented until CEQA review, if required, is completed. ~~Coordinate with the SCCDPR to develop an agreement for Valley Water to reimburse cost associated with additional maintenance activities that would be necessary to address high water conditions at park facilities during construction of the Seismic Retrofit component when flows exceed 500 cfs (measured at Madrone Gage) Activities that will be covered are trail repairs in areas that are inundated, bathroom repairs (if they are inundated), trail and parking lot sweeping, efforts to place additional signage along the trail, efforts to provide website updates, and debris removal.~~

Impact REC-1b: Permanent loss of recreational facilities resulting in substantial physical deterioration, or the acceleration of physical deterioration, of neighboring facilities (Less than Significant)

Post-Construction Anderson Dam Facilities Operations

Following Project construction, Anderson Reservoir capacity would be unrestricted for the first time since 2008, well before the FERC Order. Without ~~seismic~~ restrictions, Anderson Reservoir would be available for boating and angling uses again and, thus, not create a permanent loss of recreational facilities resulting in substantial physical deterioration, or the acceleration of physical deterioration, of neighboring facilities.

Maximum flows released from the new outlets during post-construction operations (the future conditions baseline) would be larger than what was releases from the outlets in the Pre-FERC Order conditions (1,400 cfs vs. 500 cfs). However, large spill events are expected to be of a lower magnitude than under the pre-FERC Order conditions baseline (Valley Water 2023 ~~2022a~~). Therefore, while there is likely to be temporary inundation of recreational facilities downstream, these recreational facilities are already prone to temporary inundation under the existing conditions baseline, and they would be inundated less frequently after Project implementation. Further, the duration of high flow release (those that exceed 500 cfs) would be shorter after completion of the Project ~~project~~. Implementation of the Project would provide improved flood protection, such that operational flexibility afforded by facility improvements would attract recreators who had been displaced to other recreational facilities and would thereby reduce impacts to adjacent recreational areas or trails.

There would be no permanent loss of recreational facilities from operations of Anderson Dam and Reservoir that could cause impacts on neighboring recreational facilities. As stated above, the number of anglers on Coyote Creek is small compared to the total number of anglers in SCCPRD and displacement of these anglers would not result in substantial deterioration of alternative angling facilities. The impact would be less than significant.

Normal operations at the range of water levels in the reservoir associated with unrestricted capacity is described by the WEAP modeled future conditions baseline. Post-Project releases from the unrestricted Anderson Reservoir into Coyote Creek would conform to FAHCE Settlement Agreement operating rule curves. The improved reliability of the dam structure would allow for storage of water to a higher elevation compared to pre-FERC order conditions within the reservoir, improving reservoir depths when hydrologic conditions allow greater storage, as well as reduced risk of a catastrophic failure that could in the absence of the Project adversely affect recreational facilities and amenities in the region. The increased depth of the reservoir over the pre-FERC order conditions baseline would likely attract land-based recreators such as hikers, picnickers, and nature enthusiasts back to Anderson Lake County Park after having been displaced to other facilities in the area during Project construction.

In addition, under the pre-FERC order baseline, some downstream recreational facilities, including portions of the Coyote Creek Trail and Hellyer Park, are at risk of temporary inundation from storm events. Modeling indicates that maximum flows released from the spillway and outlet during post-construction operations (the future conditions baseline) would be lower than maximum flows under the pre-FERC Order conditions baseline (Valley Water 2023 ~~2022a~~). Therefore, while there is likely to be temporary inundation of recreational facilities downstream, these recreational facilities are already prone to temporary inundation under existing conditions, and they would be inundated less frequently after Project implementation. In addition, these facilities would experience fewer closures under higher flows than under the existing conditions baseline (note: for water-based recreational facilities [e.g., boating and angling] see Impacts REC-1b). See also Impact HYD-1(iv) in Section 3.11, *Hydrology*. Thus, operational changes at Anderson Dam are unlikely to result in substantial temporary or permanent changes to downstream land-based recreational facilities or activities, including Coyote Percolation Pond and Ogier Ponds, causing recreators to use alternative facilities due to increased temporary inundation of some facilities. Therefore, impacts on neighboring and regional parks or other land-based recreational facilities in the study area related to physical deterioration that might be caused by increased use from post-construction operations of Anderson Dam facilities would be less than significant.

Based on the future operations of Anderson Reservoir, the reservoir would not be closed to boating more frequently under the future conditions baseline than under the pre-FERC Order conditions baseline; the frequency of reservoir closure to boating opportunities would be largely determined by drought conditions, and not changes in planned operations. The number of boaters displaced (temporarily, or otherwise) would not increase under future operation of the reservoir, and there would be no increased use of alternative facilities such that substantial physical deterioration of any one facility would occur or be accelerated. Accordingly, no reduction in boating opportunities is expected, and impacts on other reservoir-based recreational facilities would be less than significant.

Following Project construction, Anderson Reservoir capacity would be unrestricted for the first time since 2008, well before the FERC Order. For the reasons noted under Impact REC-1a, the operational changes at Anderson Dam would not adversely affect recreational angling within Anderson Reservoir, compared to the Pre FERC-Order Baseline. To the contrary, the restored capacity in Anderson Reservoir may improve fishing conditions for recreational anglers, likely reattracting anglers who sought out alternate angling opportunities during closure of Anderson Lake County Park to fishing.

Post-construction releases from Anderson Reservoir into Coyote Creek would conform to FAHCE Settlement Agreement operating rule curves,[4] which could affect in-stream angling downstream of Anderson Reservoir within Coyote Creek. To evaluate the effects on recreational anglers, Valley Water's WEAP model compares average daily peak instream flows between projected operations and the corresponding pre-FERC Order conditions baseline and future conditions baseline for instream flows.

Post-construction releases would have a colder temperature regime for a mile downstream of Anderson Dam than under the existing conditions baseline (Valley Water 2022b). This temperature regime would support a different fish population than the current game fish population, namely cold-water anadromous fish species. Although fish populations may vary from existing conditions, any angling population displaced from downstream Coyote Creek would be able to fish at Anderson Reservoir as well as at other fishing facilities in the study area, which are already accommodating displaced anglers, and anglers in Coyote Creek account for approximately 1 percent of the County total. Therefore, displacement of these recreators would not result in increased usage of alternate facilities such that their condition would deteriorate more quickly than without the Project.

Over the long-term, the restored capacity in Anderson Reservoir would improve fishing conditions for recreational anglers in the reservoir. As a result, Project impacts on nearby recreational facilities as a result of changes to angling opportunities would be **less than significant.**

Significance Conclusion Summary

The Project would permanently remove several unmarked trails from the BHBA, access by private vehicles along a portion of Coyote Road, parking along the dam crest, and trees at Live Oak Picnic Area. The Ogier Ponds CM would result in permanent modifications to the ponds, including the loss of Ponds 1 and 5 and partial filling of Ponds 2 and 4 ~~5~~, which would result in a permanent loss of open waters for fishing. However, the new low flow creek channel and adjoining floodplain would be restored and contain in-channel features (e.g., overhanging banks, large woody debris jams, stream barbs) to enhance the aquatic habitat. Land-based recreational opportunities other than angling on Coyote Creek may be expanded so that there is no permanent loss of recreational facilities or opportunities other than angling.

Overall, there would not be a substantial permanent reduction in the availability or quality of recreational uses in the Project area that could cause significant impacts on neighboring recreational facilities. The newly retrofitted dam would restore or improve upon pre-FERC Order recreational opportunities within Anderson Reservoir and Coyote Creek, allowing for boating in the reservoir, fishing, and water activities to resume. Therefore, no permanent displacement of recreators to adjacent recreational areas or trails is anticipated, other than anglers on Coyote Creek. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

4 The operational rule curve is the maximum elevation to which Valley Water can fill a reservoir during various times during the year.

Impact REC-2: Construction or Expansion of Recreational Facilities Which Might Have an Adverse Physical Effect on the Environment (Less than Significant)

The Project includes no components that would construct or expand recreational facilities that would result in a significant adverse impact on the environment. The Project would result in several permanent modifications to recreational facilities. As described in Section 2.4.5.12, the Live Oak Picnic Area would include an improved walking loop~~, a bridge over the North Channel and connection to the Serpentine Trail,~~ an interpretive trail along Coyote Creek, relocation of the group picnic area closer to restroom and parking areas, and tree replacement planting. Additionally, the existing boat ramp at Anderson Dam would be improved by constructing a second entrance off of Cochrane Road, constructing a dedicated inspection area, and an electric vehicle charging area would be replaced and improved. Public access would be provided along the west ~~left~~ bank of Ogier Ponds. These facility improvements would be minor and would not have a significant adverse physical effect on the environment; minor construction impacts of these recreational facilities are included in the Seismic Retrofit construction impacts discussed throughout this ~~D~~EIR.

Significance Summary Conclusion

The Project would not construct or expand recreational facilities which would cause a significant adverse physical effect on the environment. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

3.18.5 Cumulative Impacts

The geographic study area for the cumulative impact analysis for recreation encompasses parks, creeks, lakes, trails, and other recreational facilities in Santa Clara County, as outlined in **Table 3.18-1**. This study area has extensive recreational facilities managed by multiple public agencies. This section describes the Project's contribution to cumulative recreation impacts, as summarized in **Table 3.18-4**.

Cumulative impact thresholds for recreation are the same as the impact thresholds presented in Section 3.18.8, *Thresholds of Significance*.

Table 3.18-4. Summary of Project Impact Contribution to Cumulative Recreation Impacts

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact REC-1a: Temporary increased use of neighboring recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated	Yes	Yes	CC	REC-1	No
Cumulative Impact REC-1b: Permanent loss of recreational facilities resulting in substantial physical deterioration, or the acceleration of physical deterioration, of neighboring facilities	No	No	NCC	None	No
Cumulative Impact REC-2: Construction or expansion of recreational facilities which might have an adverse physical effect on the environment	No	No	NCC	None	No

Key: CC = cumulatively considerable; NCC = not cumulatively considerable

Cumulative Impact REC-1a: Temporary increased use of neighboring recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated (Not Cumulatively Considerable)

Temporary closures of recreational facilities are not expected to cause significant impacts, because displaced recreators would be distributed among the nearby recreational facilities and because the proportion of total users of SCCPRD that would be displaced is small, this temporary change in park visitation is unlikely to result in adverse impacts to those other recreational facilities beyond ordinary wear and tear. However, due to the modified flows expected in Coyote Creek during Seismic Retrofit construction, larger portions of the Coyote Creek Trail and Hellyer Park may be inundated, causing recreators to concentrate within the portions of the facility that remain open. The concentrated use of the open areas, in combination with high water conditions, could result in impacts to SCCDPR facilities**. Mitigation Measure REC-1** would require Valley Water to provide funding for and implementation of the future relocation and/or modification of recreational facilities within the Coyote Creek corridor to mitigate for inundation and other Project impacts on those facilities ~~reimburse the SCCDR for maintenance activities that are triggered by flow events during Seismic Retrofit construction that are greater than 500 cfs (the existing outlet's maximum capacity)~~, which would reduce Seismic Retrofit component construction impacts to less than significant levels, therefore this impact would be less than significant with mitigation.

Cumulative Effects of Project with the FOCP

As described in Section 2, “Project Description,” as part of the FOCP, the Anderson Dam Boat Ramp and Parking Areas, Toyon Park, Basalt Hill, parking and access to Holiday Lake Estates, and trails that lead to the dam and are located on the dam have been closed since October 2020. Various facilities at Perry’s Hill will offset impacts from closing the Toyon Group Picnic Area. The FOCP would be completed before Project-related construction activities begin. Modified flows during FOCP construction may have affected Coyote Creek Trail and Hellyer Park similarly to the Project’s construction impacts. This would be a cumulatively significant impact on affected facilities, for which the Project’s contribution would be cumulatively considerable. Other elements of the FOCP are at discrete and separate locations from Project activities that would not create a cumulative significant effect on recreation resources.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Santa Clara County Parks would enhance trail connectivity and acquire land for public recreational use, but has no plans to close any facilities in the foreseeable future (Santa Clara County 2018). Additionally, the County does not plan to close Calero County Park to boating. The only proposed project at that location is the Calero Trails Master Plan (Santa Clara County 2023). The County has no plans to close existing facilities simultaneously with Project construction that would cause a cumulative impact to other recreational facilities such that substantial physical deterioration would occur (Santa Clara County 2023).

Similarly, the California State Parks Department has no plans to close or upgrade Henry W. Coe State Park, which typically stays open year-round (California State Parks 2023). The Santa Clara Valley Open Space Authority has no plans to close recreational facilities and is working to enhance Coyote Valley as one of its conservation focuses (SCVOSA 2014). The Midpeninsula Regional Open Space District likewise has no plans to close recreational facilities and is working to enhance trails in El Sereno and Bear Creek Redwoods (MPROSD 2014). The City of San José has no plans to close recreational facilities for more than a few months in the foreseeable future (City of San José 2023). The City of Morgan Hill has priority projects in its Bikeway, Trails, Parks and Recreation Master Plan (2017) that include constructing new community parks and recreational open spaces. The timing of that land acquisition and construction is unknown (within the next 10-20 years) and may overlap with Project construction and implementation. However, Project construction would not contribute to a cumulative impact such that a substantial deterioration of recreation facilities would occur. The cumulative impact on recreational facilities resulting from the Project in combination with other probable future projects would not be cumulatively significant.

Overall, the multiple agencies that manage public recreational facilities in the study area have no foreseeable projects that would result in a cumulative impact on recreational resources, causing substantial deterioration of other recreational facilities as a result of diverting recreators from the affected park to other facilities. This is because the large number resources of recreational resources present in the geographic scope would accommodate existing recreators to pursue a wide range of recreational interests, and none of those resources are planned to be closed for any length of time that would overlap with Project construction. The cumulative impact on recreational facilities resulting from the Project in combination with other probable future projects would not be cumulatively significant.

However, it is possible that other probable future projects in the Coyote Creek watershed could add flows to Coyote Creek that would add to Seismic Retrofit Construction flow-related impacts on Coyote Creek Trail and Hellyer Park. This would be a cumulatively significant impact on affected facilities, and the Project's contribution would be cumulatively considerable.

Significance Conclusion Summary

Valley Water would reduce the Project's incremental contribution to cumulative impacts on recreation through implementation of BMPs, including BMP-AQ-1 (Use Dust Control Measures) and BMP-AQ-2 (Avoid Stockpiling Odorous Materials), ~~BMP GEN-38 (Minimize Noise Disturbances to Residential Areas),~~ BMP-TR-1 (Incorporate Public Safety Measures), BMP GEN-36 (Public Outreach [which includes County coordination]), BMP GEN-37 (Implement Public Safety Measures), and BMP GEN-39 (Planning for Pedestrians, Traffic Flow, and Safety Measures).

Coyote Creek Trail and portions of Hellyer Park would be periodically inundated by Coyote Creek at several low flow crossings more frequently during construction the seismic retrofit. Longer park closures during the wet season could result in physical deterioration of other recreational facilities or the acceleration of the physical deterioration of those facilities. Cumulative impacts on affected facilities when added to other project impacts would be significant, and the Project's contribution would be cumulatively considerable pre-mitigation. **Mitigation Measure REC-1** requires ~~compensating SCCPRD~~ Valley Water to provide funding for and implementation of the future relocation and/or modification of recreational facilities within the Coyote Creek corridor to mitigate for inundation and other Project impacts on those facilities ~~anticipated extra maintenance costs should high flows occur,~~ which would prevent displaced recreators from substantially increasing deterioration of other facilities. Implementation of this mitigation measure would reduce the Project's contribution to cumulative impacts on recreation **not cumulatively considerable**.

Mitigation Measures

REC-1 ~~*Maintenance Reimbursement for*~~ *Funding and Implementation of Park Facility Improvements within the Coyote Creek Corridor* ~~*Closures During High Flow Event*~~

Cumulative Impact REC-1b: Permanent loss of recreational facilities resulting in substantial physical deterioration, or the acceleration of physical deterioration, of neighboring facilities **(Not Cumulatively Considerable)**

Cumulative Effects of Project with the FOCP

The FOCP would not permanently close recreational facilities such that a substantial physical deterioration of neighboring facilities would occur. Therefore, the cumulative impact on recreational facilities resulting from the Project in combination with the FOCP would not be significant.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

As mentioned under Cumulative Impact REC-1a, no agency that manages recreational facilities in the study area has plans to close their facilities for any length of time in the foreseeable future. As described in Section 3.18, Impact REC-1b, Project implementation would not result in a permanent loss of recreational facilities. Therefore, the cumulative impact on recreational facilities resulting from the Project in combination with other probable future projects, programs, and plans would not be significant.

Significance Conclusion Summary

The Project would not have a significant cumulative impact on permanent loss of recreational facilities such that there would be a substantial physical deterioration of neighboring facilities. The Project would not combine with the FOCP or other future projects in a manner that would cause a cumulative impact. The Project impact on permanent loss of recreational facilities would be **not cumulatively considerable.**

Mitigation Measures

No mitigation is required.

Cumulative Impact REC-2: Construction or expansion of recreational facilities which might have an adverse physical effect on the environment **(Not Cumulatively Considerable)**

Cumulative effects of Project with the FOCP

The FOCP includes no construction or expansion of recreational facilities that may have a significant adverse physical effect on the environment. Therefore, the cumulative impact from recreational facility construction or expansion resulting from the Project in combination with the FOCP would not be significant.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Of the multiple agencies listed above, only Santa Clara Parks and the City of Morgan Hill have plans to construct new recreational facilities in their master plans. Both agencies would be required to undergo CEQA compliance for those facilities prior to construction to avoid, reduce, or minimize potential impacts on the environment. Because the Project does not include any construction or expansion of recreational facilities that might have a significant adverse physical effect on the environment, it would not contribute to a significant cumulative impact. Therefore, the cumulative impact from recreational facility construction or expansion resulting from the Project in combination with other probable future projects, programs, and plans would not be significant.

Significance Conclusion Summary

The Project would not have a significant impact on construction or expansion of recreational facilities such that there would be a substantial physical effect on the environment. The Project would not combine with the FOCP or other future projects in a manner that would cause a significant cumulative impact. The Project impact from recreational facility construction or expansion would be **not cumulatively considerable**.

Mitigation Measures

No mitigation is required.

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Valley Water. 2023. Potential Flood Impacts for ADSRP.

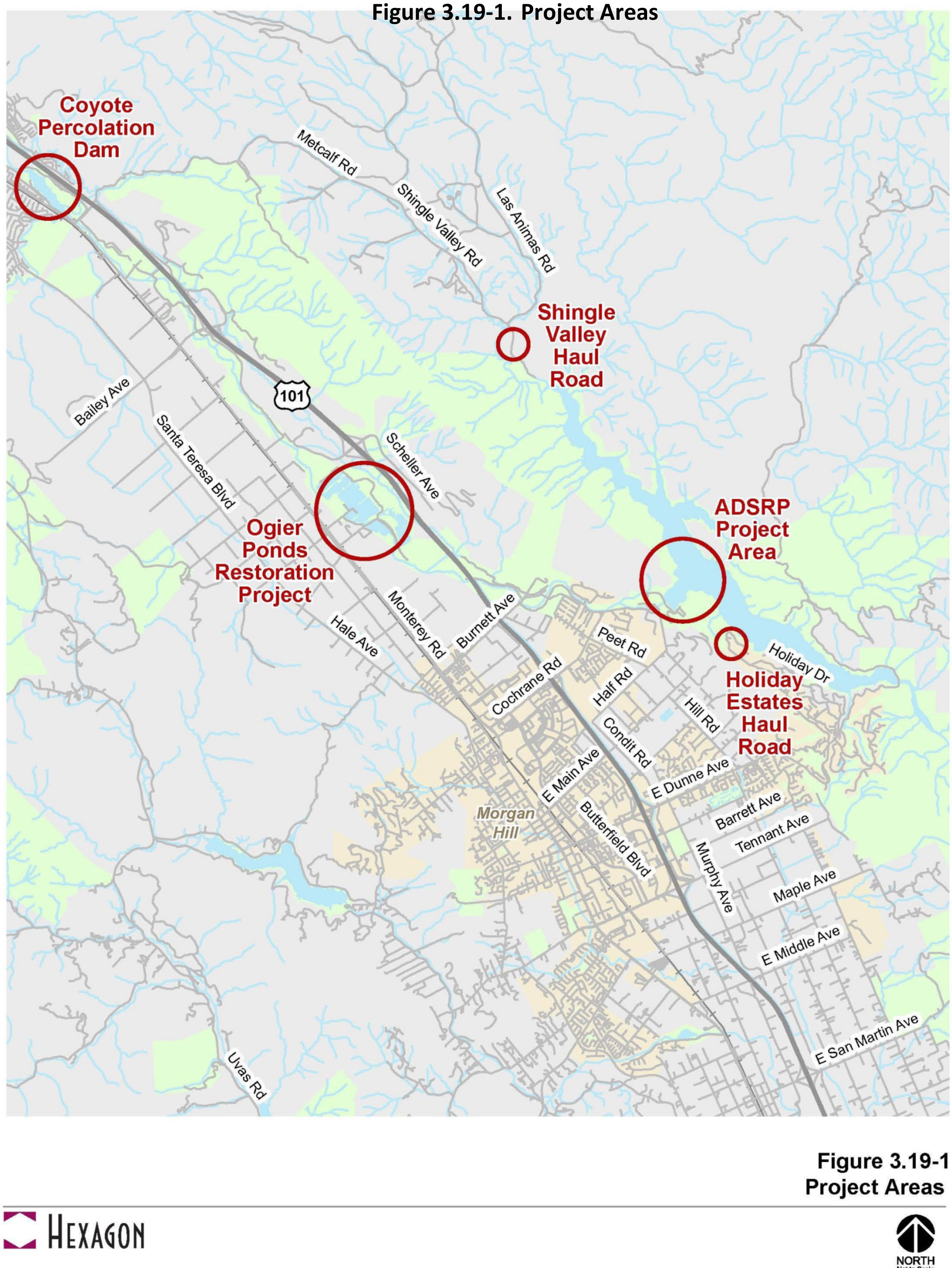
3.19 Transportation

This section describes the existing transportation facilities and circulation systems in the study area and their relevant regulatory framework. Also, this section evaluates impacts of the Project related to potential for conflict with *CEQA Guidelines* Section 15064.3(b) related to VMT; conflict with existing programs, plans, ordinances, or policies addressing roadway, pedestrian, bicycle, and transit facilities; and increase in hazards due to geometric design features; or inadequate emergency access. The information in this section is informed by the ADSRP Transportation Technical Memorandum ~~Study~~ prepared in March 2023 (included in Appendix O of this ~~Draft~~ Final EIR).

The study area for transportation focuses on the facilities and circulation systems in the county, San José, and Morgan Hill that exist within and connect to the Project Area, including designated truck haul roads and Cochrane Road.

Most of the Project components discussed in this section are shown on **Figure 3.19-1**, and the study area is shown on **Figure 3.19-2**.

1 **Figure 3.19-1. Project Areas**



1 **Figure 3.19-2. Project Site and Study Area**

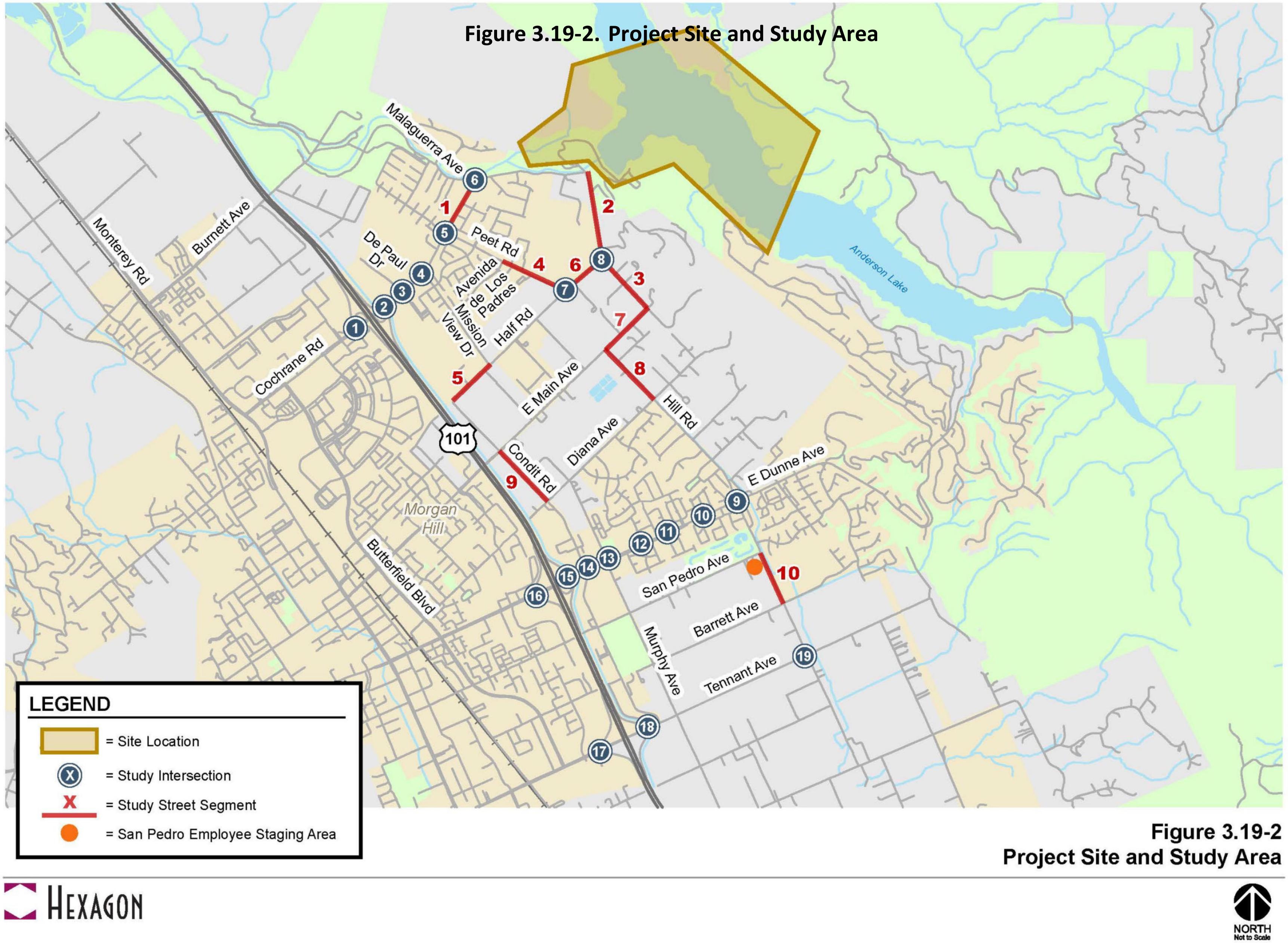


Figure 3.19-2
Project Site and Study Area

3.19.1 Environmental Setting

3.19.1.1 Regional and Local Transportation System

Roadway Network

Regional access to the study area is provided via US 101. Cochrane Road is the primary local roadway providing access to the study area (**Figure 3.19-2**).

- ***US 101*** is a north-south freeway extending northward to San Francisco and southward through Gilroy. US 101 is an eight-lane freeway (three mixed-flow lanes and one high-occupancy vehicle [HOV] lane in each direction) north of Cochrane Road. South of Cochrane Road, US 101 narrows to a six-lane freeway with no HOV lanes. Access to and from the study area and the San Pedro Avenue staging area is provided via its interchanges at Cochrane Road, Dunne Avenue, and Tennant Avenue.
- ***Cochrane Road*** is predominantly an east-west arterial that extends from Main Avenue in the east to Monterey Road. Cochrane Road is generally a four-lane divided roadway west of Mission View Drive and a two-lane undivided roadway east of Mission View Drive. Cochrane Road includes bike lanes on both sides of the street and has a posted speed of 40 mph in the Project vicinity. Cochrane Road provides direct access to the study area.

Pedestrian and Bicycle Facilities

Pedestrian Facilities

Pedestrian facilities in the study area consist primarily of trails, sidewalks, pedestrian push buttons, marked crosswalks, and signal heads at signalized intersections. There are pedestrian trails throughout the study area, specifically in Anderson Lake County Park and Coyote Creek Parkway, such as the Dam Crest Trail, Cochrane Trail, Serpentine Trail, Basalt Hill, Rosendin ~~Rosedin~~ Park Area, and Coyote Creek Parkway trails as detailed in Section 3.18, *Recreation*. In addition, there are existing sidewalks along the south side of Cochrane Road and along portions of the north side of Cochrane Road.

Bicycle Facilities

As defined by the VTA, bicycle facilities include Class I bikeways (off-street bike paths, which are shared with pedestrians and exclude general motor vehicle traffic), Class II bikeways (striped bike lanes on street), and rated streets. Rated streets are streets frequently used by bicyclists, sharing the roadway with motor vehicles, and includes city-designated Class III bike routes. Rated streets include extreme caution (heavy traffic volumes with high traffic speeds), alert (moderate traffic volumes and speeds), and moderate (low traffic volumes and moderate to low traffic speeds). Class III bikeways only have signs to help guide bicyclists on recommended routes to certain locations.

In the study area vicinity, bike lanes currently extend along Cochrane Road from Monterey Road to Via Sebastian before terminating. Bike lanes on Cochrane Road do not resume until Half Road and continue along the length of the street. An unpaved bike path, the Madrone Channel Trail, runs along the east side of US 101, between Tennant Avenue and Cochrane Road.

The remaining bicycle facilities in the area are located beyond the immediate study area vicinity. Bike lanes are currently provided along the following roadways:

- Main Avenue, between Live Oak High School and Peak Avenue
- Dunne Avenue, west of Gallop Drive
- Hill Road, between Dunne Avenue and Diana Avenue
- Murphy Avenue, between Dunne Avenue and Kelly Park Circle
- Butterfield Boulevard, along its entire length
- Sutter Boulevard, between Cochrane Road and Butterfield Boulevard
- Central Avenue, between Butterfield Boulevard and its termination point west of US 101
- Monterey Road, nearly its entire length within Morgan Hill limits, with the exception of the segment through downtown between Dunne Avenue and Main Avenue
- Tennant Avenue, between Condit Road and Olympic Drive
- Depot Street, along its entire length
- Peak Avenue, between Dunne Avenue and Wright Avenue
- Hale Avenue, between Main Avenue and north of Morgan Hill

Other bicycle facilities in Morgan Hill include the following:

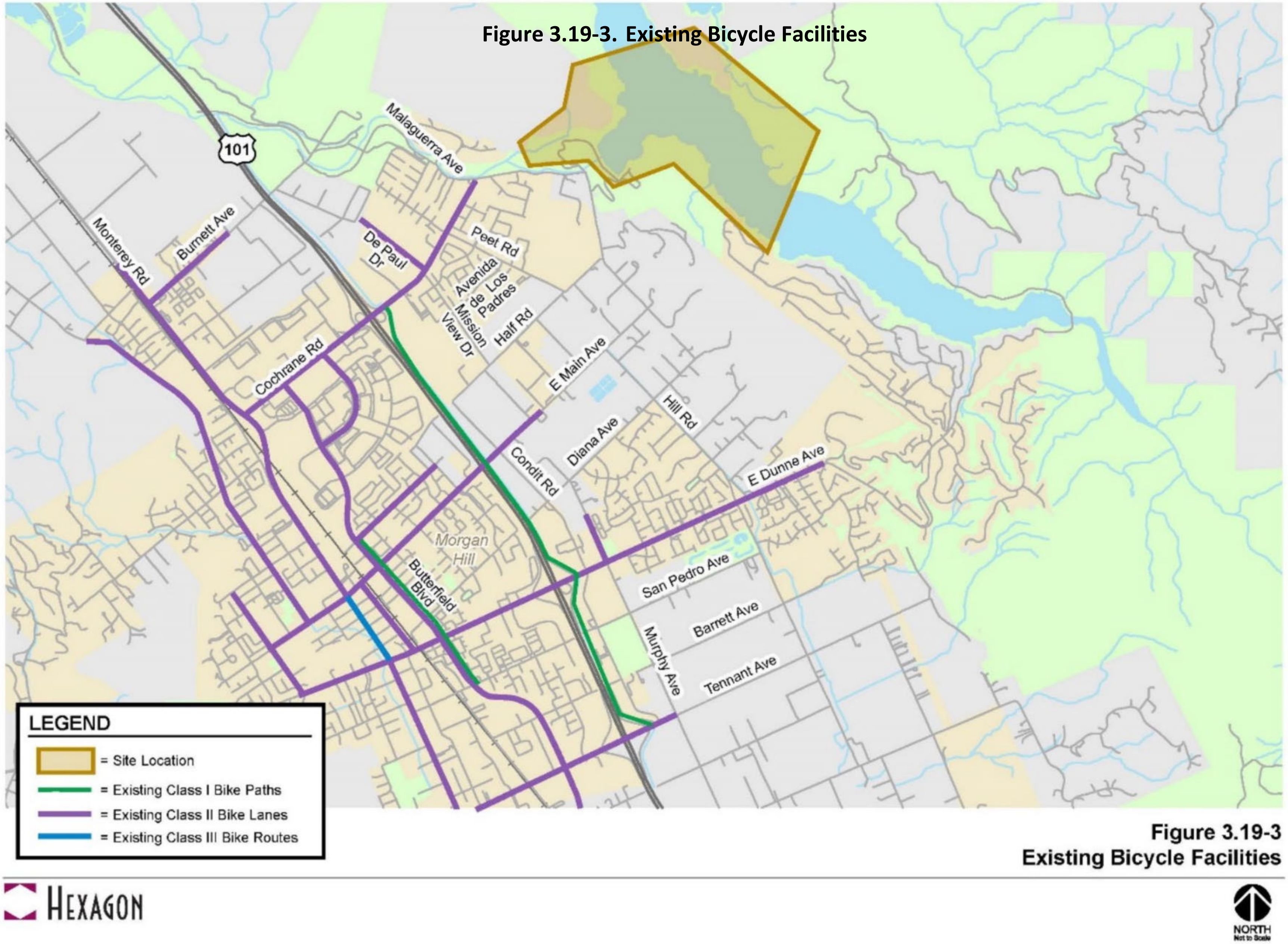
- Bike route on Monterey Road, between Dunne Avenue and Main Avenue
- Paved bike path on the east side of Butterfield Boulevard, between San Pedro Avenue and Central Avenue
- Paved bike path along the west bank of Little Llagas Creek, extending from Watsonville Road north to Spring Avenue

The existing bicycle facilities in Morgan Hill are shown on **Figure 3.19-3**.

In addition, a portion of the study area is situated within San José (Phase 2 Coyote Percolation Dam ~~Pond~~ CM). The Phase 2 Coyote Percolation Dam ~~Pond~~ CM area is bound by Monterey Road to the southwest, US 101 to the northeast, and Metcalf Road to the southeast. Bicycle facilities located within the vicinity of the Phase 2 Coyote Percolation Dam ~~Pond~~ CM area include Class 2 bike lanes extending from Bernal Road to Metcalf Road. In addition, Coyote Creek Parkway is an off-street bikepath.

~~The existing bicycle facilities in the study area are shown on **Figure 3.19-3**.~~

1 **Figure 3.19-3. Existing Bicycle Facilities**



Transit Facilities and Service

Existing transit service to and within the study area is provided by VTA and Caltrain. The transit facilities and services are described below and shown on **Figure 3.19-4**.

VTA Bus

The study area is served directly by one local bus (Local Bus Route 87). In addition, Express Route 168 operates along Cochrane Road west of US 101.

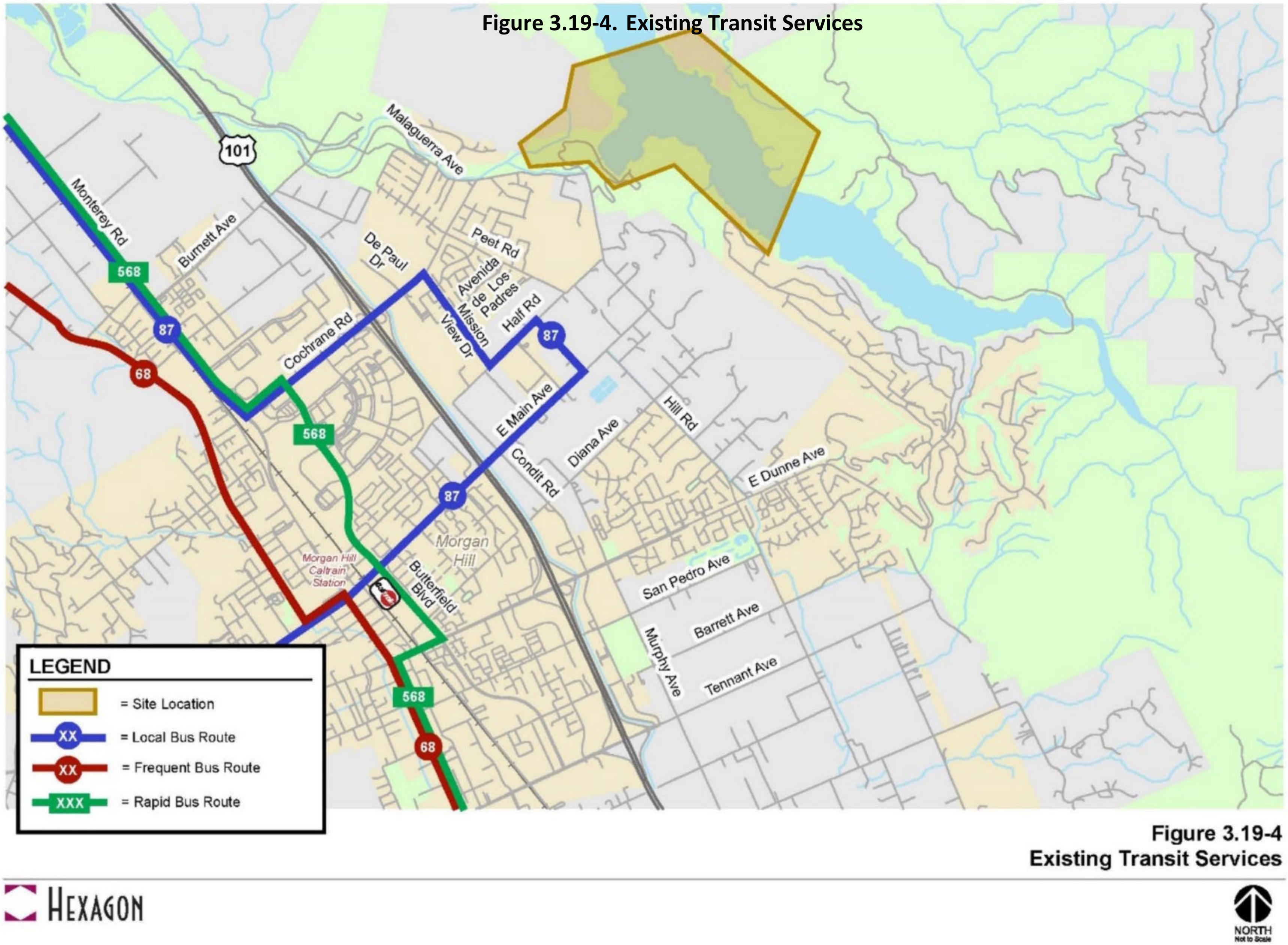
Local Bus Route 87 is a local route that operates on Cochrane Road, Mission View Drive, and Half Road in the study area. It runs from Burnett Avenue to the Civic Center (Main and Dewitt) in Morgan Hill with approximately 60-minute headways in the a.m. and p.m. commute periods. Route 87 operates between 6:45 a.m. and 6:00 p.m. The nearest Route 87 bus stops to the Project Area are located near the De Paul Drive/Cochrane Road, Mission View/Cochrane Road, and Elm Street/Half Road intersections.

Rapid Route 568 is a rapid route that operates on Butterfield Boulevard and Cochrane Road on its route between the Gilroy Transit Center and the San José Diridon Transit Center. Route 568 operates between 5:15 a.m. and 8:15 p.m. northbound with approximately 30- to 45-minute headways during the a.m. commute period and southbound with approximately 45-minute headways during the p.m. commute period. The nearest Route 568 bus stop to the Project Area is located near the intersection of Cochrane Circle/Cochrane Road.

Caltrain

Commuter rail service between San Francisco and Gilroy is provided by Caltrain. The Morgan Hill Caltrain Station is located along Depot Street, with main access and parking off Butterfield Boulevard, approximately 3.5 miles from the Project Area. At the Morgan Hill Station, Caltrain provides three northbound trains during the a.m. commute period and three southbound trains during the p.m. commute period.

Figure 3.19-4. Existing Transit Services



3.19.1.2 Valley Water and Anderson Dam

Roadway Network

Local roadways ~~that~~ serve as access roads (as listed in Section 2.5.2.3, *Access Roads*) to and within the Project Area as well as access roads to planned staging areas consist of Cochrane Road as well as the following roadways (**Figure 3.19-2**).

- ***Main Avenue*** is designated as an arterial per the Morgan Hill 2035 General Plan and is a two-lane, east-west roadway that extends from Cochrane Road in the east to John Telfer Drive in the west. Main Avenue includes on-street parking and bike lanes along some portions of the roadway. Main Avenue has a posted speed of 40 mph in the study area and provides access to the Project Area via Cochrane Road and provides access to the San Pedro Avenue staging area via Hill Road.
- ***Hill Road*** is designated as an arterial in the study area and is a two-lane, north-south undivided road that extends from Main Avenue in the north to Maple Avenue in the south. Hill Road has a posted speed of 40 mph with bike lanes between Dunne Avenue and Diana Avenue. Sidewalks are only provided adjacent to the existing residential developments along Hill Road near Dunne Avenue. Hill Road provides direct access to the San Pedro Avenue staging area.
- ***Dunne Avenue*** is designated as an arterial per the Morgan Hill 2035 General Plan and traverses Morgan Hill extending from the east to the west with a posted speed limit of 35 to 40 mph. Bike lanes are provided along both sides of Dunne Avenue between Peak Avenue and Gallop Drive (east of US 101). Dunne Avenue provides access to the San Pedro Avenue staging area via Hill Road.
- ***Tennant Avenue*** is designated as an arterial west of Hill Road and as a collector east of Hill Road per the Morgan Hill 2035 General Plan and is a two-lane, east-west roadway with a posted speed limit of 45 mph. There are no bike lanes or sidewalks provided on either side of the street in the Project Area. Tennant Avenue provides access to the San Pedro Avenue staging area via Hill Road.
- ***Coyote Road*** is a one-way local street that provides access to Anderson Dam from Cochrane Road. Coyote Road does not have any sidewalks nor does the street contain on-street parking or bike lanes. The street commences and terminates at two locations along Coyote Road. In addition, Coyote Road does not have a posted speed limit.
- ***Metcalf Road*** is designated as a two-lane city connector street in the Envision San José 2040 General Plan. There are no sidewalks or bike lanes along Metcalf Road. In addition, Metcalf Road has a posted speed limit of 30 mph.
- ***San Felipe Road*** is a two-lane designated city connector street north of The Villages Parkway and as a local connector street south of The Villages Parkway in the Envision San José 2040 General Plan. The street contains no sidewalks or bike lanes. In addition, the street has a posted speed limit of 35 mph.
- ***Las Animas Road*** is designated as a local collector street in the Envision San José 2040 General Plan. The street is a single lane and contains no sidewalks or bike lanes. Las Animas Road does not have a posted speed limit.

- ***Monterey Road*** is designated as an arterial in the City of Morgan Hill 2035 General Plan. Portions of Monterey Road are improved with sidewalks and bike lanes. In addition, Monterey Road has a posted speed limit of 45 mph.
- ***Ogier Road*** is a local street with no sidewalks, bike lanes, or posted speed limit signs.
- ***Barnhart Avenue*** is a local street with no sidewalks, bike lanes, or posted speed limit.
- ***Coyote Creek Golf Course Drive*** is a local street with no sidewalks or bike lanes. This street has a posted speed limit of 25 mph.
- ***Holiday Lake Drive*** is a private local street with no sidewalks or bike lanes. The street has a posted speed limit of 20 mph.

Pedestrian and Bicycle Facilities

In the Project Area, no bike lanes exist. However, the majority of the roads are bordered by pedestrian sidewalks. There are pedestrian trails throughout the study area, specifically in Anderson Lake County Park and Coyote Creek Parkway, such as the Dam Crest Trail, Cochrane Trail, Serpentine Trail, Basalt Hill, Rosendin Park Area, and Coyote Creek Parkway trails as detailed in Section 3.18, *Recreation.* Coyote Creek Trail is within the Ogier Ponds CM Project Area. The nearest bicycle facilities are the Class II bike lanes located on Cochrane Road, located approximately 0.4 miles to the west of the Project Area.

Transit Facilities and Service

In the Project Area, no transit exists. The nearest bus stop is located at Elm Street and Half Road, approximately 1 mile to the southwest of the Project Area, and the nearest rail stop is located at the Morgan Hill Station, approximately 3.5 miles to the southwest of the Project Area.

3.19.2 Regulatory Setting

3.19.2.1 Federal Laws, Regulations, and Policies

Fixing America's Surface Transportation Act

The FHWA is the agency of the USDOT responsible for the federally funded roadway system, including the interstate highway network and portions of the primary state highway network. FHWA funding is provided through the Fixing America's Surface Transportation Act. Federal funds can be used to fund eligible local transportation improvements such as projects to improve the efficiency of existing roadways, traffic signal coordination, bikeways, pedestrian facilities, and transit system upgrades.

3.19.2.2 State Laws, Regulations, and Policies

Senate Bill 743

Previously under CEQA, transportation impacts were evaluated by examining whether the project is likely to cause automobile delay at intersections and congestion on nearby individual highway segments, and whether this delay will exceed a certain amount (i.e., LOS analysis). SB 743, which was signed into law in 2013, updated section 15064.3 of the *CEQA Guidelines* to change how lead agencies evaluate transportation impacts. Starting on July 1, 2020, agencies analyzing the transportation impacts of new projects must now use VMT as a transportation impact metric instead of LOS. VMT measures how much actual automobile travel (additional miles driven) a proposed project would create on California roads.

To assist with implementation of the VMT metric, the Office of Planning and Research (OPR) prepared a Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018). OPR's Technical Advisory recommends that for land use projects a per capita or per employee VMT that is 15 percent below that of existing development may be a reasonable threshold. In making this recommendation, OPR recognized that land use development projects (i.e., those involving residential, office, and retail proposals) tend to have the greatest influence on VMT. For other types of projects, lead agencies should consider the purposes in PRC section 21099(b)(1) (i.e., promote reduction of GHG emissions, the development of multimodal transportation networks, and a diversity of land uses) in applying a threshold of significance. Qualitative analyses are acceptable when methods do not exist for undertaking a quantitative analysis.

California Department of Transportation Requirements

Caltrans is the primary State agency responsible for transportation issues. One of Caltrans' duties is the construction and maintenance of the state highway system. Caltrans has established standards for roadway traffic flow and has developed procedures to determine if State-controlled facilities require improvements. Any improvements or modifications to the highway system, including ramps and access points, within the study area would need to be approved by Caltrans. Caltrans facilities within the study area consist of US 101.

For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before any construction work may be undertaken. This includes a traffic control plan that adheres to the standards set forth in the California Manual of Uniform Traffic Control Devices (MUTCD). As part of these requirements, there are provisions for coordination with local emergency services, training for flagmen for emergency vehicles traveling through the work zone, temporary lane separators that have sloping sides to facilitate crossover by emergency vehicles, and vehicle storage and staging areas for emergency vehicles. MUTCD requirements also provide for construction work during off-peak hours and flaggers. For projects that would not physically affect facilities but may influence traffic flow and LOS at such facilities, Caltrans may recommend measures to improve traffic operations.

In its 2020 memorandum on CEQA significance determinations, Caltrans stated that VMT is the most appropriate measure of transportation impacts under CEQA (Caltrans 2020). While the VMT metric is appropriate for CEQA analyses, Caltrans does continue to use the LOS metric for operating state highway facilities to evaluate their operations and as one of its measures of effectiveness.

Assembly Bill 43

AB 43, also known as Traffic Safety, allows local government agencies to reduce vehicle speeds to accommodate vulnerable users such as pedestrians, bicyclists, seniors, and wheelchair users to improve traffic safety. AB 43 takes effect in July 2024.

3.19.2.3 Regional and Local Laws, Regulations, and Policies

Plan Bay Area 2050

Plan Bay Area 2050 is a 30-year plan that provides 35 strategies to address housing, the economy, transportation and the environment across the Bay Area's nine counties—Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma. The plan was prepared by the Bay Area's two regional planning agencies, the Metropolitan Transportation Commission and the Association of Bay Area Governments (MTC/ABAG). The final Plan was adopted by both agencies in October 2021. Because the Plan does not set specific requirements for individual projects, this EIR does not address consistency with Plan Bay Area 2050 strategies (MTC/ABAG 2021).

Santa Clara Valley Transportation Authority Valley Transportation Plan 2040

The Valley Transportation Plan 2040 (VTP 2040) provides a long-range vision for the transportation system in the county. VTP 2040 identifies programs, projects, and policies that the VTA's Board of Directors will pursue over the lifetime of the plan. The Plan connects projects and programs with anticipated funds and provides a framework for the development and maintenance of County transportation over the 25-year life of the Plan. The Plan considers all travel modes and addresses the links between transportation, land use, air quality, energy use, and community livability (VTA 2014).

The following planning initiative would be applicable to the Project:

- **Complete Streets Corridor Program.** VTA will explore developing a complete streets program. This program will seek to create new opportunities to maximize the investments of VTA and local agencies. This will include ways to combine program elements and funding for bicycles, pedestrian, streetscape, safety and transit improvements in corridors.

Santa Clara County General Plan

The Santa Clara County General Plan (County 1994) provides strategies, policies, and implementation measures to improve the adequacy of the overall transportation system by ensuring that it is balanced, well-integrated, and sufficient to meet current and future mobility needs. Those that are relevant to the Project are listed below.

Strategy #1: Develop Urban Land Use Patterns that Support Travel Alternatives

C-TR 1: Santa Clara County should develop and maintain an adequate, balanced, and integrated transportation system that is affordable and convenient to use and that is capable of meeting projected future demand.

C-TR 8: Urban design concepts and site development standards which facilitate use of transit and other travel alternatives should be adopted and implemented by local jurisdictions, to provide adequate:

a. accessibility to transit and transit facilities;

b. pedestrian and bicycle pathways and facilities, both on and between individual sites; and building design, orientation, on-site services and amenities which support the use of travel alternatives.

Santa Clara Countywide Trails Map (2023)

The County Countywide Trails Master Plan Update serves as a guide for trail system development to improve tail connectivity throughout the region. In 2023, County Parks published its draft update to the 2015 Countywide Trails Map. This map contains information on trails planning and development projects for the county. It includes several proposed segments of the Bay Area Ridge Trail around Anderson Lake, and the proposed and existing Coyote Creek Parkway trail segments that follow Coyote Creek and intersect with several Project components.

Roadway segments located within the study area that were identified in the Countywide Trails Map are identified below:

- R1 - Juan Bautista de Anza National Historic Trail
- R5 - Bay Area Ridge Trail
- S5 - Coyote Creek/Llagas Creek Trail

The segments that have been completed since the adoption of the 1995 Countywide Trails Master Plan include R1 – Juan Bautista de Anza National Historic Trail, portions of R5- Bay Ridge Trail (the segment that wraps around the Anderson Dam Lake has not been completed since the adoption of the 1995 Plan), and S5 – Coyote Creek/Llagas Creek Trail (Santa Clara County Parks 2023).

City of Morgan Hill 2035 General Plan

The following goals/policies are contained in the Morgan Hill 2035 General Plan Transportation Element (City of Morgan Hill 2017 ~~2016~~) and are applicable to evaluating impacts to the transportation system caused by the Project.

Goal TR-1: A balanced, safe, and efficient circulation system for all segments of the community, meeting local needs and accommodating projected regional and sub-regional traffic while protecting neighborhoods.

Policy TR-1.1: *System Efficiency.* Plan, construct, and maintain a coordinated and efficient system of local streets and highways throughout the community, meeting local needs and accommodating projected regional and sub-regional traffic, while protecting neighborhoods from cut-through traffic.

Policy TR-1.3: *Transportation Safety.* Implement strategies to ensure the safe and appropriate operation of all components of the transportation system for all users, such as programs to lower crash rates and reduce the number of transportation-related injuries in the city through education, enforcement, engineering strategies, physical improvements, and operational systems. Prioritize strategies that improve safety for students, pedestrians, and bicyclists.

Goal TR-3: A coordinated, continuous network of streets and roads.

Policy TR-3.2: *Safe and Complete Improvements.* Avoid creating incomplete public improvements that create public safety hazards.

Vision Zero Morgan Hill

The Morgan Hill City Council adopted Vision Zero policies on January 17, 2018 (City of Morgan Hill 2018). The following goals and actions are applicable to evaluating potential impacts to pedestrians and cyclists.

Engineering: The City ensures that both new development and capital projects are constructed to standards that promote safety for all transportation modes.

Engineering Action 3. High-visibility ladder, zebra, and continental crosswalk markings are preferable.

Engineering Action 12. Create temporary accommodations for bicyclists and pedestrians along construction sites when sidewalks and other travel ways have been closed.

City of Morgan Hill Bikeways, Trails, Parks and Recreation Master Plan

The City adopted its Bikeways, Trails, Parks and Recreation Master Plan in July 2017. The Master Plan is a strategic and practical guide for improving and expanding the City of Morgan Hill's recreation system over 20 years (City of Morgan Hill 2017b). The Master Plan document contains several relevant goals and policies that would be applicable to the Project.

Bikeways and Trails: Key Findings. There is a gap between the heavily used Coyote Creek Trail and local bikeways. Residents are interested in accessing regional parks and trails via safe bikeways and community stakeholders would like regional trail users to travel safely into the City.

B3. Improve safety for all roadway users by providing bikeways and trails with comfortable separation from motor vehicles and a focus on safety.

B3-1. Continue to support the City's adopted Vision Zero Framework to reduce traffic injuries and fatalities. Once adopted, implement strategies to improve safety.

B9. Evaluate the potential to expand pathways along creeks and drainage ways.

B9-1. Support General Plan Policy HC-3.14 by working in partnership with the Santa Clara Valley Water District to establish easements and joint use agreements and to develop trails and linear parks along creeks and drainage channels.

Relevant Sites:

- Llagas Creek west of Silveira to Santa Teresa
- Madrone Channel trail
- The trails at Silveira to incorporate desired community uses
- The loop trail and usable open space at San Pedro Percolation Ponds as a loop trail and usable open space

- The northern extension of the Little Llagas Creek Trail from Spring Avenue to W Main Avenue, per General Plan Policy TR-8.8
- The Madrone Channel Trail northern extension to the Coyote Creek Trail and southern extension to Middle Avenue
- The Tennant Creek Trail from E Dunne Avenue to Middle Avenue

Recommended Enhancements:

B-B. Construct buffered bike lanes and upgrade the existing shoulder/ discontinuous bike lanes to continuous buffered lanes including multimodal intersection improvements at major arterial intersections.

Relevant Sites:

- B-B1. Cochrane Road and Malaguerra Avenue from Monterey Road to Coyote Creek Trailhead
- B-B7. Peet Road/Hill Road from Eagle View Drive to Tennant Avenue
- B-B8. Dunne Avenue from Dewitt Avenue to Jackson Oaks Drive

B-D. Improve intersections to create separation between car traffic and people bicycling and walking/rolling. Multimodal intersection improvements can include both time- and space-separation that continues a protected or buffered bike lane's separation from vehicles through intersections.

Relevant Sites:

- D4. Cochrane Road and US 101 (North and South ramps, Madrone Parkway and Depaul Drive)

Envision San José 2040 General Plan

The Circulation Element of the Envision San José 2040 General Plan includes a set of balanced, long-range, multimodal transportation goals and policies that provide for a transportation network that is safe, efficient, and sustainable (minimizes environmental, financial, and neighborhood impacts). In combination with land use goals and policies that focus growth into areas served by transit, these transportation goals and policies are intended to improve multimodal accessibility to employment, housing, shopping, entertainment, schools and parks and create a city where people are less reliant on driving to meet their daily needs (City of San José 2011). The General Plan transportation goals, policies and actions aim to:

- Establish circulation policies that increase bicycle, pedestrian, and transit travel, while reducing motor vehicle trips, to increase the City's share of travel by alternative transportation modes.
- Promote San José as a walking- and bicycling-first city by providing and prioritizing funding for projects that enhance and improve bicycle and pedestrian facilities. According to the Government Code Section 65302 and the California Complete Streets Act of 2008, the Circulation Element must plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or

urban context of the general plan. The statute defines all "users of streets, roads, and highways" as "bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors."

The Envision San José 2040 General Plan included the following transportation goals and policies applicable to the Project:

Goal TR-1: Balanced Transportation System. Complete and maintain a multimodal transportation system that gives priority to the mobility needs of bicyclists, pedestrians, and public transit users while also providing for the safe and efficient movement of automobiles, buses, and trucks.

Policy TR-1.1: Accommodate and encourage use of non-automobile transportation modes to achieve San José's mobility goals and reduce vehicle trip generation and VMT.

Policy TR-1.2: Consider impacts on overall mobility and all travel modes when evaluating transportation impacts of new developments or infrastructure projects.

Policy TR-1.5: Design, construct, operate, and maintain public streets to enable safe, comfortable, and attractive access and travel for motorists and for pedestrians, bicyclists, and transit users of all ages, abilities, and preferences.

Policy TR-1.7: Require that private streets be designed, constructed and maintained to provide safe, comfortable, and attractive access and travel for motorists and for pedestrians, bicyclists, and transit users of all ages, abilities, and preferences.

Policy TR-1.8: Actively coordinate with regional transportation, land use planning, and transit agencies to develop a transportation network with complementary land uses that encourage travel by bicycling, walking and transit, and ensure that regional greenhouse gas emission standards are met.

Goal TR-2: Walking and Bicycling. Improve walking and bicycling facilities to be more convenient, comfortable, and safe, so that they become primary transportation modes in San José.

Policy TR-2.8: Require new development where feasible to provide on-site facilities such as bicycle storage and showers, provide connections to existing and planned facilities, dedicate land to expand existing facilities or provide new facilities such as sidewalks and/or bicycle lanes/paths, or share in the cost of improvements.

Goal TR-5: Vehicular Circulation. Maintain the City's street network to promote the safe and efficient movement of automobile and truck traffic while also providing for the safe and efficient movement of bicyclists, pedestrian, and transit vehicles.

Policy TR-5.4: Maintain and enhance the interconnected network of streets and short blocks that support all modes of travel, provide direct access, calm neighborhood traffic, reduce vehicle speeds, and enhance safety.

Policy TR-5.5: Require that new development, which includes new public or private streets, connect these streets with the existing public street network and prohibit the gating of private streets with the intention of restricting public access. Furthermore, where possible, require that the street network within a given project consists of integrated short blocks to facilitate bicycle and pedestrian travel and access.

Goal TR-9: Reduction of VMT. Reduce VMT per service population by 20% (2030 goal) and by 45% (2040 goal), from the 2017 levels.

Policy TR-9.1: Enhance, expand and maintain facilities for walking and bicycling to provide neighborhoods with safe and direct access to transit and key destinations, particularly to provide neighborhoods with safe and direct access to transit and key destinations, a complete alternative transportation network that facilitates non-automobile trips, and enjoyable outdoor open space.

~~Police~~ <u>Policy</u> TR-9.3: Enhance the overall travel experience of transit riders, pedestrians, bicyclists, and shared micro-mobility users to encourage mode shift.

Trail Network

Goal TN-1: National Model for Trail Development and Use. Develop the nation’s largest urban network of trails. Become a national model for trail development and use. Remain a national leader in terms of the scale and quality of trails.

Goal TN-2: Trails as Transportation. Develop a safe and accessible Trail Network to serve as a primary means of active transportation and recreation within an integrated multi-modal transportation system.

Policy TN-2.1: Support off-street travel by interconnecting individual trail systems to each other and to regional trail systems.

Policy TN-2.6: Integrate and connect trail and pathway networks with a larger network of countywide and regional trails such as the Bay Area Ridge, San Francisco Bay, and Juan Bautista De Anza Trails to allow for a broad base of opportunities and linkage with the greater Bay Area.

Policy TN-2.8: Coordinate and connect the trail system with the on-street bikeway system, and consider policies from the Circulation and the Parks, Trails, Open Space, and Recreation Amenities/Programs sections of this Plan to create a complete BikeWeb to serve the needs of San José’s diverse community.

Action TN-2.10: Work with the Santa Clara Valley Water District and the utilities, including PG& E, to explore opportunities to develop trails, joint-use facilities, and/or other recreational amenities along their rights-of-way.

Move San José

Move San José establishes a decision-making process that joins citywide policies, neighborhood improvements, and reinvention of San José city streets. The goal is a San José that is easier and more convenient to get around without a car while being safer to travel in. (City of San José 2022).

Move San José contains the following strategies and steps that are applicable to the Project.

District 2 Strategy Recommendations:

Fill Gaps in Trails and Sidewalks. The City should create an inventory of sidewalks and trails in District 2 to identify where there are gaps and then address them. These improvements should be added to make places more walkable, bikeable, and accessible for wheelchair and white cane users. This can help improve jobs accessibility by walk and bike. *This improves the Less Driving, Access for All, Enjoyable Transportation, Transportation Safety, Clean the Air, Connected Neighborhoods, and Move the Economy scores for District 2.*

Improve Existing Transit Service. Improving existing transit service makes it easier to get around on public transit by increasing frequencies of service, adding things like bus lanes, and signal priority, and having transit run more hours of the day. This helps connect District 2 to other parts of San José without a car. *This improves the Less Driving, Access for All, Enjoyable Transportation, Transportation Safety, Clean the Air, Connected Neighborhoods, and Move the Economy scores for District 2.*

San José Better Bike Plan 2025

San José's Department of Transportation aims to construct an extensive on-street bike network and supportive programs and policies (City of San José 2020). The following programs from the San José Better Bike Plan 2025 are applicable to the Project.

Program: Collaborate across agencies and modal planning to advance mutually beneficial VMT reduction initiatives and advocate for complete and multimodal street allocation.

Program: Increase coordination between agencies involved in the planning, design, operation, and maintenance of streets and multi-use paths to advocate for San José's priorities and values for the transportation system. Agencies include VTA, Caltrans, and departments within the City of San José, such as DOT and Parks, Recreation and Neighborhood Services, among others.

San José Complete Streets Design Guidelines and Standards

The City of San José Complete Streets Design Standards and Guidelines have been developed as a comprehensive set of street design standards and guidelines to guide how the City of San José builds and retrofits streets. In addition to designing complete streets through the use of these standards and guidelines, in 2014 the City of San José joined a coalition of other city transportation departments in the United States as a National Association of City Transportation Officials (NACTO) member city. NACTO is a national leader in promoting safe, multimodal street design to build cities as places for people, with safe, sustainable, accessible and equitable transportation choices that support a strong economy and vibrant quality of life (City of San José 2018).

Standards

Sidewalk and Walkway Design

12. Sidewalks shall be people-oriented and comprised of the following zones: Frontage Zone, Through Zone, Furnishing Zone, and Curb Zone.

13. The path of travel between sidewalks and building entries, as well as paths to and from on-street parking for people with disabilities, shall be kept clear.

Bikeways Design

17. Cycle tracks, bike lanes, and shared use paths shall have bike signal detection and/or actuation.

18. Cycle tracks shall include intersection approaches.

Principles

Walkways and Sidewalks

7. Pedestrian networks should be integrated within the larger transportation network.

8. Sidewalks should connect to other modes of travel and provide connectivity, ease of travel, and a comfortable environment to wait for transit.

9. Sidewalk width should allow for "green" design features.

Buffered Bike Lanes

36. Buffered bike lanes should be used whenever there is sufficient roadway width, where right-of-way allows, and/or where comfortable bike facilities are important.

3.19.3 Methodology and Approach to Impact Analysis

The methodology and approach to the impact analysis is partially informed by the methodology and approach to analysis contained in the Project Transportation Technical Memorandum ~~Study~~ prepared for the Project (included in Appendix O). The CEQA impact analysis includes an evaluation of the Project's impact on VMT, pursuant to *CEQA Guidelines* section 15064.3(b); potential to conflict with existing programs, plans, ordinances, or policies addressing roadway, pedestrian, bicycle, and transit facilities; increase in hazards due to geometric design features; and impacts to emergency access. The analysis evaluates impacts related to transportation that could occur as a result of the following activities:

- Seismic Retrofit Construction
- Conservation Measures Construction
- Construction Monitoring
- Post-construction Anderson Dam Facilities Operations and Maintenance
- Post-construction Conservation Measures Operations and Maintenance
- Post-construction FAHCE Adaptive Management

As described in Section 3.0, *Introduction*, the baseline for evaluating Project impacts is the existing conditions following completion of the FOCP implementation (i.e., existing conditions baseline).

VMT Evaluation Methodology

CEQA Guidelines section 15064.3(a) states that VMT refers to the amount and distance of automobile (cars and light trucks) travel attributable to a project. VMT measures the full distance of personal motorized vehicle trips with one end within the project area. Typically, projects that are farther from other, complementary land uses (such as a business park far from housing) and in areas without transit or active transportation infrastructure (bike lanes, sidewalks, etc.) generate more driving than development near complementary land uses with more transportation options. The objective of the SB 743 legislation and switch to VMT instead of LOS is to reduce VMT related to commuting to and from work and through use of local retail services by encouraging alternative modes of travel such as walking, bicycling, transit, or carpooling.

Since SB 743 eliminated the use of LOS for CEQA impact analysis purposes, that method is not utilized in this analysis. The analysis in this EIR examines roadway transportation impacts under current CEQA criteria. Additionally, *CEQA Guidelines* section 15064.3(3) states that "a qualitative analysis of construction traffic may be appropriate." As such, VMT analysis is not intended to evaluate temporary construction-related traffic nor how goods and products are shipped and moved in the marketplace. Even though one particular project may generate a large number of construction trips, the amount of construction-generated VMT for an individual project is incidental and temporary when compared to the total long-term VMT in a jurisdiction generated by residential, commercial, and office uses.

The City of Morgan Hill and County have not yet adopted analysis procedures, standards, or guidelines consistent with SB 743 that differ from OPR guidelines or provide guidance for infrastructure projects. The City of San José has adopted VMT guidelines but indicates that the significance criteria for VMT for "Public/Quasi-Public" projects should be in accordance with the most appropriate type as determined by the Public Works Director (City of San José 2023). Valley Water has also not determined criteria for analysis consistent with SB 743. In the absence of an adopted policy with impact thresholds relevant for the Project, the assessment of the Project's effects related to VMT relies on guidelines published by OPR in its *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018), in addition to San José's guidelines.

As stated in the OPR Technical Advisory, an operational VMT impact threshold of 15 percent below the existing regional VMT per worker for office uses is recommended. OPR does not provide recommended impact thresholds for industrial uses, while San José recommends existing conditions as the industrial threshold. Office space and jobs are more commonly available in urban areas in close proximity to supporting residential uses, unlike industrial land uses which are typically more isolated from residential areas. While office employees may have the option to choose a convenient job location in close proximity to their place of residence, industrial employees may have limited options, resulting in longer trips and consequently greater VMT.

For this reason, jurisdictions that have adopted their own VMT guidelines and impact thresholds, have tended to define impact thresholds for industrial land uses that are less stringent than the recommended 15 percent below existing VMT per worker for office uses (Appendix O). In most jurisdictions, such as San José, the existing VMT per industrial job is used as the impact threshold (City of San José 2023). Therefore, whether the Project's operational VMT substantially differs from the existing project area VMT ~~per industrial worker~~ is used as the impact threshold for the employees ~~of~~ during operation and maintenance of the Project. Specifically, Project operation would a have a less than significant VMT impact if it generates no substantial change or a decrease in long-term VMT compared to existing VMT.

~~The~~ For information purposes only, the evaluation of the Project's effects on VMT during construction was completed by Hexagon using the Santa Clara Countywide Vehicle Miles

Traveled Evaluation Tool (VMT Evaluation Tool) (Appendix O). The VMT Evaluation Tool identifies the existing average VMT per capita and VMT per worker for areas throughout the county based on the APN of a project site. Based on the Project location, type of development, Project description, and proposed trip reduction measures, the evaluation tool calculates the Project VMT during construction. The VMT Evaluation Tool indicates that the regional average VMT per industrial worker is currently 15.33. The VMT per worker (25.47) in the Project Area is currently greater than the regional average.

The VMT Evaluation Tool is limited to the evaluation of the general land use categories of residential, office, and industrial. None of these land uses are applicable to Project (Seismic Retrofit and CMs); additionally, trips generated by the Project would primarily occur during construction and long-term trips from operation and maintenance would be minimal. Construction VMT estimates are presented under Impact TR-2 for informational purposes, but these results are not used to determine impact significance, pursuant to *CEQA Guidelines* section 15064.3(3). Because long-term trips from operations and maintenance would be minimal and the land uses in the VMT Evaluation Tool are not applicable to Project operation, the VMT Evaluation Tool would not provide an accurate estimate of change in VMT; therefore, the operations analysis is discussed qualitatively.

Other Transportation Analysis

Other transportation issues associated with the Project include:

- review of the Project's effects on pedestrian, bicycle, and transit facilities
- consistency with other applicable plans and programs
- conflicts with geometric hazards
- impediments to emergency access

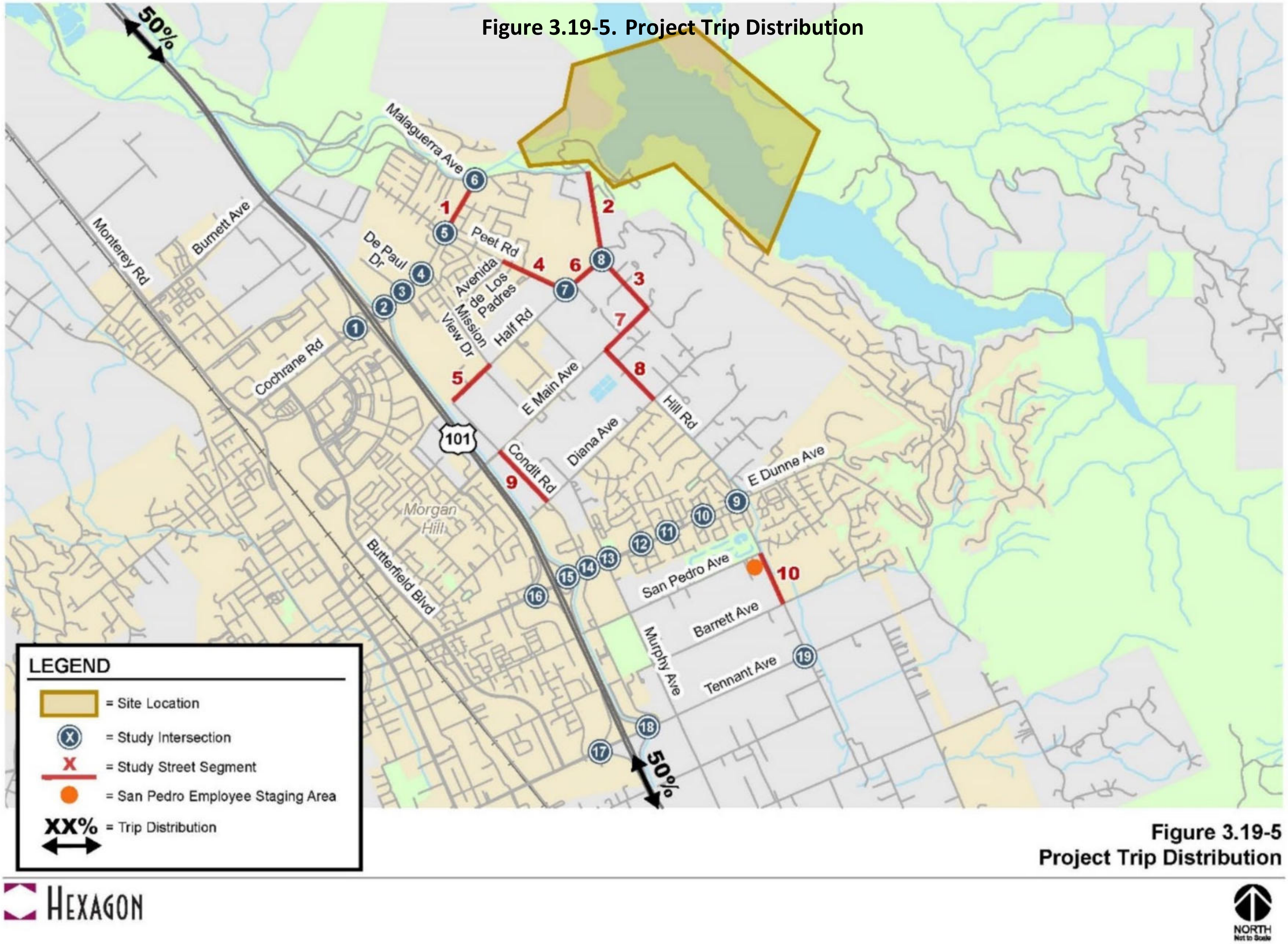
The Project Transportation Technical Memorandum ~~Study~~ (Appendix O) provides supplemental LOS analysis that can be utilized to identify potential improvements of the transportation system that may be implemented to minimize adverse effects of Project construction traffic on the circulation system, hazards, and emergency access. However, the identified roadway operations (i.e., congestion) impacts are not considered CEQA Project impacts per *CEQA Guidelines*, which determines a significant transportation impact based on VMT.

The Project would temporarily generate heavy-duty truck and automobile trips associated with workers and activities during its construction along roadways that provide access to the study area. Generally, the number of workers on site would vary during the Project's 7-year construction period based on the phase of construction. ~~At~~ Preliminary rough estimates prepared for the Draft EIR indicate that at most, construction would generate an approximate maximum of 235 daily workers, 30 daily employee shuttle trips, and a maximum of 125 support truck trips per day, which would utilize roadways in the study area. (See Appendix O for details on Project trip estimates.) ~~This approximation represents a conservative scenario of Project-generated construction traffic and is much greater than would occur during the majority of the 7-year construction period.~~ The distribution of employee and truck traffic was assumed to be distributed equally to US 101 north and south of the study area. The shuttle traffic would only travel between the Project Area at Anderson Dam and the San Pedro Avenue staging area (Staging Area 5). **Figure 3.19-5** shows the trip distribution patterns for employees and trucks.

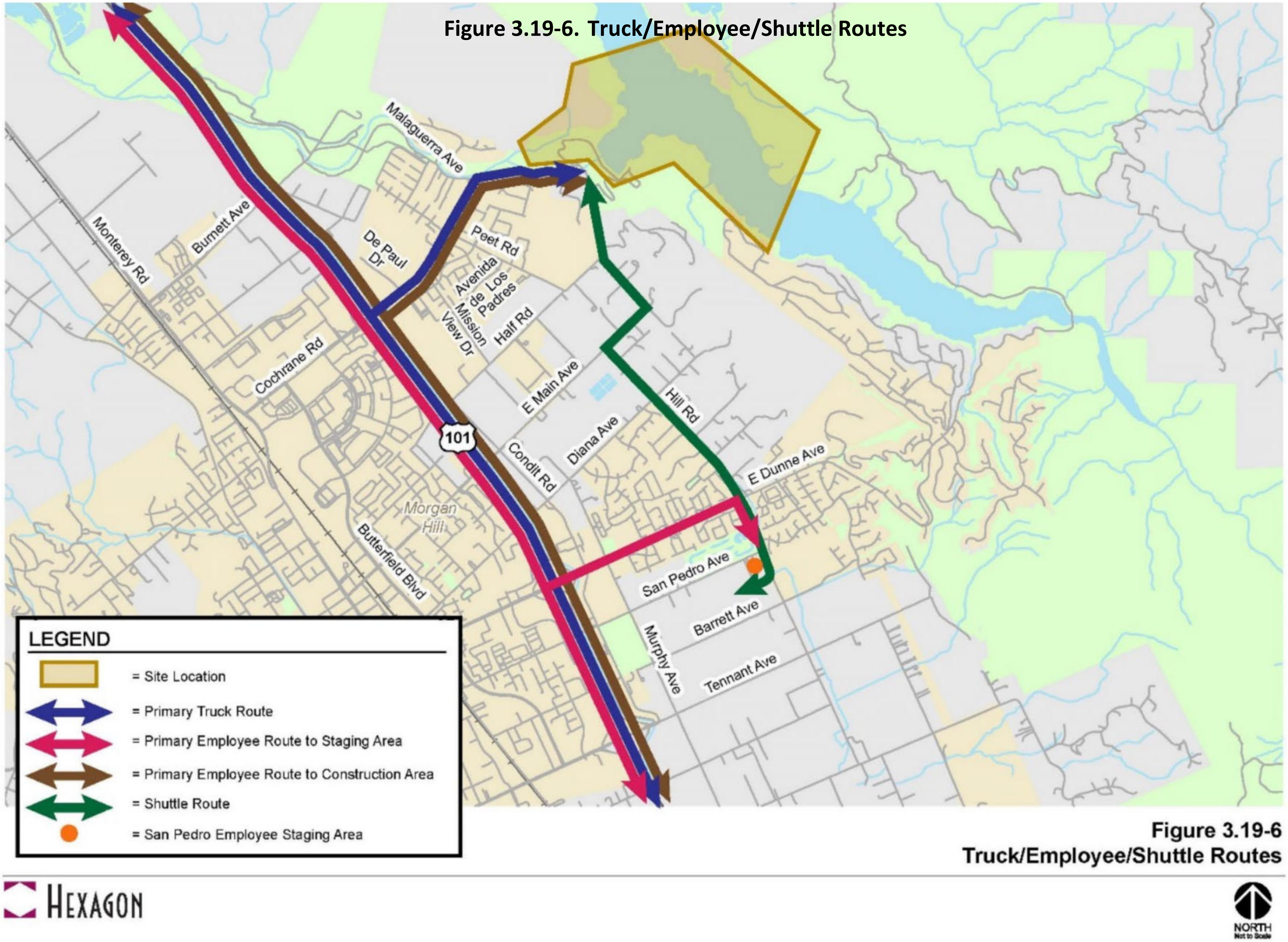
Figure 3.19-6 shows the primary truck, employee, and shuttle routes. For purposes of the analysis, traffic is assumed to traverse all study area roadways in an undetermined quantity.

Impacts of construction activities on the temporary access roads via Shingle Valley Road (north haul road) and via Holiday Drive (south haul road) and the temporary partial closure of Cochrane Road are qualitatively discussed. The temporary and permanent roadway modifications described in Chapter 2, *Project Description*, are also discussed.

Figure 3.19-5. Project Trip Distribution



1 **Figure 3.19-6. Truck/Employee/Shuttle Routes**



3.19.3.1 Seismic Retrofit Construction

As discussed above, analysis for the Seismic Retrofit component of the Project would primarily be qualitative. While Appendix O contains quantified roadway vehicle trip information, pursuant to *CEQA Guidelines* construction roadway vehicle trips is analyzed qualitatively. The impacts of construction VMT related to conflicts with the policies that govern the circulation system, geometric design hazards, and emergency access are discussed qualitatively utilizing information about road closures and quantity of construction vehicle trips on study area roadways.

3.19.3.2 Conservation Measures Construction

A qualitative evaluation of the effects on roadway vehicle trips due to the construction activities associated with the Ogier Ponds CM, Phase 2 Coyote Percolation Dam CM, Sediment Augmentation Program, Maintenance of the North Channel Reach ~~Extension~~, and Maintenance Activities at the Live Oak Restoration Reach is provided.

Similar to the Seismic Retrofit components, construction of the Conservation Measures are analyzed qualitatively. Each of the Conservation Measure component sites are separate from the Seismic Retrofit components site and on a separate construction schedule. Therefore, the effects of the Conservation Measure components are evaluated individually at a qualitative level.

Conservation measures include:

- Ogier Ponds CM
- Maintenance of the North Channel Reach ~~Extension~~
- Maintenance Activities at the Live Oak Restoration Reach
- Sediment Augmentation Program
- Phase 2 Coyote Percolation Dam CM

Maintenance Activities at the Live Oak Restoration Reach involve monitoring during construction and would otherwise include similar construction activities as for the Sediment Augmentation Program for replenishment of spawning gravels. Therefore, Maintenance Activities at the Live Oak Restoration Reach are not discussed further in this section.

3.19.3.3 Construction Monitoring

Construction monitoring activities are not considered in the impact analysis, as monitoring would involve data and information collection and assessment and would result in only a negligible and temporary generation of VMT or other transportation impacts. Thus, construction monitoring is not discussed further in this section.

3.19.3.4 Post-Construction Anderson Dam Facilities Operation and Maintenance

Operation of Anderson Dam following construction of the Seismic Retrofit component would involve implementation of the FAHCE rule curves and pulse flows, which would not change VMT or result in transportation impacts compared to the existing conditions baseline. VMT associated with operation of the Project would be a function of the frequency of inspection and maintenance. As described in **Table 2-19** in Section 2.7, *Post-Construction Anderson Dam Facilities Operations and Maintenance*, maintenance activities would be related to the dam embankment, spillway, inlet/outlet works, pipelines, roadway modifications, recreational facility modifications, and decommissioning of the hydroelectric facility. Such maintenance activities, especially related to vegetation management and routine maintenance, may occur at regular monthly intervals; while other activities, such as roadway modifications or inspections may occur only every 10 years or so.

Assuming these operations and maintenance roadway vehicle trips are made from the Valley Water office at 5750 Almaden Expressway in San José, the total round trip for an inspector or maintenance worker would be approximately 36 miles and would occur only periodically. Compared to the existing and future trips and distances traveled by daily long-distance commuters and truck drivers in the region, these periodic operational trips would contribute a de minimis increment and would be very similar to the baseline condition.

As large infrastructure does not require substantial or regular employee roadway vehicle trips for operations and maintenance, reservoir operation and maintenance would have little long-term effect on air quality and GHG benefits related to long-term reductions in VMT. Therefore, Post-Construction Anderson Dam Facilities Operations and Maintenance VMT impacts would generate a negligible effect on VMT during operations.

Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. Maintenance of Anderson Dam facilities was previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). No new substantial long-term operational VMT generation or transportation impacts would be added by dam maintenance. Therefore, post-construction dam facility maintenance activities are not discussed further in this section.

3.19.3.5 Post-Construction Conservation Measures Operations and Maintenance

Similar to the operation of the Anderson Dam, post-construction operations and maintenance of the Conservation Measures components would involve minimal activities generating VMT or other transportation impacts. Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain Coyote Percolation Dam per Valley Water's existing DMP. Maintenance of Coyote Percolation Dam facilities were previously evaluated in the Final DMP EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). No new long-term transportation impacts would be added by the Conservation Measures post-construction. Therefore, operations and maintenance of the Conservation Measures components would not result in significant impacts related to transportation, and these impacts are not discussed further in this section.

3.19.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). These monitoring activities are not evaluated in the impact analysis, because they would result in minimal transportation impacts.

The Project AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those of the original Conservation Measure construction. These adaptive actions are not evaluated in the impact analysis, because they are anticipated to result in minimal r transportation impacts.

3.19.3.7 Applicable Best Management Practices and VHP Conditions

The following Valley Water BMP would serve to minimize impacts on transportation from the Project (refer to Chapter 2, *Project Description*, for the full text of the BMPs):

> **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.

No VHP conditions are applicable to transportation.

3.19.3.8 Thresholds of Significance

Significance Criteria

For the purposes of this EIR and pursuant to Appendix G of the *CEQA Guidelines*, the Project would result in a significant impact related to transportation if it would:

- conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities
- conflict or be inconsistent with *CEQA Guidelines* section 15064.3, subdivision (b)

- substantially increase hazards due to a geometric design feature or incompatible uses
- result in inadequate emergency access

Specific Thresholds of Significance

This EIR applies the following transportation thresholds:

Vehicle Miles Traveled

Construction and Operation

The Project was assessed for VMT to determine consistency with SB 743 requirements and *CEQA Guidelines* section 15064.3(b). To determine impacts for the Project, the analysis is based on OPR guidance and utilizing the Santa Clara Countywide VMT Evaluation Tool. *CEQA Guidelines* section 15064.3(3) states that "a qualitative analysis of construction traffic may be appropriate."

The following threshold of significance is used to evaluate potential construction and operational VMT impacts with implementation of the Project:

- Construction: a project that generates temporary construction VMT would be less than significant.
- Operation: a project that generates no substantial change[1] or a decrease in long-term VMT would be less than significant.

Circulation System

Construction and Operation

Generally, a project causes a significant impact to roadway, transit, bicycle, and pedestrian facilities if an element of it conflicts with existing or planned roadways, transit, bicycle, and/or pedestrian facilities. The evaluation shall consider if:

- A project or related mitigation conflicts with roadway, transit, bicycle, and pedestrian programs, plans, ordinances, or policies adopted by City of San José, City of Morgan Hill, or County of Santa Clara for their respective facilities.

Design Feature Hazards

Construction and Operation

The impact would be significant if a project, during construction or operation, resulted in transportation facilities that do not conform to applicable City of San José, City of Morgan Hill, or County of Santa Clara design standards for roadways, bicycle facilities, and pedestrian facilities or introduce a geometric design hazard (i.e., conflicts between large construction equipment and narrow turning radii or personal vehicles).

[1] Substantial change is defined as an incremental change from existing conditions (e.g., from 1-2 percent).

Emergency Access

Construction and Operation

While Valley Water does not have significance thresholds related to emergency access, the City of San José, City of Morgan Hill, and County of Santa Clara Municipal Codes have adopted the California Fire Code and amended the code to address local conditions. Therefore, this EIR evaluates Project construction and operation effects related to emergency access using the significance threshold provided by the California Fire Code as follows:

- Provide a fire apparatus access road that meets the California Fire Code requirements of a minimum width of 20 feet with turning radii of 25-feet inside and 45-feet outside

In addition, the following factors determine whether a project has sufficient access for emergency vehicles, including:

- Location of closest fire stations
- Number of access points (both public and emergency access only)
- Width, height, and turning radius of access points and roadways
- Road closure/congestion conflicts

3.19.4 Impact Analysis

***Impact TR-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities* (Less than Significant with Mitigation)**

Construction

Seismic Retrofit Construction

Roadway Facilities

Seismic Retrofit construction would involve a partial closure of Cochrane Road (shown in **Figure 3.19-7**), usage of north and south haul roads, usage of temporary access/haul roads, and permanent roadway modifications (as detailed in Section 2.5, *Seismic Retrofit Construction*), most of which involve roadways governed by plans and policies addressing roadway facilities.

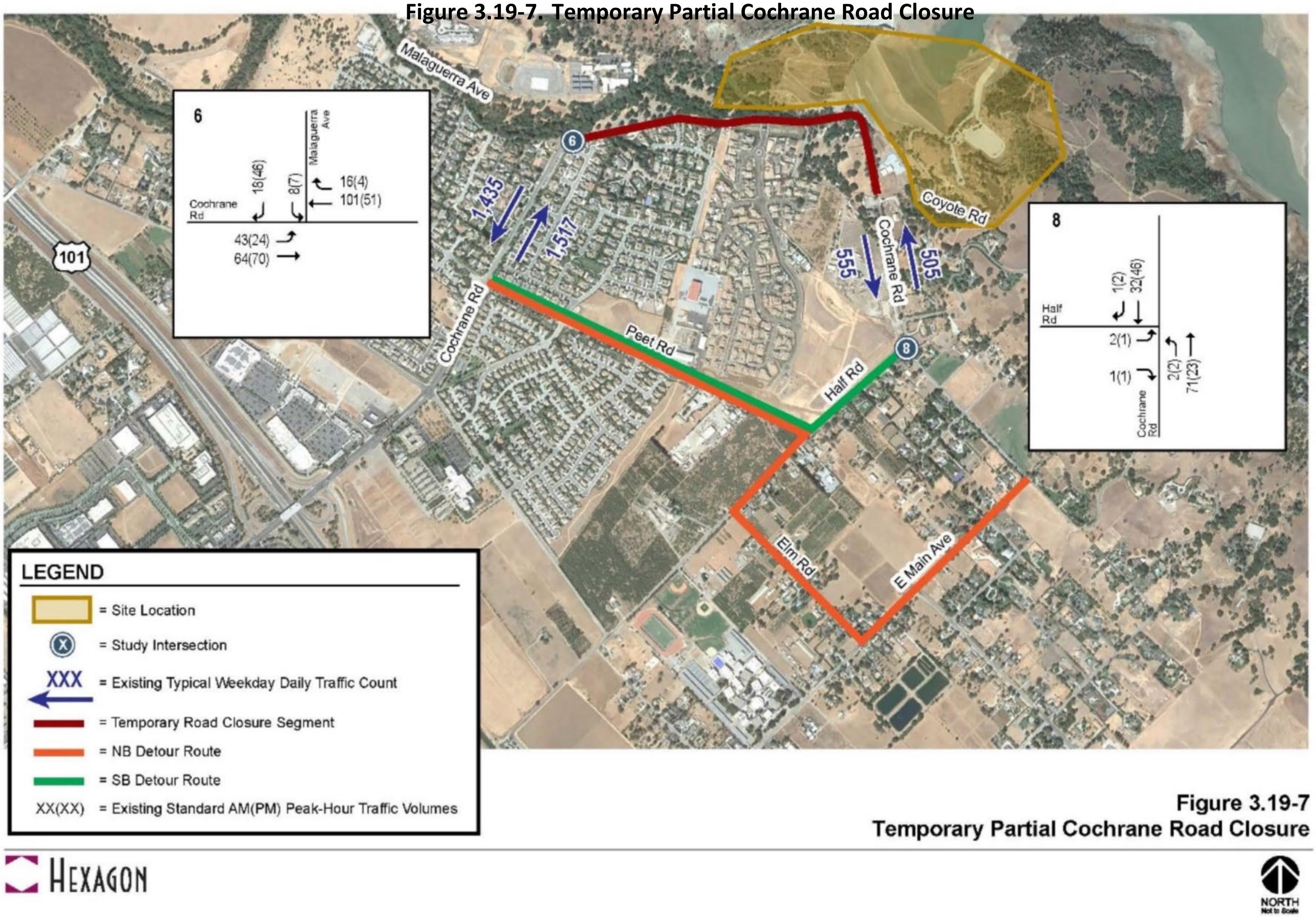
The City of Morgan Hill 2035 General Plan includes goals and policies related to a balanced, safe, and efficient circulation system (Goal TR-1; Policies TR-1.1, TR-1.3, TR-3.2). Specifically, Policy TR-1.1 calls for protection of neighborhoods from cut-through traffic. Construction of the Project would involve partial closure of Cochrane Road (0.8-miles section of Cochrane Road extending between Coyote Road and Malaguerra Avenue) through varying stages of construction, which may detour additional traffic onto neighborhood streets. However, the surrounding roadways and proposed detour routes are anticipated to have sufficient capacity to handle detoured vehicles and closure would occur only over a total of 32 weeks during the 7-year construction period. Additionally, temporary access and haul roads would divert construction traffic from neighborhood roadways. Therefore, the Project would be consistent with Policy TR-1.1.

Regarding transportation safety and safe and complete improvements called for in Morgan Hill 2035 General Plan Policies TR-1.3 and TR-3.2, the temporary partial road closure of Cochrane Road would primarily be within the Project Area and would either be removed upon completion of construction or abandoned in-place. Permanent roadway modifications, including road widening, repaving, and new roadways would be completed following construction and would improve access to the study area, including for maintenance activities. Moreover, implementation of BMP TR-1 would improve safety by requiring fences, barriers, lights, flagging, guards, and signs to be installed as determined appropriate by the public agency having jurisdiction, providing adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. While already less than significant, impacts would be further reduced by implementation of **Mitigation Measure PS-1**, which requires a traffic management plan that will improve roadway safety. Therefore, the Project would be consistent with Policies TR-1.3 and TR-3.2.

The Envision San José 2040 General Plan includes several policies regarding roadway safety (such as Policies TR-1.7, TR-5.4, and TR-5.5); however, roadways impacted by construction of the Project do not extend into the City of San José. Therefore, there would be no roadway facilities conflicts with policies in the Envision San José 2040 General Plan.

Overall, conflicts with policies and plans governing roadway facilities would be minimal due to the limited frequency of the Cochrane Road closure, the ability of the surrounding roadways to accommodate detoured traffic, the use of roadways privately owned by Valley Water, and roadway improvements after construction. While already less than significant, potential conflicts with policies and plans governing roadway facilities would be reduced pursuant to Valley Water BMP TR-1 that will improve roadway safety and reduce conflicts with the discussed plans and policies. Therefore, the Project would have a less-than-significant impact related to conflicts with a program, plan, ordinance, or policy addressing roadway facilities. **Mitigation Measure PS-1** would further reduce this impact.

Figure 3.19-7. Temporary Partial Cochrane Road Closure



Pedestrian, Bicycle, and Transit Facilities

Based on the relatively remote location of the Project Area, the Project would not be likely to generate pedestrian, bicycle, and transit trips. Pedestrian trips for the Project would likely be on-site trips only. In addition, construction traffic would not require re-routing or temporary closure of existing pedestrian, bicycle, and transit facilities. As shown on **Figure 3.19-3** and **Figure 3.19-4**, the temporary partial road closure of Cochrane Road would not affect existing pedestrian and bicycle facilities and transit services. However, as described in Section 3.18, *Recreation*, closures or modified flows during construction may impact recreational trails and facilities, such as the Dam Crest Trail, Cochrane Trail, Serpentine Trail, Basalt Hill, Rosendin Park Area, and Coyote Creek Parkway. The required trail closures may cause conflicts with plans and policies addressing pedestrian and bicycle facilities and trails, such as the Santa Clara Countywide Trails Master Plan; City of Morgan Hill Bikeways, Trails, Parks and Recreation Master Plan; Envision San José 2040 General Plan (Goals TN-1 and TN-2 and Policies TN-2.1, TN-2.6, TN-2.7, TN-2.8, and TN-2.10); and Move San José.

However, as concluded in Section 3.18, *Recreation*, the impacts of trail closures would generally be less than significant due to the numerous nearby recreational alternatives and the temporary nature of the closures. Likewise, conflicts with the aforementioned plans and policies would be temporary and not prevent long-term implementation.

However, due to the modified flows expected in Coyote Creek, larger portions of the Coyote Creek Trail and Hellyer Park may be inundated during construction, causing pedestrians and bicyclists to concentrate within the portions of the facility that remain open. The concentrated use of the open areas, in combination with high water conditions, could result in impacts to these recreational facilities, which are used by pedestrians and bicyclists. This would be a significant impact on pedestrian and bicycle facilities. **Mitigation Measure REC-1** would require Valley Water to provide funding for and implementation of future relocation and/or modification of recreational facilities within the Coyote Creek corridor to mitigate for inundation and other Project impacts on those facilities improvements ~~reimburse the SCCDPR for maintenance activities during construction that are triggered by flow events that are greater than 500 cfs (the existing outlet's maximum capacity),~~ thereby reducing impacts on pedestrian and bicycle facilities and preventing substantial conflicts with trails plans and policies. Seismic Retrofit component construction impacts would therefore be less than significant with mitigation.

Conservation Measures Construction

Roadway Facilities

Construction methods and affected roadways for the Conservation Measures, including Ogier Ponds, Maintenance of the North Channel Reach ~~Extension~~, Sediment Augmentation Program, and Phase 2 Coyote Percolation Dam are described in Section 2.6, *Conservation Measures Construction*. Construction of these Conservation Measures would include vehicular access on roadways including Monterey Road, Barnhart Avenue, Ogier Avenue, US 101, Coyote Creek Golf Drive, Metcalf Road, and Cochrane Road.

The discussion of applicable policies included in the analysis of Seismic Retrofit construction would similarly apply to construction of the Conservation Measures, as roadway impacts would be temporary. Implementation of these measures would have the same effect of reducing conflicts with roadway facilities' policies during construction, as discussed above. In addition, the less-than-significant impact would be further reduced by implementation of BMP TR-1 and **Mitigation Measure PS-1**. Therefore, the Project would have a less-than-significant impact related to conflicts with a program, plan, ordinance, or policy addressing roadway facilities.

Pedestrian, Bicycle, and Transit

As with the Seismic Dam Retrofit, due to the nature and location of temporary construction activities associated with the Conservation Measures, the Project would not generate pedestrian, bicycle, and transit trips. Construction traffic would not result in the closure or detour of existing bicycle routes, transit routes, or sidewalks along public roadways. Although pedestrian trips related to the construction of Conservation Measures would be limited to onsite pedestrian trips only, construction activities for the ~~Ogier Ponds~~ Phase 2 Coyote Percolation Dam CM would temporarily impact the Coyote Creek Trail during the 2-year ~~3-year~~ construction period. These temporary impacts are due to construction activities and material hauling across the Trail, resulting in temporary trail closures and detours. The Project would include improvements to pedestrian facilities. The Live Oak Picnic Area would include an improved walking loop and an interpretive trail along Coyote Creek. The discussion of applicable policies included for the Seismic Retrofit construction would similarly apply to construction of the Conservation Measures, as trail impacts would be temporary and numerous alternatives exist to avoid conflicts with plans and policies. Therefore, the Project would have a less-than-significant impact related to conflicts with a program, plan, ordinance, or policy addressing transit, bicycle, and pedestrian facilities.

Operations and Maintenance

As discussed in Section 3.19.3, *Methodology and Approach to Impact Analysis*, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures would be largely consistent with the County, City of Morgan Hill, and City of San José plans and policies governing the transportation circulation system in terms of roadway, pedestrian, bicycle, and transit facilities. Therefore, Project operational impacts related to conflicts with programs, plans, and policies addressing the circulation system would be less than significant, and no mitigation is required.

Significance Conclusion Summary

Project construction and operation would largely be consistent with plans and policies governing the circulation system. Therefore, overall Project impacts related to conflicts with programs, plans and policies addressing the circulation system would be less than significant, with one exception. Due to the modified flows expected in Coyote Creek during Seismic Retrofit construction, larger portions of the Coyote Creek Trail and Hellyer Park may be inundated, causing pedestrians and bicyclists to concentrate within the portions of the facility that remain open. The concentrated use of the open areas, in combination with high water conditions, could result in impacts to these recreational facilities, which are used by pedestrians and bicyclists. This would be a significant impact on pedestrian and bicycle facilities. **Mitigation Measure REC-1** would require Valley Water to provide funding for and implementation of the future relocation and/or modification of recreational facilities within the Coyote Creek corridor to mitigate for inundation and other Project impacts on those facilities ~~reimburse the SCCDPR for maintenance~~

~~activities during Seismic Retrofit construction that are triggered by flow events that are greater than 500 cfs (the existing outlet's maximum capacity),~~ thereby reducing impacts on pedestrian and bicycle facilities and preventing substantial conflicts with trails plans and policies. Seismic Retrofit component construction impacts would therefore be **less than significant with mitigation**.

In addition, implementation of BMP TR-1 and **Mitigation Measure PS-1** will further reduce impacts with regard to conflicts with policies governing roadway facility safety by ensuring safe handling of traffic detours, and trail closures would not conflict with plans and policies due to the temporary nature of closures and availability of alternatives.

Mitigation Measures

REC-1. Funding and Implementation of ~~Maintenance Reimbursement for~~ Park Facility Improvements within the Coyote Creek Corridor ~~Closures During High Flow Events~~

PS-1. Prepare and Implement ~~Construction~~ Traffic Management Plan

Impact TR-2: Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) **(Less than Significant)**

Construction

Seismic Retrofit Construction

As previously described, *CEQA Guidelines* section 15064.3(3) states that "a qualitative analysis of construction traffic may be appropriate." VMT analysis is not focused on evaluating temporary construction-related trips; SB 743 is focused on reducing long-term VMT to help achieve the State's GHG reduction targets. Even though one particular project may generate a large number of construction trips, the number of construction-generated VMT for an individual project is incidental and temporary when compared to the total operational VMT in a jurisdiction generated by residential, commercial, and office uses.

Construction VMT estimates are presented for informational purposes only. The construction worker VMT estimate generated by the Project is 24.69 VMT per worker. While this is less than the current Project Area, VMT per worker of 25.47, it is not necessarily relevant to determine the Project's significance, since a qualitative analysis is appropriate for construction VMT (see Appendix O).

Construction employees and vendors are anticipated to travel to the Project Area from throughout the Bay Area and Central Valley utilizing personal vehicles or carpooling when possible. As a result, opportunities to substantially lessen VMT during the construction period are limited, as the supplier markets are distant from the construction area and the choice of construction contractors by Valley Water would depend on a number of factors, including availability when the work is scheduled. Additionally, with housing costs increasingly unaffordable in the South Bay Area, it would not be reasonable to assume that Valley Water could contract only with a local workforce and vendors.

Construction trips would comprise only a small portion of regional trips and can be anticipated to be similar to those of existing travelers. Furthermore, VMT generated would not persist when Seismic Retrofit construction is complete. In other words, post-construction, VMT from the

Seismic Retrofit construction would cease to exist. Caltrans in its guidance for implementing SB 743 indicates that "vehicle trips used for construction purposes would be temporary, and any generated VMT would generally be minor and limited to construction equipment and personnel and would not result in long-term trip generation" (Caltrans 2020). Because a primary goal of VMT reduction is to reduce air quality and lessen GHG emissions, further information on how construction VMT contributes to these emissions is presented in Section 3.3, *Air Quality*, and 3.10, *Greenhouse Gas Emissions*.

As such, VMT associated with the Seismic Retrofit construction would be temporary and not contribute to a substantial change in long-term VMT. Therefore, the Seismic Retrofit construction would be consistent with *CEQA Guidelines* section 15064.3(b), resulting in a less-than-significant impact.

Conservation Measures Construction

Similar to the discussion above, VMT generated by construction of the Ogier Ponds, Phase 2 Coyote Creek Percolation Dam, Sediment Augmentation Program, and <u>Maintenance of the</u> North Channel <u>Reach</u> ~~Extension~~ would be temporary and not contribute to a long-term change in VMT. As such, VMT associated with the Conservation Measures construction would be temporary and not contribute to a substantial change in long-term VMT. Therefore, Conservation Measures construction would be consistent with *CEQA Guidelines* section 15064.3(b), resulting in a less-than-significant impact.

Operations and Maintenance

As discussed in Section 3.19.3, *Methodology and Approach to Impact Analysis*, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures would result in negligible VMT generation and, thus, not contribute to a substantial change in long-term VMT. Therefore, the Project would be consistent with *CEQA Guidelines* section 15064.3(b), resulting in a less-than-significant operational impact related to VMT. No mitigation is required.

Significance Conclusion Summary

The Project's construction-related VMT would be temporary, and operation-related VMT would be negligible and would not contribute to a substantial change in long-term VMT. And as a large infrastructure project, the Project would have little long-term effect VMT-generated air quality and greenhouse gas emissions (as discussed under Section 3.19.3, *Methodology*). Because the increase in VMT during construction would be temporary, and there would be a negligible effect on VMT during operation, the Project would not conflict with or be inconsistent with *CEQA Guidelines* section 15064.3(b). Therefore, overall Project impacts related to VMT would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact TR-3: Substantially increase hazards due to a geometric design feature or incompatible use (Less than Significant)

Construction

Seismic Retrofit Construction

Staging/Stockpiling Areas and Temporary Access Roads/Bridges

Construction equipment would be staged in six staging areas, as described in **Table 2-4**, *Overview of Stating Areas*, in Section 2.5.2, *Seismic Retrofit Site Mobilization and Preparation*. To ensure that these staging areas would be equipped to safely move and store construction equipment, prior to use they would be cleared of vegetative groundcover and debris, graded to be flat, and a gravel or separation fabric would be placed over the ground surface. Likewise, the stockpile areas described in **Table 2-5,** *Stockpile Areas*, would be cleared of vegetation and graded to accommodate construction materials and equipment. Such modifications would ensure that hazards due to geometric design would be reduced in the equipment staging and stockpile areas by creating a flat and clear surface.

Primary access to the Project Area would be via US 101 and Cochrane Road. From Cochrane Road there would be four Project Area access points: (1) the western end of the Live Oak Picnic Area (Staging Area 1); (2) the current entrance to Toyon Park at the toe of the dam; and (3) the entrance to Anderson Lake County Park (intersection of Coyote Road and Cochrane Road), and (4) North Access Point, which would be from US 101 to Stockpile L. These are existing entrances, and, therefore, no new geometric design features would be introduced with the exception of Staging Area 1. Access to Staging Area 1 would be from Cochrane Road and the Live Oak Picnic Area and include a temporary bridge across the south channel, which is discussed below.

As described in Section 2, *Project Description*, access roads and temporary bridges for construction would be constructed within the Project Area to allow for the movement of heavy construction equipment between active work areas, staging areas, stockpile areas, borrow sites, and disposal sites. One-way access roads would be up to 30-feet wide with turnouts, and two-way access roads would be up to 60-feet wide with turnouts. Once Seismic Retrofit construction is complete, temporary access roads located along the slope of the dam would be removed, and temporary access roads located within the reservoir area would be abandoned in-place. Temporary access roads on the downstream and upstream slope of the dam would be removed and the temporary access roads in the reservoir area connecting to the stockpile areas and PGBP would be abandoned in-place. A pile supported temporary bridge, approximately 150-foot long and 40-foot wide, would be constructed across the North Channel to provide access from the access road along the Anderson Dam Trail into Staging Area 1E. In addition, a pile-supported bridge, approximately 100-feet long and 40-feet wide, would be constructed across the South Channel to provide access from Staging Area 1W to Staging Area 1E. The widths of the temporary roads, along with the provided turnouts, would ensure that construction equipment and employees could safely move through the Project Area and reduce hazards.

Overall, movement of construction equipment and vehicles within staging/stockpiling areas and temporary access roads/bridges would not substantially increase geometric design hazards due to preemptive vegetation clearing and grading, as well as installation of adequately wide roads and turnouts. Therefore, Seismic Retrofit construction-related impacts associated with geometric design feature or incompatible use hazards would be less than significant.

Roadway Closure and Modifications

Cochrane Road Closure

Approximately 0.8 miles of Cochrane Road would be fully or partially closed to public through-traffic for varying durations of the construction period. To ensure that roadway hazards would not be substantially increased, during times of roadway closure, secure access gates located at either end of the road closure would limit access to only construction-related vehicles and equipment, and local residents. Barricades and/or signage would be placed at the northern terminus of St. Marks Avenue and San Rafael Street to block vehicular traffic from entering the closed area. At the southern terminus, a barricade and/or signage would be placed at Barnard Road to restrict vehicular traffic from proceeding north into the closed portion of the roadway. All vehicles, with the exception of those noted above, would be routed through a clearly marked detour using adjacent streets (Peet Road, Half Road, Elm Road, and East Main Road) to avoid the closed road. The detour would be demarcated using a combination of signage, fencing, barriers, lights, flagging, and/or guards. Following construction, this section of Cochrane Road would be repaved. The barricade/signage to block vehicular traffic and clear demarcation of a detour, combined with repavement, would ensure that hazards are not substantially increased during construction of the Project. Therefore, Cochrane Road Closure construction-related impacts associated with geometric design feature or incompatible use hazards would be less than significant.

Coyote Road up to the Boat Ramp Parking Area

As part of the Seismic Retrofit construction, Coyote Road from the intersection with Cochrane Road up to the Boat Ramp Parking Area would be permanently modified to provide access from the dam crest to the marina. The intersection between Coyote Road and Cochrane Road would be widened and relocated approximately 200-feet south to provide a safer park entrance. Portions of Coyote Road, from the old entrance kiosk to the dam crest (approximately 1,850 lineal feet), would be widened from an approximately 13-foot-wide,[2] one-way road, to a 30-foot-wide, two-way road that would include a sidewalk.

These modifications would improve roadway conditions and would not increase hazards due to a geometric design feature. Therefore, Coyote Road up to the Boat Ramp Parking Area construction-related impacts associated with geometric design feature or incompatible use hazards would be less than significant.

Coyote Road across the Dam Crest

Once Seismic Retrofit construction is complete, Coyote Road would be replaced with a two-lane roadway, similar to the existing road alignment. This permanent roadway modification would allow for Valley Water maintenance activities, restrict public vehicle access across the dam due to safety concerns, and provide pedestrian access to the Serpentine Trail via the roadway. The new permanent, paved two-lane Coyote Road to be constructed along the dam crest would be

[2] Some segments of the existing road extend up to 24-feet wide.

approximately 1,150-feet long and 24-feet wide. Along the segment that extends from the left (south) end of the dam to the gravity wall at the right (north) end of the dam, the road would be equipped with guard rails on either side. The new roadway would no longer be a one-way loop that crosses the dam crest. The new roadway would extend on the dam crest with a western terminus near the spillway; the portion of the roadway along the south side of the spillway would no longer be open to public vehicles. A security gate would be located at the left side (south end) to prevent public vehicular access to the dam crest.

These modifications would improve roadway conditions for maintenance activities and restrict public access across the dam crest. No geometric design features that would increase hazards would occur. Therefore, Coyote Road across the Dam Crest construction-related impacts associated with geometric design feature or incompatible use hazards would be less than significant.

Coyote Road along the Spillway

Coyote Road, along the spillway, would be permanently modified to provide an access road for maintenance activities only. This roadway would be permanently modified to limit all public vehicular access and would end in a dead-end near the spillway. This 1,100-foot-long segment of Coyote Road, located along the south side of the spillway, would be a one-lane, 14-foot-wide paved roadway. This road segment would start at the dam crest and end at a 60-foot-diameter, paved turnaround, located approximately 200-feet downstream of the end of the concrete lined spillway chute. The west end of the turnaround would connect to an unimproved access road along the south bank of the unlined spillway chute.

These modifications would improve roadway conditions for maintenance activities and restrict public vehicular access. No geometric design features that would increase hazards would occur. Therefore, Coyote Road along the Spillway construction-related impacts associated with geometric design feature or incompatible use hazards would be less than significant.

Access from Cochrane Road to Anderson Dam Toe

Permanent roadway modification would be proposed from Cochrane Road to the toe of Anderson Dam. This permanent roadway modification would be constructed to allow maintenance access to the LLOW outlet structure and HLOW outlet structure from the lower-level parking lot. Access from Cochrane Road to the Anderson Dam toe would be relocated approximately 220-feet west, to improve sight distance. The access would include a paved, two-lane, 30-foot-wide driveway used to access the low-level outlet structure parking area. A 325-foot-long, one-lane, 20-foot-wide, paved access from the west end of the parking area would be used to access the high-level outlet structure access pad. In addition, the shoulder width would be widened by up to 5 feet along a 740-foot-long segment of the westbound lane of Cochrane Road, from the start of the curve (northbound) to about 300-feet west of the new driveway into the Anderson Dam toe.

These modifications would improve roadway conditions for maintenance activities and access and widen a portion of the westbound lane of Cochrane Road. No geometric design features that would increase hazards would occur. Therefore, Access from Cochrane Roade to Anderson Dam Toe construction-related impacts associated with geometric design feature or incompatible use hazards would be less than significant.

Access from Cochrane Road to Left Bank of North Channel

Cochrane Road, from the left bank of the North Channel, would be permanently modified to construct a maintenance road. The maintenance road would be used to access the North and South Channel weirs, Coyote Creek, the outlet channels, and the North Channel habitat enhancement features (constructed as part of FOCP). A 950-foot-long, 14-foot-wide, paved driveway, located on the north (westbound) side of Cochrane Road would be used for maintenance access to the left bank of the North Channel. This driveway would include a crossing (bridge) of the South Channel.

These modifications would improve roadway conditions for maintenance activities. No geometric design features that would increase hazards would occur. Therefore, Access from Cochrane Road to Left Bank of North Channel construction-related impacts associated with geometric design feature or incompatible use hazards would be less than significant.

Repaving of Cochrane Road (US 101 to Anderson Dam)

Cochrane Road would be repaved from US 101 to the Anderson Dam entrance at Coyote Road. The repaving of Cochrane Road from US 101 to Anderson Dam would occur once installation of the communication lines is completed in Year 7. Repaving of Cochrane Road would restore the road conditions and repair damage sustained during construction. Roadway paving work would begin at the southbound exit of US 101 and continue to the dam site for a total distance of approximately 2 miles (including the 0.8-miles segment between Malaguerra Avenue and Coyote Road). The paving equipment would be transported by flatbed trailers and would be staged at designated staging areas on the dam site when not in use.

To reduce potential incompatible uses associated with construction equipment and roadway traffic, the Project would implement BMP TR-1, which would require fences, barriers, lights, flagging, guards, and signs be installed as determined appropriate by the public agency having jurisdiction (City of Morgan Hill), to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. Additionally, construction within Caltrans right-of-way near the US 101 off ramp would be required to adhere to conditions of Caltrans encroachment permits, including a traffic control plan that adheres to the standards set forth in the California MUTCD, which would ensure safe movement of vehicles through the construction area and limit incompatible uses related to construction equipment and vehicular roadway trips. Therefore, Repaving of Cochrane Road (US 101 to Anderson Dam) construction-related impacts associated with geometric design feature or incompatible use hazards would be less than significant.

Conservation Measures Construction

Ogier Ponds

Vehicular access to the Ogier Ponds would be provided from Monterey Road via its intersection with Barnhart Avenue and Ogier Avenue. These are existing public roads. Access would also be provided from US 101 and Coyote Creek Drive via a gated restricted access point. A network of rural roads surfaced with crushed rock would be installed at the staging and construction areas to allow internal vehicle and equipment movement through the Ogier Ponds area. Material hauling from the BHBA would be from Cochrane Road to Monterey Road, and from Monterey Road to Barnhart Avenue. Material stockpiling would occur at the Barnhart Avenue Stockpiling Area at the northeast corner of Barnhart Avenue and Monterey Road. These roadways would provide access to the construction staging and stockpiling areas from the paved public roads.

Construction associated with Ogier Ponds would not require a change to existing vehicular access from public roads and therefore would not result in hazards due to geometric design features. However, construction equipment has the potential to result in incompatible uses with vehicular traffic along Monterey Road, Barnhart Avenue, and Cochrane Road. Therefore, this Conservation Measure would be subject to BMP TR-1 which would require fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction (City of Morgan Hill), to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. Therefore, Ogier Ponds construction-related impacts associated with incompatible uses due to construction equipment and vehicular roadway trips would be less than significant.

Phase 2 Coyote Creek Percolation Dam

Vehicular access to the Coyote Creek Percolation Dam would be provided from Monterey Road via its intersection with Metcalf Road and internal roads at the Coyote Creek Percolation Dam site that are closed to the public. The staging area would be located at a 0.8-acre parking lot accessed from Metcalf Road.

Construction associated with Phase 2 Coyote Creek Percolation Dam would not require any changes to existing public roads or vehicular access points and therefore would not result in hazards due to geometric design features. However, construction equipment has the potential to result in incompatible uses with vehicular traffic along Monterey Road and Metcalf Road. Therefore, this Conservation Measure would be subject to BMP TR-1, which would require fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction (City of San Jose ~~Morgan Hill~~), to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. Therefore, Phase 2 Coyote Creek Percolation Dam construction-related impacts associated with incompatible uses due to construction equipment and vehicular roadway trips would be less than significant.

Sediment Augmentation Program

~~Vehicular access to the Sediment Augmentation Program staging area would be provided via Holiday Lake Drive and through in-reservoir haul roads. Sediment materials would then be transported to the Live Oak Restoration Reach or Ogier Ponds using in-reservoir access roads or public roads (Cochrane Road, Monterey Road, Barnhart Avenue).~~

Construction associated with the Sediment Augmentation Program would not require any changes to existing public roads or vehicular access points and therefore would not result in hazards due to geometric design features. However, construction equipment has the potential to result in incompatible uses with vehicular traffic along Cochrane Road, Monterey Road, and Barnhart Avenue. Therefore, this Conservation Measure would be subject to BMP TR-1, which would require fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction (City of Morgan Hill), to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. Therefore, Sediment Augmentation Program construction-related impacts associated with incompatible uses due to construction equipment and vehicular roadway trips would be less than significant.

Maintenance of the North Channel Reach ~~Extension~~

Maintenance of the North Channel Reach would generally be limited to minor and intermittent maintenance activities (e.g., vegetation management, replacement plantings, and maintenance of the wetland bench). Access to the North Channel Reach ~~Extension~~ would be via Cochrane Road. ~~and Staging Area 1 (Live Oak Picnic Area) and include a temporary bridge across the south channel. This internal access road may require removal of some group picnic facilities.Although the creation of this internal access road would be required for the North Channel Extension, it~~ Maintenance of the North Channel Reach would not extend into the public roadway. Therefore, construction associated with the North Channel Reach ~~Extension~~ would not require any changes to existing public roads or vehicular access points and therefore would not result in hazards due to geometric design features. However, construction equipment has the potential to result in incompatible uses with vehicular traffic along Cochrane Road. Therefore, this Conservation Measure would be subject to BMP TR-1, which would require fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction (City of Morgan Hill), to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. Therefore, North Channel Reach ~~Extension~~ construction-related impacts associated with incompatible uses due to construction equipment and vehicular roadway trips would be less than significant.

Operations and Maintenance

As discussed in Section 3.19.3, *Methodology and Approach to Impact Analysis*, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures would not involve changes to roadway geometric design, incline steepness, or use compatibility. In addition, Project operations and maintenance would conform to applicable County, City of Morgan Hill, and City of San José design standards for roadway, bicycle, and pedestrian facilities. Therefore, there would be no Project operational impact related to geometric design feature or incompatible use roadway hazards, and no mitigation is required.

Significance Conclusion Summary

The Project would not include any new roadway or access improvements during construction or operation that would substantially increase hazards due to a geometric design feature or incompatible use. Therefore, overall Project impacts regarding increased hazards due to a geometric design feature or incompatible use would be **less than significant.**

Mitigation Measures

No mitigation is required.

Impact TR-4: Inadequate emergency access (Less than Significant with Mitigation)

Construction

Seismic Retrofit Construction

Construction worker vehicles would increase roadway vehicle volumes on adjacent public roadways, which could impede emergency access. In addition, construction equipment and deliveries also could impede emergency access. Furthermore, a portion of Cochrane Road would be temporarily closed to through traffic for varying durations over the 7-year construction period.

The north and south haul roads would provide emergency access for the construction contractor during construction from Years 2 through 7. The north haul road (Shingle Valley Road) would provide access from US 101 to Metcalf Road to Shingle Valley Road (Private) to Stockpile Area L. ~~(associated with the Phase 2 Coyote Creek Percolation Dam).~~ The south haul road (Holiday Estates) would provide access from US 101 to Dunne Avenue to Holiday Drive to Staging Area 6 (Holiday Lake Estates Boat Ramp Parking Lot ~~Boat Marina~~). During the initial construction period of the north and south haul roads (Year 1), emergency access may be impeded. Cochrane Road would remain accessible to emergency vehicles during the full and partial closures to the public. Temporary access roads would be private roadways and would not impact an emergency access route as compared to existing conditions; still, one-way access roads would be up to 30-feet wide with turnouts, and two-way access roads would be up to 60-feet wide with turnouts and would accommodate emergency vehicle access, in compliance with California Fire Code requirements for fire apparatus access roads. Permanent roadway modifications on Coyote Road and Cochrane Road would improve roadway conditions, construction access, public access, and public safety. These modifications would also improve emergency access. Repaving of Cochrane Road would be phased by closing one side of Cochrane Road at a time to avoid closures and would not impact emergency access.

Emergency access to the Project Area for emergency services included in Section 3.17, *Public Services*, would be maintained as required under BMP TR-1. In addition, as discussed in Section 3.10, *Hazards and Hazardous Materials*, and Section 3.17, *Public Services*, although roadway vehicle impacts would be reduced through implementation of BMP TR-1, a significant impact to emergency access due to delayed response times would remain. Implementation of **Mitigation Measure PS-1** will further reduce impacts on emergency response and emergency access by requiring the preparation and implementation of a ~~Construction~~ Traffic Management Plan and coordination with local and State agencies, including fire protection services and first responders. In addition, as discussed in Section 3.22, *Wildfire*, **Mitigation Measure WF-1** will ~~minimize the impact of closure of an identified temporary refuge area (Woodchopper's Flat Picnic Area) by requiring~~ require coordination with local and State emergency response and fire agencies and preparation of a Response and Evacuation Strategy (RES) such to maintain adequate emergency response and evacuation routes throughout construction of the Project in locations where Project construction substantially interferes with emergency access and evacuation ~~identify an alternative temporary refuge area or provide emergency access~~ during construction of the Seismic Retrofit components in the event of a wildfire.

With implementation of the identified mitigation measures, Seismic Retrofit construction impacts related to emergency access adequacy would be less than significant with mitigation.

Conservation Measures Construction

Construction of Ogier Ponds, Phase 2 Coyote Creek Percolation Dam, the Sediment Augmentation Program, and Maintenance of the North Channel ~~Extension~~ Reach Conservation Measures would not require any changes to public roads or vehicular access points. Similar to the discussion above, emergency access may be impeded by construction activity, specifically along roadways discussed in Section 2.6, *Conservation Measures Construction*, including but not limited to Monterey Road, Barnhart Avenue, Ogier Road and Cochrane Road. During construction activities, emergency access will be provided in accordance with BMP TR-1 and **Mitigation Measures PS-1** and **WF-1**. Therefore, Conservation Measures construction impacts related to emergency access adequacy would be less than significant with mitigation.

Operations and Maintenance

As discussed in Section 3.19.3, *Methodology and Approach to Impact Analysis*, post-construction operations and maintenance of the Anderson Dam Facilities and Conservation Measures would not involve changes related to roadway closures, ingress/egress closures or reduction, or fire apparatus access roads not meeting the California Fire Code requirements. Therefore, there would be no Project operational impact related to emergency access adequacy, and no mitigation is required.

Significance Conclusion Summary

While there would be no operational impacts related to inadequate emergency access, the Project would generate additional construction roadway vehicle trips and include road closures that have the potential to impede emergency access. However, the inclusion of temporary roadways and the haul roads would provide additional ingress/egress for emergency vehicles. Although roadway vehicle impacts would be reduced through implementation of BMP TR-1, a significant impact to emergency access due to delayed response times would remain. **Mitigation Measures PS-1** and **WF-1** will provide for continued emergency access during construction, so that emergency access impacts would be less than significant. Therefore, overall Project impacts related to emergency access adequacy during construction would be **less than significant with mitigation**.

Mitigation Measures

PS-1 Prepare and Implement ~~Construction~~ Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy ~~Emergency Action Plan~~

3.19.5 Cumulative Impacts

The cumulative impact geographic study area for transportation includes the local and regional roadways, transit, pedestrian, and bicycle facilities in Morgan Hill, San José, and unincorporated Santa Clara County.

The approach to the cumulative impacts analysis and list of foreseeable future projects, programs, and plans considered in the cumulative impact analysis is included in Section 3.0.5, *Approach to Cumulative Impacts*.

This section describes the Project's contribution to cumulative transportation impacts, as summarized in **Table 3.19-1**. Cumulative impact thresholds for transportation are the same as the impact thresholds presented in Section 3.19.3.8, *Thresholds of Significance*.

Table 3.19-1. Summary of Project Impact Contribution to Cumulative Transportation Impacts

Impact	Significant Cumulative Impact with FOCP?	Significant Cumulative Impact with other Projects?	Incremental Project Contribution	Applicable Project Mitigations	Cumulatively Considerable after Mitigation?
Cumulative Impact TR-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities	No	Yes	CC	MM Rec-1 MM PS-1	No
Cumulative Impact TR-2: Conflict with or be inconsistent with *CEQA Guidelines* section 15064.3, subdivision (b)	No	No	NCC	N/A	No
Cumulative Impact TR-3: Substantially increase hazards due to a geometric design feature or incompatible use	No	No	NCC	N/A	No
Cumulative Impact TR-4: Inadequate emergency access	No	Yes	CC	MM PS-1 MM WF-1	No

Key: CC = cumulatively considerable; MM = Mitigation Measure; N/A = not applicable; NCC = not cumulatively considerable

Cumulative Impact TR-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities (Not Cumulatively Considerable)

Cumulative Effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; therefore, these two projects would not result in cumulative impacts related to program, plan, ordinance or policy addressing the circulation system. There would be no cumulative effect.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur within the transportation study area. Construction or operation of future projects, programs, and plans could overlap with the 15-year construction schedule during which the Seismic Retrofit construction and Conservation Measures construction would occur. Construction of the Project would generally not conflict with plans or policies addressing the circulation system with implementation of BMP TR-1, which would be reduced by **Mitigation Measure PS-1.** However, modified flows expected in Coyote Creek during Seismic Retrofit construction would result in impacts to recreational facilities that are used by pedestrians and bicyclists. This would be a significant impact on pedestrian facilities. **Mitigation Measure REC-1** would reduce impacts on pedestrian facilities and prevent substantial conflicts with trails plans and policies. Seismic Retrofit component construction impacts would therefore be less than significant with mitigation.

In combination with construction or operation occurring at the same time from probable future projects, plans, and programs, Project construction would generally not further conflict with circulation system plans or policies discussed under Impact TR-1. However, probable future projects could contribute to additional impacts on pedestrian facilities affected by modified Coyote Creek ~~Cerek~~ flows during construction. Therefore, the cumulative impact on pedestrian and bicycle facilities resulting from the Project in combination with other probable future projects would be significant, the Project's contribution would be cumulatively considerable pre-mitigation, but not cumulatively considerable post-mitigation after implementation of **Mitigation Measure REC-1**.

Significance Conclusion Summary

Valley Water would generally reduce the Project's incremental contribution to cumulative impacts on plans and policies addressing the circulation system through implementation of BMP TR-1, and the incremental impact would be further reduced by **Mitigation Measure PS-1**. However, the cumulative impact on pedestrian facilities resulting from Seismic Retrofit construction in combination with other probable future projects would be significant, the Project's contribution would be cumulatively considerable pre-mitigation, but not cumulatively considerable post-mitigation after implementation of **Mitigation Measure REC-1**. With implementation of this mitigation measure Project construction would not conflict with applicable circulation system plans or policies, and the Project's contribution to cumulative impacts is **not cumulatively considerable**.

Mitigation Measures

REC-1 ~~Maintenance Reimbursement for~~ Funding and Implementation of Park Facility Improvements within the Coyote Creek Corridor ~~Closures During High Flow Events.~~

PS-1 Prepare and Implement ~~Construction~~ Traffic Management Plan

***Cumulative Impact TR-2: Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)* (Not Cumulatively Considerable)**

Cumulative effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; therefore, these two projects would not result in cumulative impacts related to VMT. There would be no cumulative effect.

Cumulative effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur within the transportation study area. Construction or operation of future projects, programs, and plans could overlap with the 15-year construction schedule that Seismic Retrofit components and Conservation Measures construction would occur. Cumulative development would generate VMT, which contributes to overall regional and local VMT. Projects that fall below applicable local and regional VMT thresholds are considered to have a less-than-significant impact. Given the land use pattern and scope of cumulative projects in the geographic study area, it is likely that VMT from other projects may increase substantially during the construction period. However, the VMT associated with the Project construction would be temporary and not contribute to a substantial change in long-term VMT, and the Project would therefore be not conflict with and be consistent with *CEQA Guidelines* section 15064.3(b), resulting in a less-than-significant impact. Therefore, the Project would not contribute to a significant cumulative impact on VMT that would conflict or be inconsistent with *CEQA Guidelines* section 15064.3(b), and the Project's contribution would not be cumulatively considerable.

Because a primary goal of VMT reduction is to reduce air quality and lessen GHG emissions, further information on how construction VMT impacts of the Project contributes to cumulative air quality and GHG emissions is presented in Section 3.3, *Air Quality*, and 3.10, *Greenhouse Gas Emissions*.

Significance Conclusion Summary

Construction of the Project would not cause VMT impacts that would conflict or be inconsistent with *CEQA Guidelines* section 15064.3(b). The Project's contribution to cumulative impacts on VMT is **not cumulatively considerable.**

Mitigation Measures

No mitigation would be required.

Cumulative Impact TR-3: Substantially increase hazards due to a geometric design feature or incompatible use (Not Cumulatively Considerable)

Cumulative effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; therefore, these two projects would not result in cumulative impacts related to an increase in hazards. There would be no cumulative effect.

Cumulative effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur within the transportation study area. Construction or operation of future projects, programs, and plans could overlap with the 15-year construction schedule that Seismic Retrofit components and Conservation Measures construction would occur. Construction of the Project would not substantially increase hazards due to a geometric design feature or incompatible use. In combination with construction or operation occurring at the same time from probable future projects, plans, and programs, Project construction would not create significant cumulative impacts. The Project's contribution would not be cumulatively considerable.

Significance Conclusion Summary

Construction of the Seismic Retrofit components and Conservation Measures would not substantially increase hazards. The Project's contribution to cumulative impacts is **not cumulatively considerable.**

Mitigation Measures

No mitigation would be required.

Cumulative Impact TR-4: Inadequate emergency access (Not Cumulatively Considerable)

Cumulative Effects of Project with the FOCP

The FOCP would be completed before construction activities for the Project begin; therefore, these two projects would not result in cumulative impacts related to emergency access. There would be no cumulative effect.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the other reasonably foreseeable future projects identified in Section 3.0.5, *Approach to Cumulative Impacts*, would occur within the transportation study area. Construction or operation of future projects, programs, and plans could overlap with the 15-year construction schedule that Seismic Retrofit components and Conservation Measures construction would occur. Construction of the Project could create significant emergency access impacts even with implementation of BMP TR-1, but **Mitigation Measures PS-1 and WF-1** would reduce the Project's impacts to less than significant levels. In combination with construction or operation occurring at the same time from probable future projects, plans, and programs in the Project vicinity, emergency access cumulative impacts would be significant, and the Project's contribution to these impacts would be cumulatively considerable pre-mitigation, but not cumulatively considerable post-mitigation.

Significance Conclusion Summary

Valley Water would reduce the Project's incremental contribution to cumulative impacts on inadequate emergency access through implementation of **Mitigation Measures PS-1** and **WF-1**. With implementation, construction of the Project would not create inadequate emergency access. The Project's contribution to cumulative emergency access impacts is **not cumulatively considerable**.

Mitigation Measures

PS-1 Prepare and Implement ~~Construction~~ Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy ~~Emergency Action Plan~~

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3.20 Tribal Cultural Resources

This section describes the impacts of the Project on tribal cultural resources. Tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe. CEQA requires that agencies considering projects that are subject to discretionary action consider the impacts on tribal cultural resources that may occur from project implementation (see Section 21084.2 and Appendix G of the *CEQA Guidelines*).

This section describes existing tribal cultural resources conditions within the Seismic Retrofit component and the Conservation Measures component areas based on the existing conditions at the time of Draft EIR preparation modified by the FOCP implementation. Project construction analyses are based on this baseline. However, the analyses for Project operations are based on the Pre-FERC Order Conditions Baseline. Significant adverse impacts that could result from Project implementation are described, and mitigation measures to reduce these impacts to less-than-significant levels are identified, as appropriate.

This section relies on the information and findings presented in a series of cultural resources technical reports (see Section 3.20.1 for additional details). These reports detail the methods and results of the cultural resources studies for the Project and associated environmental, ethnographic, and historic background of the Project study area, emphasizing aspects of human occupation. These reports contain information regarding indigenous archaeological resources that may also qualify as tribal cultural resources. Due to the confidential nature of archaeological site locations, as regulated by applicable state regulations (California Government Code Section 6250 et seq. and Section 6254 et seq. [implementing regulations of the California Public Records Act of 2016]), these reports are provided in ~~a~~ confidential Appendix H ~~appendix~~. This confidential appendix is available to qualified individuals upon request to Valley Water.

Study Area for Tribal Cultural Resources

The tribal cultural resources study area for the Project is designed to include all elements of Project construction and operations, and to encompass all tribal cultural resources that could be impacted by the Project. The study area is comparable to that for cultural resources shown in **Figure 3.6-1**. For the purposes of this impact analysis, the study area has been broken down into two regions based upon Project impacts: the Seismic Retrofit study area and the Conservation Measures study area. The Conservation Measures study area has been further split according to each Conservation Measure: Ogier Ponds Geomorphic and Habitat Enhancement (Ogier Ponds CM), Phase 2 Coyote Percolation Dam Fish Passage Enhancements (Phase 2 Coyote Percolation Dam CM), and the Maintenance of the North Channel Reach ~~Extension~~.

The Maintenance Activities at Live Oak Restoration Reach and Sediment Augmentation Program, and subsequent adaptive management actions, are not included in the tribal cultural resources study area, nor in the analysis for tribal cultural resources, as the actions would be contained within portions of Coyote Creek that would be covered under other Project elements. The quarries for sediment, haul roads, and staging areas that would be used to implement the Maintenance Activities at the Live Oak Restoration Reach and Sediment Augmentation Program would also be used for both the construction of the Seismic Retrofit component and the

Conservation Measures. Therefore, the use of those quarries and haul roads will be analyzed under the relevant Project components.

The study area for the Seismic Retrofit component covers approximately 1,530 acres, including the reservoir pool, the Anderson Dam, and those portions of the Project Area below the dam, as shown in **Figure 3.6-1** and described in Section 3.6.1. The study areas acreages associated with individual Conservation Measures include approximately 398 ~~432~~ acres for the Ogier Ponds CM (including the staging area), 2 acres for Maintenance of the North Channel Reach ~~Extension~~, and approximately 8 acres for the Phase 2 Coyote Percolation Dam CM.

3.20.1 Environmental Setting

This section describes the methods and results of the cultural resources records search and literature review, pedestrian survey, and Native American consultation used to gather data about the tribal cultural resources identified within the Project Area. These data are fundamental to the analyses undertaken to evaluate the Project's potential to impact tribal cultural resources. Information provided in this section is derived or taken directly from the following technical reports prepared ~~by Far Western Anthropological Research Group (Far Western)~~ in support of the Project (note, all of these are provided in the confidential Appendix H):

- Buonasera, T., S. L. Izzi, and B. Siskin. 2022. Final Archaeological Survey and Initial Site Monitoring for the Anderson Dam Drawdown to Deadpool Project, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California.
- Izzi, S. L., and B. Siskin. 2023. Archaeological Resources Inventory for the Anderson Dam Seismic Retrofit Project Conservation Measures, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California.
- Scher, N., D. Hyde, and J. Rosenthal. 2022. National and California Register Evaluations of Nine Archaeological Sites for the Anderson Dam Seismic Retrofit Project, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California.
- Scher, N., and S. L. Izzi. 2017. Supplemental Archaeological Survey Report for the Anderson Dam Seismic Retrofit Project, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California.
- Scher, N., P. Mikkelsen, and J. Berg. 2014. Cultural Resources Study for the Anderson Dam Seismic Retrofit Project, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California.
- Scher, N., and A. Younie. 2020. Initial Archaeological Study for the Anderson Dam Seismic Retrofit Project, Santa Clara County, California. Report on file with the Santa Clara Valley Water District, San José, California.
- Rincon Consultants, Inc. 2024. Cultural Resources Study for the Live Oak Restoration Reach Project. Report on file with the Santa Clara Valley Water District, San José, California.

The Project Area is in the ancestral territory of the Ohlone/Costanoan peoples. The Ohlone occupied a large geographic area, which extended along the Pacific Coast from south of Monterey Bay north to the tip of the San Francisco Peninsula, and inland to include the eastern shore of the San Francisco Bay and into the Coast Ranges. The Project Area is located at the boundary of two language groups, the San Francisco Bay Costanoan and Awaswas, and is in the ancestral territory of the Auxentac and Matalan Ohlone. Additional information on the Ohlone is provided in Section 3.6.2.1. Modern-day Ohlone/Costanoans are represented by a number of Tribes within the larger Ohlone/Costanoan ancestral territory. Valley Water reached out to and consulted with Tribes in the study area, as discussed below.

3.20.1.1 Native American Consultation

Valley Water sent an email request to the California NAHC on March 22, 2018, to review its files for the presence of recorded sacred sites within the Project study area. The NAHC responded on April 10, 2018, stating that their search indicated that there were no Native American sacred sites identified in the immediate Project vicinity. They also provided a list of six Native American contacts with a traditional and cultural affiliation to the study area who may have knowledge of, or concerns about, cultural resources that could be affected by the Project.

The Project NOP (of an EIR) was filed in August 2013, two years before AB 52 was applicable to new projects. As a result, Valley Water did not send Project notification letters to, or enter into formal consultation with, California Native American Tribes pursuant to AB 52 (PRC Section 21080.3.1). However, Valley Water engaged the Tribes identified by the NAHC in informal consultation in accordance with the procedures included in with the same intent as AB 52. Valley Water sent letters via U.S. Postal Service to each Native American contact on the NAHC list on April 20, 2018, requesting their input on the Project. Valley Water also followed up by email on April 23, 2018. Subsequent phone calls were made by Far Western in May 2018. The contacted Tribes were:

- 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 SF Bay Area
- North Valley Yokuts Tribe
- Ohlone Indian Tribe

The Amah Mutsun Tribal Band of Mission San Juan Bautista, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, and North Valley Yokuts Tribe requested to be kept informed of the Project and stated that a Native American monitor should be present for subsurface investigations. The Indian Canyon Mutsun Band of Costanoan similarly recommended that any earth-moving activities have both a Native American and archaeological monitor present and requested to be kept informed. Valley Water has continually kept these Tribes up to date by providing copies of all documents pertaining to Native American archaeological resources and including Tribal representatives during archaeological excavations (Buonasera et. al. 2022, Scher and Younie 2020). Furthermore, as described in **Mitigation Measure CR-2** in Section 3.6, Tribal monitors will be retained for any subsequent archaeological excavations and for Project ground-disturbing activities in sensitive areas.

Andrew Galvan of the Ohlone Indian Tribe noted that the Project is located in an important area with known burials nearby, and that he was acting as the Most Likely Descendant for a separate project south of Cochrane Road. Valley Water and Mr. Galvan held an in-field meeting on June

20, 2018, and Mr. Galvan recommended minimizing ground disturbance to prevent future Project delays, including avoiding digging up existing pavement in the area downstream of the dam. He also requested a pedestrian survey of Coyote Creek to look for remains that may have been exposed after scouring high flows that occurred in February 2017. Mr. Galvan's recommendations were followed during cultural resource studies completed in 2019 (Scher and Younie 2020).

Chairperson Lopez of the Amah Mutsun Tribal Band requested Tribal involvement, which led to an in-field meeting on July 5, 2018, between Valley Water and Chairperson Lopez. Valley Water continued discussions with Chairperson Lopez and entered into an agreement with the Amah Mutsun Tribal Band in May 2019 for monitoring services during Far Western's subsurface testing that was described in Section 3.6.2.2. Tribal monitors were also present during the NRHP/CRHR evaluation studies conducted at archaeological sites in Anderson Reservoir in 2020 (Scher et al. 2022).

In preparation for studies of the Conservation Measure components, a second request was made to the NAHC on September 6, 2022, for a search of the sacred lands files and for an updated list of Tribal contacts who are affiliated with the area of the Conservation Measure components. The response from the NAHC on October 11, 2022, indicated that no sacred sites had previously been recorded in the areas of the proposed Conservation Measure components. The NAHC list of Tribes associated with the area included those listed above (though some of the contact names had changed) in addition to the following two others:

- Tamien Nation
- Wuksache Indian Tribe/Eshom Valley Band

On behalf of Valley Water, Far Western sent letters to each of the individuals on the updated NAHC contact list on November 8, 2022. The letters provided a detailed explanation of each of the Conservation Measures components and invited the Tribes to provide comments or express concerns about potential impacts to tribal resources. No responses have been received from the contacted Tribes as of the time of the EIR publication.

<u>Rincon contacted the NAHC on May 29, 2024 and July 24, 2024, to request a Sacred Lands File (SLF) search for the staging areas. On July 9 and August 7, 2024, the NAHC responded stating the results of the SLF search were negative.</u>

3.20.1.2 Identified Tribal Cultural Resources

PRC Section 21074(a)(1) defines tribal cultural resources as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that meet certain criteria. As noted below in Section 3.20.3.2, the criteria for recognition as a tribal cultural resource include formal listing in the CRHR or a local historical register. A lead agency may also apply the CRHR eligibility criteria, supported by substantial evidence, and use its discretion to determine that a resource is a tribal cultural resource.

Previous work undertaken by Valley Water in the region, including the Pacheco Reservoir Expansion Project, has found that the Ohlone are unified in their desire to preserve those elements of the traditional Ohlone lifeway still visible on the landscape, such as archaeological deposits from villages and camps, spiritual and ceremonial locales, and particularly, burial sites (Milliken et al. 2009, Reddy 2021).

Other kinds of resources of cultural significance to the Ohlone include sites that contain cupules (circular indentations) or linear grooves carved into rock outcrops (Hector 2009), which are associated with a spiritual or ceremonial purpose for California indigenous populations. Pictographs, which are painted images on rock, have a similar association. Dance houses and sweat lodges, where spiritual or ceremonial activities took place, are also important representations of that aspect of Ohlone culture. These kinds of sites with sacred elements are considered to be tribal cultural resources eligible for listing in the NRHP/CRHR for the purposes of this EIR; however, none of these resource types have been identified in the Project area, and therefore impacts to these resources are not evaluated in the EIR.

Anderson Lake occupies portions of the watersheds of Coyote and Animas creeks. Watersheds can sometimes be viewed as tribal cultural landscapes that contain a variety of resource types that reflect aspects of Native American lifeways, such as villages and camps, and spiritual and ceremonial locales. Alternately, a watershed may reflect a landscape that is the focus of a particular resource procurement activities, such as containing oak groves maintained by tribal groups or fisheries. However, landscapes must maintain integrity, which is defined by 14 CCR Section 24 4852(c) as having the ability to convey the authenticity of its physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Because the filling of Anderson Lake has diminished the integrity of this portion of the watershed by eliminating vegetation and covering cultural sites with water, it can no longer invoke the original qualities that might contribute to the identification of a tribal cultural landscape. Nevertheless, a Tribe may have different criteria for identifying a landscape as significant; however, consulting Tribes did not identify the area of Anderson Lake, or any other areas within the Project Area, as a tribal cultural landscape and, therefore, this resource type in not further evaluated in the EIR.

The results of the NWIC record searches[1] (see Section 3.6.2.2) and discussions with contacted Tribes identified the potential presence of human burials within the Project study areas. Because consulting Tribes have voiced concern about sites with human remains, such resources may be eligible for inclusion in the NRHP and CRHR for the purposes of this EIR and, therefore, meet the criteria for tribal cultural resources pursuant to PRC Section 21074(a)(1)(A). Sites with midden deposits (soils rich in organics from human occupation), which generally reflect habitation of long or repetitive periods of time, often, but not always, have a greater potential for human remains. Because of the potential to contain human burials, sites with midden deposits are considered tribal cultural resources for the purposes of this EIR.

Individual Tribes that were contacted did not identify any specific tribal cultural resources within the study areas, other than the previously mentioned potential for human remains. However, based on the cultural resources studies that have been conducted over the years for the Project, there are numerous archaeological sites within the Seismic Retrofit and Conservation Measures components areas that meet the criteria of tribal cultural resources for the purposes of this EIR. There are also additional sites that have the potential to meet those criteria, but those sites have not yet been thoroughly studied (i.e., evaluated for NRHP/CRHR-eligibility) and may reveal

[1] The NWIC record search identified site P-43-000364/CA-SCL-00358, a site that contained human burials, as being within the Seismic Retrofit Project Area downstream of Anderson Dam. As reported in Section 3.6, *Cultural Resources*, the site was not relocated in the Project Area during the pedestrian survey, nor during subsurface archaeological exploratory trenching. Because no pre-contact materials were identified in the Seismic Retrofit Project Area, the boundary of P-43-000364 was redrawn to restrict the site to the south of Cochrane Road and outside of the Project limits. Because the site was determined to be outside of the Project Area, it has been eliminated from further discussion in the EIR.

the presence of midden or human remains. Furthermore, even if these sites do not contain midden deposits or human remains, they may reveal other qualities that would qualify them as tribal cultural resources. Valley Water has, therefore, used its discretion to determine that previously unevaluated Native American pre-contact archaeological sites are considered tribal cultural resources for the purposes of this EIR. All recorded archaeological sites within the Project Area are listed in **Tables 3.6-3** and **3.6-4** in Section 3.6. The 11 resources that meet the criteria for tribal cultural resources, as defined for this EIR are presented in **Table 3.20-1** and discussed below.

Table 3.20-1. Archaeological Sites Treated as Tribal Cultural Resources in the Project Area

Resource Identifier	Description	NRHP/CRHR Eligibility*	Location	Comments/Potential Impacts
Seismic Retrofit Component Study Area				
P-43-001090	Multi-component; lithic scatter, water trough	Not Eval	Reservoir inundation area, in construction zone	In construction zone, within stockpile area . Reservoir fluctuation during Project operations.
P-43-001094	Multi-component Ground and flaked stone scatter, midden, sparse historic-era refuse	E**	Reservoir inundation, outside of construction zone	Not in construction zone. Reservoir fluctuation during Project operations.
P-43-004083	Pre-contact midden, lithic scatter, human remains	E	Reservoir inundation, outside of construction zone	Not in construction zone. Reservoir fluctuation during Project operations.
P-43-004085	Multi-component Midden/lithic scatter/human remains/ranching	E	Reservoir inundation, in construction zone	In construction zone, adjacent to stockpile area. Reservoir fluctuation during Project operations.
AD-2022-03	Multi-component; Historic-era and Pre-contact artifacts; may be the Pomeroy Adobe	Not Eval	Reservoir inundation, in construction zone	In construction zone, within stockpile area. Reservoir fluctuation during Project operations. May be the Pomeroy Adobe.
AD-2022-04	Pre-contact quarry	Not Eval	Reservoir inundation, outside of	Not in construction zone. Reservoir fluctuation during Project operations.

Resource Identifier	Description	NRHP/CRHR Eligibility*	Location	Comments/Potential Impacts
			construction zone	
AD-2022-05	Pre-contact; ground stone and flaked lithics	Not Eval	Reservoir inundation, in construction zone	In construction zone. Reservoir fluctuation during Project operations.
AD-2022-06	Pre-contact quarry	Not Eval	Reservoir inundation, in construction zone	In construction zone, slight overlap of stockpile area. Reservoir fluctuation during Project operations.
Conservation Measures Component Study Area				
P-43-000176	Multi-component	Not eval	Ogier Ponds	Development of floodplain along Coyote Creek
P-43-001001	Pre-contact	Not eval	Ogier Ponds	In Conservation Measure footprint but no impacts identified
P-43-000189	Pre-contact with human remains	E	Coyote Percolation Dam	Under access road

Source: Buonasera et al. 2022, Izzi and Siskin 2023, Scher and Younie 2020

**Sites that have not been evaluated are assumed to be NRHP/CRHR-eligible and are treated as tribal cultural resources in this EIR.*

*** Site P-43-001094 was originally evaluated as not eligible, but the 2022 study (Buonasera et al. 2022) suggests evaluation should be reconsidered due to discovery of midden deposit.*

Seismic Retrofit Study Area

Eight pre-contact archaeological sites (P-43-001090, P-43-001094, P-43-004083, P-43-004085, AD-2022-03, AD-2022-04, AD-2022-05, AD-2022-06) within the Seismic Retrofit component area are considered tribal cultural resources for the purposes of this EIR. All of them are within the reservoir inundation area, and five of them (P-43-001090, P-43-004085, AD-2022-03, AD-2022-05, AD-2022-06) are also in or near construction areas.

Three pre-contact archaeological sites with midden deposits (P-43-001094, P-43-004083, P-43-004085) are located within the reservoir inundation area. Two of the sites (P-43-001094, P-43-004083) are outside of the construction area for the Seismic Retrofit component; the third (P-43-004085) is within the construction area. All three sites are in the Seismic Retrofit operations inundation zone. Each site was evaluated for NRHP/CRHR-eligibility (Scher et al. 2022). Human remains were identified at two of the sites (P-43-004083, P-43-004085) and, thus, the sites were recommended eligible, while the third site (P-43-001094) was recommended not eligible. However, P-43-001094 was later revisited and a midden deposit discovered, which suggests that the site could be considered an eligible resource (Buonasera et al. 2022). As a result, the three sites are all considered tribal cultural resources for the purpose of this EIR.

Three pre-contact archaeological sites (AD-2022-04, AD-2022-05, AD-2022-06) and two multi-component sites (P-43-001090, AD-2022-03) within the reservoir inundation area have not yet been evaluated for NRHP/CRHR-eligibility. None of these sites were observed to contain midden deposits or human remains, but they contain flaked-stone and ground-stone artifacts, or quarry materials. While these sites do not appear to be tribal cultural resources (i.e., they do not contain midden or human remains), they may contain other elements that would be considered significant, and until the sites are evaluated, they are assumed eligible for the NRHP/CRHR and treated as tribal cultural resources for the purpose of this EIR.

Conservation Measures Study Areas

Two previously recorded archaeological sites within the study area for the Ogier Ponds CM have the potential to be tribal cultural resources. One site, P-43-000176, is a multi-component site and contains both pre-contact and historic-era materials; recorded pre-contact artifacts are limited to several shell fragments and one flake of an undetermined material. The second resource, P-43-001001, is a pre-contact site that contains a flake scatter and midden deposit. Neither site has been evaluated for NRHP/CRHR-eligibility (Izzi and Siskin 2023 ~~2022~~). Because the nature of P-43-000176 is largely unknown and P-43-001001 contains a midden deposit, both sites are considered tribal cultural resources for the purpose of this EIR.

Two pre-contact archaeological sites, P-43-000189 and P-43-001814, the former a large occupation site with human remains, had previously been recorded within the Phase 2 Coyote Percolation Dam CM study area. P-43-000189 contained human remains, was previously determined eligible for listing in the NRHP/CRHR and is considered a tribal cultural resource for the purpose of this EIR. The site is primarily beneath US 101. A pedestrian archaeological survey of the Phase 2 Coyote Percolation Dam~~e~~ CM area did not reveal the presence of cultural materials at the recorded site location (Izzi and Siskin 2023 ~~2022~~). Materials recorded at P-43-001814 included a scatter of stone tools and flakes from tool manufacture, but there was no evidence of the site during the cultural pedestrian survey. Although P-43-001814 has not been formally evaluated for NRHP/CRHR, data from the NWIC record search indicated the site was thoroughly destroyed by previous excavation of one of the ponds within the Ogier Ponds CM. Because human remains or midden were not previously recorded at site P-43-001814, and because it has been completely destroyed by various ground-disturbing activities, it is assumed to be not eligible for the NRHP/CRHR and is not considered a tribal cultural resource under this EIR.

No cultural resources were identified within the Maintenance of the North Channel Reach ~~Extension~~ area, either by the records searches or through pedestrian survey; therefore, there are no known tribal cultural resources associated with this Conservation Measure.

3.20.2 Regulatory Setting

3.20.2.1 Federal Laws, Regulations, and Policies

National Historic Preservation Act

Federal law does not address tribal cultural resources, as these resources are defined in the PRC. However, similar resources, called traditional cultural places (TCP), fall under the purview of Section 106 of the NHPA, as described in Section 3.6, *Cultural Resources*. TCPs are locations of cultural value that are historic properties (i.e., eligible for listing in the NRHP). A place of cultural value is eligible as a TCP "because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (National Park Service 2022). A TCP must be a tangible property, meaning that it must be a place with a referenced location, and it must have been continually a part of the community's cultural practices and beliefs for the past 50 years or more. Unlike tribal cultural resources, TCPs can be associated with communities other than Native American Tribes, although the resources are often associated with Tribes. By definition, TCPs are historic properties; that is, they meet the eligibility criteria as a historic property for listing in the NRHP. Therefore, as historic properties, TCPs must be treated by federal agencies according to the NHPA implementing regulations found under Title 36 CFR Part 800, as amended in 2001.

3.20.2.2 State Laws, Regulations, and Policies

Assembly Bill 52

AB 52 (Statutes of 2014, Chapter 532) applies to all projects that file an NOP or notice of a Negative Declaration on or after July 1, 2015. The bill requires that a lead agency begin consultation with a California Native American Tribe if that Tribe has requested, in writing, to be kept informed of proposed projects by the lead agency, prior to the determination whether a Negative Declaration or EIR will be prepared. The bill also specifies mitigation measures that may be considered to avoid or minimize impacts to tribal cultural resources.

AB 52 focuses on the identification and protection of "tribal cultural resources." PRC Section 21074 defines "Tribal Cultural Resources" as:

(a)(1) Sites, features, places, cultural landscapes, 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; or
- (B) Included in a local register of historical resources as defined in subdivision(k) of Section 5020.1.

(a)(2) 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.

Tribal cultural resources are further defined under PRC Section 21074 as follows:

(b) A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and,

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Formal AB 52 tribal consultation for this EIR was not required because Valley Water filed the Project NOP in August 2013. However, as documented in this section, Valley Water has consulted with Tribes that may be affected by the Project, consistent with CEQA requirements. The impact analysis considers whether implementation of the Project would result in significant impacts to tribal cultural resources pursuant to the applicable significance criteria in Appendix G of the *CEQA Guidelines*.

California Health and Safety Code Section 7070.5 and Public Resources Code Section 5097.98

These laws, which govern the discovery of human remains, including procedures for Native American human remains, are described in Section 3.6, *Cultural Resources*.

3.20.2.3 Local Laws, Regulations, and Policies

None of the local agencies associated with the Project (County, City of Morgan Hill, City of San José) have laws, regulations, or policies that specifically address tribal cultural resources. However, both the City of Morgan Hill and the City of San José require work stoppage if human burials are encountered during construction and provide protocols for addressing archaeological resources. Local regulations pertaining to archaeological resources and human remains for the County, City of Morgan Hill, and City of San José are listed in Section 3.6.3.3, *Local Regulations* of Chapter 3.6, *Cultural Resources*.

3.20.3 Methodology and Approach to Impact Analysis

The impact analysis considers whether implementation of the Project would result in significant impacts to tribal cultural resources pursuant to the applicable significance criteria in Appendix G of the *CEQA Guidelines* (see Section 3.20.3.2). Specifically, the impact analysis considers the effects of Seismic Retrofit Project construction, as well as the effects of Seismic Retrofit Project post-construction operations and maintenance. The analysis also considers the effects of Conservation Measures incorporated into the Project, including both construction and post-construction operations and maintenance. As described in Section 3.0, the baseline for evaluating Seismic Retrofit and Conservation Measures construction is the existing conditions at the time of the EIR preparation modified by the FOCP implementation. However, for both the Seismic Retrofit and the Conservation Measures components, the baselines for evaluating post-construction operations and maintenance effects include the Pre-FERC Order Conditions Baseline (based on the 2015 WEAP model) which is also described in Section 3.0.

Construction monitoring impacts are not analyzed, as monitoring is focused on water temperature and quality, groundwater, fisheries, and various other biological species, as discussed in Chapter 2, *Project Description*. Such activities would not cause any ground disturbance or result in direct or indirect adverse impacts to tribal cultural resources under baseline conditions.

Similarly, adaptive management strategies under the FAHCE program are not analyzed, because resources subject to adaptive management are within Coyote Creek and such strategies would largely comprise non-ground-disturbing activities or would be in areas analyzed for other Project components. Geoarchaeological studies (Scher and Younie 2020) for the Project indicated that areas along Coyote Creek where these Conservation Measures would be implemented are not sensitive for buried cultural resources, which could potentially qualify as tribal cultural resources; however, should unknown archaeological materials (which may qualify as tribal cultural resources) be uncovered during Conservation Measures components implementation, these would be addressed according to mitigation measures included herein. Should the results of future adaptive management studies lead to infrastructure improvements, these improvements could require additional CEQA assessment and other regulatory approvals, and additional tribal cultural resources studies and coordination with California Native American Tribes would take place at that time, as necessary.

3.20.3.1 Seismic Retrofit Component Construction

This impact analysis considers the potential for construction of the Seismic Retrofit component to have significant adverse impacts to tribal cultural resources. The location and nature of Seismic Retrofit construction activities are considered in the context of known tribal cultural resources and the potential for discovering buried resources that could be tribal cultural resources. The potential for Seismic Retrofit component construction to result in significant impacts to tribal cultural resources is evaluated.

3.20.3.2 Conservation Measures Component Construction

This impact analysis considers the potential for construction of the Conservation Measures component to cause significant adverse impacts to tribal cultural resources. The location and nature of Conservation Measures construction activities are considered in the context of known tribal cultural resources and the potential to discover buried tribal cultural resources. The potential for Conservation Measures construction to result in significant impacts to tribal cultural resources is evaluated. Conservation Measures requiring construction activities that are evaluated in the impact analysis include:

- Ogier Ponds CM
- <u>Maintenance of the</u> North Channel <u>Reach</u> ~~Extension~~
- Phase 2 Coyote Percolation Dam CM

The Maintenance Activities at Live Oak Restoration Reach and Sediment Augmentation Program are not analyzed as these activities would be contained within Coyote Creek and would not include any ground disturbance that could impact tribal cultural resources. Adaptive management actions identified under the FAHCE program are also not addressed as they would not result in any ground-disturbing activities that could impact tribal cultural resources. Should the results of future adaptive management actions lead to infrastructure improvements that require additional CEQA assessment and other regulatory approvals, additional tribal cultural resources analyses would take place, as necessary.

3.20.3.3 Post-Construction Anderson Dam Facilities Operations and Maintenance

This impact analysis considers the potential for post-construction operations of the Seismic Retrofit components to result in significant adverse impacts to tribal cultural resources. The post-construction operations element of the Project would involve the refilling of Anderson Reservoir, and the continued rise and fall of water levels within the reservoir due to natural causes and planned water releases. The resumption of recreational power boating would also have potential impacts on tribal cultural resources due to wave action. The potential for post-construction Anderson Dam Facilities operations to result in significant impacts to tribal cultural resources are evaluated.

Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain the newly retrofitted Anderson Dam and Reservoir per Valley Water's existing DMP. DMP activities were evaluated previously in the DMP Final Program EIR prepared in January 2012 (SCH No. 2011082077; Valley Water 2012). Dam maintenance activities would be restricted to built environment features and would not impact tribal cultural resources. For these reasons, post-construction dam facility maintenance activities are not discussed further in this section.

3.20.3.4 Post-Construction Conservation Measures Operations and Maintenance

The baseline for evaluating post-construction operation and maintenance effects for the Seismic Retrofit component and Conservation Measures component is the Pre-FERC Order Conditions Baseline. Conservation Measures post-construction operations and maintenance impacts are not addressed because they would not impact tribal cultural resources once these facilities are constructed. This is because all areas of post-construction operations and maintenance would occur in areas impacted by construction of the Conservation Measure components, and no ongoing disturbance would be required; therefore, any potential impacts to tribal cultural resources would have occurred at that time.

3.20.3.5 Post-Construction Project and FAHCE Adaptive Management

The Project and FAHCE AMP would guide post-construction adaptive management of Project flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform a selection of adaptive management measures to implement in response to management triggers and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are/are not evaluated in the impact analysis because they are not the types of activities that would reasonably be anticipated to have the potential to impact tribal cultural resources, as they would not include ground-disturbing activities.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts of these adaptive actions are not evaluated in the impact analysis because, as noted above, such actions would occur within Coyote Creek and largely comprise non-ground-disturbing activities or be in areas analyzed for other Project components. These areas are not sensitive for buried archaeological resources, which could qualify as tribal cultural resources; however, should unknown archaeological materials be uncovered during Conservation Measures components implementation, these would be addressed according to mitigation measures included herein.

3.20.3.6 Applicable Best Management Practices and VHP Conditions

There is one Valley Water BMP that is applicable to the protection of archaeological resources and human remains, both of which could qualify as tribal cultural resources, and is described below.

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 a 30-foot radius. A “no work” zone will ~~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 PRC, and Section 15126.4 of the CCR. 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 an action plan within 48 hours which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with PRC 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. The field crew supervisor will ~~shall~~ take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent. No further excavation or disturbance within 30 feet of the site or any nearby area reasonably suspected to contain adjacent remains may be made except as authorized by the County Coroner, California NAHC, and/or the County Coordinator of Indian Affairs.

There are no relevant VHP conditions that would apply to tribal cultural resources.

3.20.3.7 Thresholds of Significance

Based on guidance from the *CEQA Guidelines* Appendix G, implementation of the Seismic Retrofit component and Conservation Measures component would have significant impacts on tribal cultural resources they would:

- Cause a substantial adverse change in the significance of a tribal cultural resource listed or eligible for listing in the CRHR or determined by Valley Water to be significant.

3.20.4 Impact Analysis

***Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource listed or eligible for listing in the California Register of Historical Resources or determined by Valley Water to be significant* (Less than significant with mitigation)**

Seismic Retrofit Construction

Eight Native American pre-contact archaeological sites (P-43-001090, P-43-001094, P-43-004083, P-43-004085, AD-2022-03, AD-2022-04, AD-2022-05, AD-2022-06) have been identified within the reservoir pool of the Seismic Retrofit component area and are treated as tribal cultural resources **Table 3.20-1**). Three of these resources (P-43-001094, P-43-004083, P-43-004085) have been evaluated and either determined or recommended eligible for the NRHP/CRHR. Two of these sites (P-43-004083, P-43-004085) contain midden deposits and human remains, while the third (P-43-1094) is a midden deposit without human remains. The additional five sites (P-43-001090, AD-2022-03, AD-2022-04, AD-2022-05, AD-2022-06) in the reservoir footprint have not yet been formally evaluated. For the purpose of this analysis, these five sites are considered eligible for listing in the NRHP and CRHR and are, therefore, tribal cultural resources.

Five of the tribal cultural resources (P-43-001090, P-43-004085, AD-2022-03, AD-2022-05, AD-2022-06) are within the Seismic Retrofit construction area[2] Three of the resources (P-43-001090, AD-2022-03, AD-2022-06) are in areas identified for stockpiling soil during construction and would be directly impacted by the Project. The placement of stockpile areas, which require ground preparation such as grading, on the identified tribal cultural resources, in addition to other related impacts from Seismic Retrofit component construction activities (i.e., access or haul roads), may cause substantial adverse changes to the significance of these resources.

One resource (P-43-004085) is located in the reservoir footprint adjacent to a proposed soil stockpile area that has been designed to avoid the site; thus, the Project will have no impact on this tribal cultural resource. AD-2022-05, while located in the Project construction area, is located outside of any construction-related activities and would not be impacted by the Project.

The construction of the Seismic Retrofit component would result in a large amount of ground disturbance for a duration of 5 years, and over a large area at the dam, just downstream of the dam, and within the reservoir, as discussed in the table of Seismic Retrofit components found in **Table 2-1** and detailed in Section 2.5 of *Project Description*. Ground-disturbing activities would range from the preparation of construction staging/stockpiling/borrow areas and access roads, to dam excavation and reconstruction, road realignments, and installation of infrastructure such as pipelines, electric power lines, and fiber optic telecommunication lines. Archaeological resources that could be tribal cultural resources are not always visible on the ground surface, and human burials, midden deposits, or other items considered sacred to Native American Tribes may be unearthed during the construction of the Seismic Retrofit component. The inadvertent discovery of and damage to such resources may result in a substantial adverse change in the significance of a tribal cultural resource.

[2] The Seismic Retrofit construction area (519 acres) within Anderson Reservoir is smaller than the Seismic Retrofit Project Area (1142 acres).

To reduce this impact, Valley Water will implement BMP CU-1 Accidental Discovery of Archaeological Artifacts or Burial Remains, which will reduce impacts of inadvertent discoveries of archaeological and human remains that may be considered tribal cultural resources during the Seismic Retrofit component construction activities.

Based on the above analysis, impacts to known and undiscovered tribal cultural resources would be significant. Implementation of **Mitigation Measure CR-1** (Pre-construction Cultural Resources Awareness Training) will require that construction workers be made aware of the protocols to follow if human remains, or any other artifacts of Native American pre-contact origin, are discovered during construction. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that Cannot be Avoided) will require the preparation of a Data Recovery and Treatment Plan for known tribal cultural resources that cannot be avoided by construction. The Data Recovery and Treatment Plan would be developed in consultation with Tribes who have consulted with Valley Water on the Project. **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will provide details for monitoring and addressing discoveries of human remains and other Native American materials in a Monitoring and Unanticipated Discoveries Plan that would be prepared in consultation with Project consulting Tribes. Implementation of these mitigation measures will therefore reduce impacts to tribal cultural resources to less than significant with mitigation for the Seismic Retrofit construction component of the Project.

Conservation Measures Construction

Two archaeological sites (P-43-000176, P-43-001001), with pre-contact Native American materials, are recorded as located within the Ogier Ponds CM footprint; however, only one of the sites (P-43-000176) may be impacted by the construction of the floodplain as part of the Ogier Ponds CM along Coyote Creek. The exact location of this site within the Ogier Ponds CM construction area has not yet been confirmed due to a lack of access caused by high-water levels in Coyote Creek at the time of fieldwork. Furthermore, the site has not been evaluated for NRHP/CRHR-eligibility. It is, therefore, assumed that P-43-000176 is eligible and, thus, a tribal cultural resource for the purposes of this EIR. Construction of the floodplain under this Conservation Measure may result in a substantial adverse change in the significance of the resource. P-43-001001, while in the Ogier Ponds CM footprint, is outside any planned construction activities and would not be impacted by the Project.

One pre-contact site, P-43-000189, within the area of the Phase 2 Coyote Percolation Dam CM, is recorded as having contained human remains and has previously been determined eligible for the NRHP/CRHR; it is, therefore, considered a tribal cultural resource for the purpose of this EIR. The site is, however, largely beneath US 101 and only an edge of the site is recorded within the Phase 2 Coyote Percolation Dam CM area. A pedestrian survey did not discover any surface evidence of the recorded site, and an existing access road crosses over the site. No modifications to this road are proposed during project construction, and therefore, there would be no impact to P-43-000189.

Each of the proposed Conservation Measures (Ogier Ponds CM, Phase 2 Coyote Percolation Dam CM, and Maintenance of the North Channel Reach ~~Extension~~) would involve ground-disturbing activities which may uncover buried pre-contact deposits with human remains and/or midden deposits that may be tribal cultural resources. Should this occur, unknown tribal cultural resources could be significantly impacted by Conservation Measure construction.

Implementation of BMP CU-1, Accidental Discovery of Archaeological Artifacts or Burial Remains, would reduce impacts from construction related inadvertent discoveries of archaeological and human remains that could be considered tribal cultural resources.

Based on the above analysis, impacts to known and undiscovered tribal cultural resources would be significant **Mitigation Measure CR-1** (Pre-construction Cultural Resources Awareness Training) will require that construction workers are instructed about the sensitivity of discovering human remains and the protocols to be followed should they be discovered. Under **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that Cannot be Avoided) a Data Recovery and Treatment Plan would be developed to address tribal cultural resources that cannot be avoided during construction. Protocols for monitoring and measures for addressing the inadvertent discovery of human remains and other Native American materials would also be specified in a Monitoring and Unanticipated Discoveries Plan prepared through **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan). These mitigation measures will minimize the impacts to tribal cultural resources to less than significant with mitigation for the Conservation Measures component.

Post Construction Anderson Dam Facilities Operations and Maintenance

Post Construction Operations of the reservoir water storage levels may impact the eight known tribal cultural resources (P-43-001090, P-43-001094, P-43-004083, P-43-004085, AD-2022-03, AD-2022-04, AD-2022-05, AD-2022-06) that are archaeological sites within the reservoir.

Overall, post-construction operations of the reservoir would be largely similar to the Pre-FERC Order Conditions Baseline, with the addition of FAHCE rule curves and pulse flows and a higher reservoir elevation due to lifting of Pre-FERC Order ~~seismic~~ restrictions~~.~~ The initial re-filling of the reservoir and future fluctuating water levels may result in erosion to archaeological sites that are considered to be tribal cultural resources. As water levels rise and fall up to maximum reservoir capacity, wave action would cause erosion of the reservoir rim sediments, and artifacts within the soil matrix of archaeological sites may move. The return of recreational power boating to the reservoir would also cause wave action that would similarly impact archaeological sites. Such erosion by fluctuating reservoir levels and wave action from power boating may significantly impact the eight archaeological sites that are tribal cultural resources within Anderson Reservoir. Furthermore, erosion from reservoir operations, including power boating, could uncover currently unknown buried archaeological sites or human remains that would be tribal cultural resources and significantly impact these resources. Implementation of **Mitigation Measure CR-3** requires Valley Water to prepare a Monitoring and Unanticipated Discoveries Plan, which will include regular monitoring of the sites known to contain tribal cultural resources within the fluctuation zone of the reservoir. The Monitoring and Unanticipated Discoveries Plan would also include protocols for treating any discovered human remains and other Native American materials exposed from reservoir fluctuation at both known sites and newly revealed sites. Implementation of these measures would reduce impacts from Project operations to tribal cultural resources to less than significant with mitigation.

Although the area downstream of Anderson Dam has some potential for containing buried archaeological resources, changes to the flow regime in Coyote Creek would not result in substantial increases in erosion and related geomorphic processes (See Section 3.8, *Geology and Soils*) that would result in substantial adverse changes to the significance of archaeological resources. As a result, there would be a less-than-significant impact to tribal cultural resources in the downstream region of the Seismic Retrofit area.

Post-Construction Conservation Measures Operations and Maintenance ~~Construction~~

Two pre-contact archaeological sites (P-43-000176, P-43-001001) (described in Section 3.20.3.2) considered to be tribal cultural resources are present within the Ogier Ponds CM area. Neither resource has previously been evaluated for NRHP/CRHR-eligibility but are considered tribal cultural resources for the purpose of the EIR. P-43-001001 is outside any areas of planned construction and would not be impacted by construction activities for this Conservation Measure. P-43-000176 could be impacted by construction activities for this Conservation Measure, ranging from floodplain development to berm and trail/road development~~,~~ and construction staging. Any of these actions, all of which would require ground disturbance, could cause substantial adverse changes to the significance of these tribal cultural resources.

One pre-contact archaeological site (P-43-000189) considered to be a tribal cultural resource is located within the area of the Phase 2 Coyote Percolation Dam CM. P-43-000189 has been determined eligible for the NRHP/CRHR. No surface evidence of the site was observed during archaeological pedestrian surveys. P-43-000189 is largely recorded outside the Conservation Measure boundary. Furthermore, the portion of the site within the Conservation Measure limits is below an existing access road and will not be further disturbed by construction activities. Because P-43-000189 is buried beneath an access road, there will be a less-than-significant impact to this tribal cultural resource by construction of the Phase 2 Coyote Percolation Dam CM.

Because archaeological resources are not always visible on the ground surface, ground-disturbing construction activities that involve ground disturbance at any of the Conservation Measure sites (Ogier Ponds CM, Phase 2 Coyote Percolation Dam CM, and North Channel Reach ~~Extension~~) could uncover archaeological resources that may qualify as tribal cultural resources. Examples of such construction activities include, but are not limited to, grading for haul roads and staging areas, excavation and grading for infrastructure construction, and clearing and grubbing of vegetation for channel restoration. BMP CU-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) will reduce this impact, but the inadvertent discovery of such resources could result in a substantial adverse change in the significance of tribal cultural resources.

Based on the above analysis, impacts to known and undiscovered tribal cultural resources would be significant. Potential impacts to tribal cultural resources within the Conservation Measure construction areas will be less than significant with the implementation of **Mitigation Measures CR-1, CR-2,** and **CR-3**. Implementation of **Mitigation Measure CR-1** (Pre-construction Cultural Resources Awareness Training) will require construction crews to receive awareness training for identifying archaeological materials uncovered during ground disturbance, the significance of tribal cultural resources, and will provide guidance on treating the resources with respect. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Tribal Cultural Resources that Cannot be Avoided) will require that all tribal cultural resources that will be impacted by construction and operations be included in the treatment plan. **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will require that work stop in the vicinity of any archaeological materials discovered during Project construction, and that a Monitoring and Unanticipated Discoveries Plan will provide protocols for monitoring and treating archaeological deposits, including any that may qualify as tribal cultural resources, discovered during construction. **Mitigation Measures CR-1**, **CR-2**, and **CR-3** will require that Valley Water continue to work with Native American Tribes who have been consulting on the Project and include, but are not limited to, inviting Tribes to participate in the worker awareness training, review and comment on the Data Recovery and Treatment and Monitoring and Unanticipated Discoveries plans, and participating in data recovery and construction monitoring.

With implementation of these mitigation measures, substantial adverse changes in the significance of a tribal cultural resource would not occur, and significant impacts to tribal cultural resources within the Project Seismic Retrofit and Conservation Measure areas would be reduced to **less-than-significant through mitigation**.

Significance Conclusion Summary

Valley Water has determined that pre-contact Native American archaeological sites with human remains, as well as sites with midden deposits, are tribal cultural resources for purposes of this EIR. Valley Water also recognizes that sites that have not undergone NRHR/CRHR evaluations may contain materials that could be considered tribal cultural resources and are thus considered as such for the purpose of this EIR. As a result, there are 11 tribal cultural resources identified in the Project Area: eight are in the Seismic Retrofit component area and three are within the Conservation Measures component area (**Table 3.20-1**).

In addition, even with implementation of BMP CUL-1, undiscovered pre-contact archaeological resources that could qualify as tribal cultural resources could be significantly impacted by Seismic Retrofit or Conservation Measure construction. Erosion and recreational power boating within Anderson Reservoir related to the operation of the Seismic Retrofit component of the Project could create wave action along the exposed shoreline of the reservoir as the reservoir is refilled after Project completion, during the regular rise and fall of the reservoir due to Project operation and the resumption of recreational boating. These actions may erode pre-contact archaeological resources that could qualify as tribal cultural resources.

Six of the tribal cultural resources are within the Seismic Retrofit component construction area, with three located within identified stockpile areas, and one within the alignment of an access/haul road. These four tribal cultural resources would be directly impacted by Project construction. One tribal cultural resource, which contains human remains, is adjacent to a stockpile area. One additional site is located in the construction area but is not in the footprint of any planned construction activities. All the sites within the reservoir footprint could be eroded by wave action, from reservoir filling and fluctuation or from recreational boating, as the result of Project operations.

For these reasons, the Project may cause substantial adverse changes to the significance of both known and undiscovered tribal cultural resources, and, therefore, these impacts are significant. BMP-CUL-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) will require that work will cease in areas where archaeological materials are discovered during construction until the finds can be analyzed and evaluated for NRHP/CRHR-eligibility, if appropriate, and that any eligible resources will either be avoided or subject to data recovery studies. **Mitigation Measure CR-1** (Pre-construction Cultural Resources Awareness Training) will require construction crews to receive awareness training for identifying archaeological materials uncovered during ground disturbance, the significance of tribal cultural resources, and will provide guidance on treating the resources with respect. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment

Plan for Tribal Cultural Resources that cannot be Avoided) will require that all tribal cultural resources that will be impacted by construction and operations be included in the treatment plan. Lastly, **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will require an archaeological and tribal monitor in areas sensitive for tribal cultural resources during Project construction, the monitoring of sensitive areas during Project operations, and will implement protocols of the Monitoring and Unanticipated Discoveries Plan should archaeological materials be discovered. With implementation of these mitigation measures, substantial adverse changes in the significance of a tribal cultural resource would not occur, and significant impacts to tribal cultural resources within the Project Seismic Retrofit and Conservation Measure areas would be reduced to **less than significant with ~~through~~ mitigation**.

Mitigation Measures

CR-1 Pre-construction Cultural Resources Awareness Training

Valley Water will provide a cultural resources awareness training program to all construction personnel within the various construction areas during earth moving activities throughout the duration of Project construction. The training will be conducted in person, or via a video or PowerPoint presentation to be viewed by all construction personnel involved in ground disturbing activities prior to working on the Project. The training will be developed and conducted in coordination with a qualified archaeologist that meets the U.S. Secretary of Interior standards for professional archaeologists, as well as a representative from culturally affiliated Native American Tribe(s) who have participated in consultations with Valley Water. The program will include relevant information regarding sensitive cultural resources (including human remains and burials), applicable regulations, protocols for avoidance, and consequences of violating state laws and regulations. The worker cultural resources awareness program will also describe appropriate avoidance and minimization measures for resources that have the potential to be located within the Project construction area and will outline what to do and whom to contact if any potential archaeological resources, human remains and burials, or artifacts are encountered. The program will emphasize the requirement of confidentiality and culturally appropriate treatment of any finds of significance to Native Americans, and behaviors consistent with Native American Tribal values.

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

The preferred treatment for impacts to archaeological sites, including those identified as tribal cultural resources, is avoidance, as directed under *CEQA Guidelines* Section 15126.4(b)(3)(b)(1) and PRC 21084.3. Valley Water has designed the Project to avoid archaeological sites, where feasible; however, not all archaeological sites could be avoided by design. As a result, a Data Recovery and Treatment Plan will ~~shall~~ be prepared by a qualified archaeologist that meets the U.S. Secretary of Interior standards for professional archaeologists, to address impacts to those archaeological historical resources that cannot be avoided by Project construction. The Data Recovery and Treatment Plan will be developed consistent with requirements in PRC Section 21083.2, and Section 15126.4(b) of the *CEQA Guidelines*. The Data Recovery and Treatment Plan will include a research design to identify research questions as the focus of data recovery efforts, as well as detail the field and laboratory methods to address the questions. The Data Recovery and Treatment Plan will also include a specific discussion of the methods and level of effort at each site for data recovery excavations, which are an acceptable form of mitigation under Section 15126.4(b)(3)(c) of the *CEQA Guidelines*. Specific plans for Native American sites will be prepared in consultation with Native American Tribes who participated in EIR tribal consultation. Valley Water will require that data recovery and treatment be scheduled such that the actions will be completed in advance of construction involving impacted sites. The Data Recovery and Treatment Plan protocols will also be used for addressing accidental discoveries, as discussed in **Mitigation Measure CR-3**.

The Plan will specify that if human remains are discovered, procedures for notification of the County Coroner and for the disposition of Native American human remains under Health and Safety Code Section 7050.5 and PRC Section 5097.5 will be followed.

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

Valley Water will prepare a Monitoring and Unanticipated Discoveries Plan in consultation with participating Native American Tribes prior to the initiation of Project construction. The Monitoring and Unanticipated Discoveries Plan will provide that a qualified archaeologist will monitor ground disturbance (e.g., grading, trenching, vegetation clearing and grubbing with a backhoe or other mechanical methods, etc.) in all areas sensitive for archaeological sites, such as those adjacent to Coyote Creek or other water sources. Valley Water will coordinate with participating Native American Tribes to retain a tribal monitor to work in tandem with the archaeological monitor. Monitoring will take place at locations within 50 feet of known archaeological historical resources or at locations identified as cultural resource environmentally sensitive areas. Monitoring will also occur in areas identified by the archaeological principal investigator as sensitive for buried archaeological deposits. Protocols for monitoring, such as scheduling, personnel responsibilities, chain of command, and reporting, will be detailed in the Monitoring and Unanticipated Discoveries Plan.

The Monitoring and Unanticipated Discoveries Plan will also address the accidental discovery of archaeological resources and incorporate the guidelines of BMP CU-1 (accidental discovery of archaeological artifacts or burial remains), including issuance of a stop work order and establishment of a no work zone in the immediate vicinity of the find. The area of the discovery will be flagged to delineate the boundary of the sensitive zone. If either an archaeological or tribal monitor are not present at the time of the discovery, a qualified archaeologist, who meets the U.S. Secretary of the Interior’s professional standards, will visit the discovery site as soon as practicable for identification and evaluation pursuant to Section 21083.2 of the PRC and Section 15064.5 of the *CEQA Guidelines*. If the archaeologist determines that the archaeological find is not a “historical” or “unique archaeological” resource and thus not significant, construction may resume. If the archaeologist determines that the archaeological find is significant, the archaeologist will determine if the find can be avoided and, if so, will detail avoidance procedures. If the archaeological find cannot be avoided, the archaeologist will develop an Action Plan within 48 hours which will include provisions to minimize impacts and, if required, a Data Recovery and Treatment Plan that will follow the protocols outlined in the Data Recovery and Treatment Plan described in **Mitigation Measure CR-2**.

The Plan will specify that if human remains are discovered, procedures for notification of the County Coroner and for the disposition of Native American human remains under Health and Safety Code Section 7050.5 and PRC Section 5097.5 will be followed.

Valley Water will also retain a qualified archaeologist to implement yearly monitoring of the locations of those archaeological sites within the reservoir fluctuation zone that are known to contain human remains (P-43-004083 and P-43-004085). Any remains exposed during reservoir fluctuations would be treated consistent with Health and Safety Code Section 7050.5 and PRC Section 5097.5 procedures, and in accordance with the desires of the relevant Tribes. Areas of sensitivity for the presence of unknown cultural sites within the reservoir fluctuation zone will be defined in the Monitoring and Unanticipated Discoveries Plan and will also be monitored yearly. The specifics of the monitoring and treatment protocols will be developed in consultation with participating Tribes and also detailed in the Monitoring and Unanticipated Discoveries Plan.

3.20.5 Cumulative Impacts

The geographic study area for the cumulative impact analysis for tribal cultural resources encompasses the future Project areas in the southern San Francisco Bay Area where activities including ground disturbance or major alterations to visual settings would occur.

This section describes the Project's contribution to cumulative tribal cultural resources impacts, as summarized in **Table 3.20-2**. Cumulative impact thresholds for cultural resources are the same as the impact thresholds presented in Section 3.20.3.6, *Thresholds of Significance*.

Table 3.20-2. Summary of Project Impact Contribution to Cumulative Tribal Cultural Resources Impacts

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource listed or eligible for listing in the California Register of Historical Resources or determined by Valley Water to be significant	Yes	Yes	CC	MM CR-1 MM CR-2 MM CR-3	No

Key: CC = cumulatively considerable; MM = Mitigation Measure

Cumulative Impact TCR-1: Cause a substantial adverse change in the significance of an archaeological resource **(Not Cumulatively Considerable)**

Ground disturbance during construction at the Seismic Retrofit construction area and the Ogier Ponds CM areas could impact elements of tribal cultural resources. Operational activities within Anderson Reservoir could erode Native American archaeological resources that may qualify as tribal cultural resources buried along the shoreline of the reservoir. In addition, construction activities and future use of reservoir could expose undiscovered Native American archaeological resources that may qualify as tribal cultural resources.

Cumulative projects, plans, and programs could result in incrementally adverse impacts if they create impacts in a manner that progressively reduces the significance of the resource.

Cumulative Effects of Project with the FOCP

The reservoir was drawn down as part of the FOCP which could expose Native American archaeological resources that qualify as tribal cultural resources and make them vulnerable to damage. The Project would extend the period that the reservoir is drained and exposed Native American archaeological resources that qualify as tribal cultural resources in the reservoir are vulnerable to loss or damage. Both projects create similar risks to the loss or destruction of undiscovered Native American archaeological resources that could qualify as tribal cultural resources through ground disturbance and construction activities. This impact is cumulatively significant, and the Project's contribution is **cumulatively considerable**.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Other projects that take place along Coyote Creek such as the SMP, Coyote Creek Flood Protection Project, Santa Clara County Parks Planning Projects and Natural Resource Management, as well as development projects in the County where ground-disturbing activities may take place in or near the creek bed, could result in similar impacts to undiscovered Native American archaeological resources that may qualify as tribal cultural resources as the Project. This impact is cumulatively significant and the Project's contribution is **cumulatively considerable**.

Significance Conclusion Summary

The Project may cause significant cumulative effects to the significance of both known and undiscovered Native American archaeological resource that are considered tribal cultural resources. BMP-CUL-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) would reduce this impact by requiring that work will cease in areas where archaeological materials are discovered during construction until the finds can be analyzed and evaluated for NRHP/CRHR-eligibility, if appropriate, and whether they qualify as tribal cultural resources. This BMP would reduce impacts from construction-related inadvertent discoveries of archaeological and human remains that could be considered tribal cultural resources.

Mitigation Measure CR-1 (Pre-construction Cultural Resources Awareness Training) will require construction crews to receive awareness training for identifying archaeological materials uncovered during ground disturbance, the significance of tribal cultural resources, and will provide guidance on treating the resources with respect. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Tribal Cultural Resources that Cannot be Avoided) will require that all tribal cultural resources that will be impacted by construction and operations be included in the treatment plan. Lastly, **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will require that work stop in the vicinity of any archaeological materials discovered during Project construction, and that a Monitoring and Unanticipated Discoveries Plan will provide protocols for monitoring and treating archaeological deposits, including any that may qualify as tribal cultural resources, discovered during construction.

Implementation of these mitigation measures would reduce the Project's incremental contribution to significant cumulative impacts on tribal cultural resources to **not cumulatively considerable**.

Mitigation Measures

CR-1 Pre-construction Cultural Resources Awareness Training

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

3.20.6 References

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3.21 Utilities and Service Systems

This section evaluates the Project's impacts on utilities and service systems in the study area, defined below. The *CEQA Guidelines* significance criteria for utilities and service systems address impacts that would require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. The *CEQA Guidelines* also provide significance criteria to determine whether the Project would generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, otherwise impair the attainment of solid waste reduction goals; or fail to comply with federal, State, and local management and reduction statutes and regulations related to solid waste.

The study area used to assess impacts on utilities and service systems includes portions of the communities of the county and San José and Morgan Hill that are within the footprint of the Project Area and within the construction limits of the Seismic Retrofit and Conservation Measure components of the Project. The baseline condition related to utilities and service systems are described below. The baseline used for the analysis of impacts to utilities consists of existing conditions at time of the EIR preparation as modified by FOCP implementation.

3.21.1 Environmental Setting

The environmental setting describes the conditions of utilities resources in the study area. This section describes the study area's existing utilities. The environmental setting is based on two different baseline conditions that would form the basis for comparing Project impacts to utilities. The baselines used in this section include the existing conditions baseline and Pre-FERC Order Conditions Baseline. The existing conditions baseline, which reflects reasonable assumptions of the study area's visual setting, would exist following the completion of the FOCP, based on available information at the time of EIR preparation (2022). The existing conditions baseline is used for evaluating the Seismic Retrofit and Conservation Measures construction impacts. For evaluating post-construction operation, the Pre-FERC Order Conditions Baseline is used. The Pre-FERC Order Conditions Baseline reflects general conditions at the time the NOP was filed in 2013. See discussion below for environmental setting and baseline conditions.

The Project components are located on lands owned by Valley Water, the County, and private owners within the Coyote Creek Watershed, which is the largest watershed in the Santa Clara Basin, encompassing an area of over 320 square miles. Anderson Dam impounds Coyote Creek; the portion of the Coyote Creek Watershed above the dam is 195 square miles. Downstream of Anderson Dam, Coyote Creek flows north-northwest through many highly developed urban areas in the county, including portions of Morgan Hill, San José, and Milpitas, before ultimately reaching San Francisco Bay. The upstream reaches of Coyote Creek, and the portion of the watershed above Anderson Reservoir that feeds Anderson Dam, are largely undeveloped.

3.21.1.1 Wastewater Treatment and Stormwater Facilities

Anderson Dam and Reservoir are operated by Valley Water as water storage infrastructure and used by the county as a recreational facility. Existing conditions of the dam and reservoir after implementation of the FOCP, which serves as the baseline, do not involve wastewater or stormwater collection or treatment. Restroom facilities within the Project Area are connected to the South County Regional Wastewater Authority's (SCRWA) Treatment Plant in Gilroy. Project Conservation Measures which pertain to utilities include the Coyote Percolation Pond 11 miles downstream of Anderson Dam and the North Channel Reach ~~Extension~~ approximately 0.27 miles downstream of the existing outlet of Anderson Dam. During the FOCP, weirs were constructed to restore flows within the historic North Channel of Coyote Creek to provide capacity to split dam outlet flows between the North and South Channels.

3.21.1.2 Water Treatment Facilities

Anderson Reservoir operations release water from the reservoir for multiple purposes, including conveying water for treatment to the Santa Teresa Water Treatment Plant (Plant), the largest of Valley Water's three treatment facilities. The Plant serves residential and commercial customers in South San José in the communities of Almaden Valley, Blossom Valley, and Santa Teresa. The Plant delivers up to 100 million gallons of water per day. The Plant receives most of its water from San Luis Reservoir, with smaller portions from the Calero Reservoir and Anderson Reservoir (Valley Water 2020).

3.21.1.3 Solid Waste Disposal

There are currently four active landfills in the county that could receive construction waste from the Project (CalRecycle 2021):

- Guadalupe Sanitary Landfill – active and estimated to have capacity through 2048 (remaining capacity as of 2011 was 11,055,000 cy)
- Kirby Canyon Recycling and Disposal Facility – active and estimated to have capacity through 2059 (remaining capacity as of 2015 was 16,191,600 cy)
- Newby Island Landfill – active and estimated to have capacity through 2041 (remaining capacity as of 2014 was 21,200,000 cy)
- Zanker Material Processing Facility – active and estimated to have capacity through 2025 (remaining capacity as of 2012 was 640,000 cy)

The nearest facility that accepts hazardous waste materials is Chemical Waste Management, located in Kettleman City, which is approximately 150 miles from the Project Area. Chemical Waste Management is active and estimated to have capacity through 2030 (remaining capacity as of 2010 was 17,468,595 cy). Chemical Waste Management has applied for a permit from the DTSC to expand the capacity of the facility, but as of April 2023, no permit has been issued (DTSC 2023).

3.21.1.4 Electrical Service

PG&E provides electricity services to the Project Area. PG&E is a publicly traded utility company that generates, purchases, and transmits energy under contract with the CPUC. PG&E owns and ~~C~~maintains above- and below-ground networks of electric and gas transmission and distribution facilities throughout the Project Area. PG&E's total service territory is 70,000 square miles in area, roughly extending north to south from Eureka to Bakersfield, and east to west from the Sierra Nevada Mountain range to the Pacific Ocean.

PG&E's total service territory electricity distribution system consists of more than 141,200 circuit miles of electric distribution lines and more than 18,600 circuit miles of interconnected transmission lines. PG&E electricity is generated by a combination of sources such as coal-fired power plants, nuclear power plants, and hydroelectric dams, as well as newer sources of energy, such as wind turbines and photovoltaic plants. The electrical grid is a network of high-voltage transmission lines that link power plants with the PG&E system. The distribution system, comprised of lower voltage secondary lines, is at the street and neighborhood level and consists of overhead or underground distribution lines, transformers, and individual service connections to the individual customer.

Since 2011, PG&E has been implementing a Smart Grid Deployment Plan According to PG&E's *Smart Grid Annual Report 2020* (PG&E 2020). Modernizing the power grid integrates new energy devices, monitoring and control, and other situational awareness technologies to enable greater grid safety, resiliency, and energy diversity for PG&E customers in response to increased wildfire risk, cybersecurity concerns, and technological advances.

PG&E provides electrical power to most of the Project facilities (except facilities at the boat ramp parking area) through an existing overhead 12.47 kV power distribution line along Coyote Road that will be constructed by PG&E during the FOCP. The existing distribution line crosses Coyote Creek with medium-voltage power cables to a pole and distribution transformer. Facilities at the boat ramp parking area receive electrical power through overhead lines that connect to an existing overhead 12.47 kV power distribution line along Coyote Road. These overhead lines, however, terminate at pole-mounted transformers and pad-mounted service equipment located at the left end of the existing dam. An emergency diesel generator and associated components, including an automatic transfer switch, were installed during the FOCP near the diversion outlet structure for emergency power supply. The generator, rated at 277/480 Volt for a three-phase, four-wire distribution system, was sized at 500 kVA.

From 1988 to 2018, Valley Water produced hydroelectric power at the Anderson Dam hydroelectric facility (facility) located approximately 1,300 feet downstream of the dam (Valley Water 2018). The facility, although not currently in use, consists of two induction generators that, when combined, produced approximately 800 kW; however, due to limits in the amount of flows that are allowed to be redirected to the facility for hydroelectric generation, the facility did not produce the full potential of the 800 kW capacity. Throughout the lifetime of the facility, approximately 39,700,000 kWh of renewable energy in total were produced. Over time, the increasing cost to operate and maintain the aging infrastructure exceeded the value of the renewable energy that the facility generated. Therefore, Valley Water stopped power generation at the facility in 2018 and will pursue decommissioning as part of the Project.

3.21.1.5 Natural Gas Service

PG&E's natural gas (methane) pipe delivery system includes more than 42,100 miles of distribution pipelines and more than 6,400 miles of transportation pipelines. Gas delivered by PG&E originates in gas fields in California, the US Southwest, US Rocky Mountains, and from Canada. Transportation pipelines send natural gas from fields and storage facilities in large pipes under high pressure. The smaller distribution pipelines deliver gas to individual businesses or residences.

Natural gas lines operated by PG&E are located within the Project Area. PG&E's natural gas service area extends throughout the county, although the City of San José banned natural gas connections for residential uses in 2021. Several PG&E gas transportation pipelines run through Morgan Hill (City of Morgan Hill 2017 ~~2016~~). Two main lines run roughly parallel to US 101, approximately 1-2 miles east of US 101. Two other pipelines branch off from those main lines and run under Diana Avenue and Cochrane Road, respectively, west of US 101. Distribution gas pipelines are located throughout the city.

Within the Project Area, there is a natural gas pipeline which is owned and operated by PG&E. The pipeline is located within Staging Area 1, downstream of Anderson Dam. The PG&E pipeline would be protected in-place for the duration of the Project. Neither Anderson Dam nor the reservoir require natural gas in either the existing or post-Project conditions.

3.21.1.6 Telecommunication Service

Existing telecommunications facilities within the Project Area include a Supervisory Control and Data Acquisition (SCADA) copper-twisted pair telemetry cable line, which extends from Anderson Dam to Peet Road. The existing SCADA telemetry cable would be replaced with 5,000 linear feet of new fiber optic SCADA telemetry cable between Anderson Dam and the Peet Road Junction Valve Vault. These telecommunication cables would be located in areas that would be disturbed as a result of other construction activities associated with the Seismic Retrofit components, or within existing utility corridors. The primary broadband infrastructure in Morgan Hill is owned and operated by Frontier Communications, which took over ownership and operation of Verizon's wireline telephone systems in California and Charter Communications, which purchased Falcon Communications in 1999. A study of telecommunications services conducted in 2016 (City of Morgan Hill 2016 ~~2016b~~) found a lack of consistent upgrades by Verizon to the legacy telephone system currently owned by Frontier Communications and below-industry-average cable infrastructure maintained by Charter Communications. The study also identified a disparity between the level of broadband service available to business and residential customers, with generally faster speeds in residential areas than in commercial/industrial zones. Secondary broadband service providers—Level 3 and TW Telecom—have moved in to fill some of the gaps left by the primary providers by offering more specialized services, including direct fiber optic connections to end users. Major fiber network operators also provide connectivity in Morgan Hill on a wholesale basis.

3.21.2 Regulatory Setting

This section summarizes federal, State, and local laws, regulations, and policies pertinent to the evaluation of the Project's impacts on utilities and service systems.

3.21.2.1 Federal Laws, Regulations, and Policies

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (amended 1986) is a federal act regulating the potential health and environmental problems associated with solid waste hazards and non-hazardous wastes. Specific regulations addressing solid waste issues are contained in Title 40 of the Code of Federal Regulations.

Federal Power Act

The Federal Power Act (16 USC sections 791 to 823s) grants the FERC jurisdiction over the interstate transmission of electricity, natural gas, and oil, including licensing non-federal hydropower projects, throughout the United States. FERC's hydropower responsibilities include issuance of licenses for the construction and operation of new projects, issuance of relicenses for existing projects, and oversight of all ongoing project operations, including dam safety and security inspections, public safety, and environmental monitoring. Part of the commission's responsibility is to strike an appropriate balance among the many competing developmental and non-developmental (including environmental) interests involved in hydropower regulation (FERC 2019 ~~2021~~).

3.21.2.2 State Laws, Regulations, and Policies

California Public Utilities Commission

The California Constitution vests the CPUC with the sole authority to regulate privately owned and investor-owned public utilities, such as PG&E. This exclusive power extends to all aspects of utility regulation, including facility location, design, construction, maintenance, and operation. The CPUC requires regulated utilities to work closely with local governments and give due consideration to local government concerns. The CPUC does not regulate publicly owned utilities such as Valley Water.

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 (CIWMA) (PRC Division 30), enacted through AB 939 and modified by subsequent legislation, required all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by 2000 (PRC section 41780). A jurisdiction's diversion rate is the percentage of its total waste that a jurisdiction diverts from disposal through reduction, reuse, and recycling programs. The State, acting through the California Integrated Waste Management Board, determines compliance with this mandate. Per capita disposal rates are used to determine if a jurisdiction's efforts are meeting the intent of the act.

In 2011, the Legislature implemented a new approach to the management of solid waste. California's Commercial Recycling Bill (AB 341) went into effect on July 1, 2012, and set a recycling goal of 75 percent diversion by 2020, and annually thereafter. The bill is intended to: (1) reduce GHG emissions by diverting recyclable materials, and (2) expand the opportunity for increased economic activity and green industry job creation. AB 341 is a statewide policy goal rather than a city or county jurisdictional mandate.

Utility Notification Requirements

Title 8, section 1541 of the CCR requires excavators to determine the approximate locations of subsurface installations such as sewer, telephone, fuel, electricity, and water lines (or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. California law (Government Code Section 4216 et seq.) requires owners and operators of underground utilities to become members of and participate in a regional notification center, such as USA North. USA North receives reports of planned excavations from public and private excavators and transmits the information to all participating members that may have underground facilities at the location of an excavation. USA North members mark or stake their facilities, provide information, or give clearance to dig.

California Solid Waste Reuse and Recycling Access Act

The California Solid Waste Reuse and Recycling Access Act of 1991 (PRC sections 42900–42911) requires that all development projects applying for building permits include adequate, accessible areas for collecting and loading recyclable materials.

Nonhazardous Solid Waste Disposal Standards

Title 14, Chapter 3, of the CCR provides minimum standards for solid waste handling and disposal in California pertaining to nonhazardous solid waste management. The California Department of Resources Recycling and Recovery (CalRecycle) administers programs including the regulation of nonhazardous solid waste facilities in the state. These standards may apply to activities related to Project construction.

3.21.2.3 Regional and Local Laws, Regulations, and Policies

While the majority of the Project study area for utilities and service systems is within the county, portions of the Project are within San José and Morgan Hill. The following policies relate specifically to aspects of the Project with regard to utilities and service systems.

Santa Clara County Integrated Waste Management Plan

The Santa Clara County Integrated Waste Management Plan (SCCIWMP; County 1995) identifies the unified goals, policies, and objectives for waste management in the communities within the county. The plan is implemented by the Santa Clara County Recycling and Waste Reduction Division as part of the County’s Consumer Environmental Protection Agency, which supports waste reduction activities that preserve resources, enhance sustainability, and mitigate climate change. The overall objectives of the plan are to divert an increasing percentage of the waste stream from landfill disposal over time in compliance with CIWMA, design and implement recycling programs, and promote composting of yard waste. Each jurisdiction including unincorporated Santa Clara County has developed and adopted individual goals that feed into the countywide plan. CIWMA and the SCCIWMP have been incorporated by reference into the Santa Clara County General Plan, while the Envision San José 2040 General Plan (1994) incorporates by reference the San José Zero Waste Strategic Plan, a zero-waste strategy that exceeds the requirements of CIWMA and the SCCIWMP. The City of Morgan Hill General Plan (2017 ~~2016~~) addresses waste diversion and waste management policies consistent with CIWMA and the SCCWIMP. Specific policies are addressed below.

Santa Clara County General Plan

The following Santa Clara County General Plan (1994) resource conservation policies may be applicable to the Project.

Resource Conservation

- Policy C-RC 5 An adequate, high quality water supply for Santa Clara County should be considered essential to the needs of households, business and industry.

- Policy C-RC 6 A comprehensive strategy for meeting long term projected demand for water should at a minimum include the following: a. Continued conservation and increased reclamation; b. Securing additional sources as supplemental supply; c. System and local storage capacity improvements; and d. Drought contingency planning and groundwater basin management programs.
- Policy C-RC 7 Countywide land use and growth management planning should be coordinated with overall water supply planning by the SCVWD in order to maximize dependability of long-term water supply resources.
- Policy C-RC 8 Environmental impacts of all state and local water supply planning and decision-making should be taken into full consideration.
- Policy C-RC 9 Conservation should continue to be considered an integral component of local water "supply" resources, effectively minimizing the amount of supplemental supplies which must be obtained from other sources.
- Policy C-RC 13 Use of reclaimed wastewater for landscaping and other uses, including groundwater recharge if adequately treated, should be encouraged and developed to the maximum extent possible.
- Policy C-RC 20 Adequate safeguards for water resources and habitats should be developed and enforced to avoid or minimize water pollution of various kinds, including: a. erosion and sedimentation; b. organic matter and wastes; c. pesticides and herbicides; d. effluent from inadequately functioning septic systems; e. effluent from municipal wastewater treatment plants; f. chemicals used in industrial and commercial activities and processes; g. industrial wastewater discharges; h. hazardous wastes; and i. non-point source pollution
- Policy C-RC 25 Wetlands restoration for the purpose of enhancing municipal wastewater treatment processes, improving habitat and passive recreational opportunities should be encouraged and developed where cost-effective and practical.
- Policy C-RC 63: Santa Clara County shall strive to reduce the quantity of solid waste disposed of in landfills and to achieve or surpass the requirements of state law (the law currently specifies 25 percent reduction of landfilled wastes by 1995, and 50 percent by 2000).
- Policy C-RC 64: Countywide solid waste management efforts shall be guided by the hierarchy of strategies outlined below, emphasizing resource recovery in accordance with state law:
    a. Source reduction and reuse by seeking innovative and effective means of reducing solid waste,
    b. Recycling and composting by considering efforts to increase markets for goods produced from recycled/reused materials as an essential feature of all efforts to manage solid waste and conserve landfill capacity,
    c. Transformation by exploring potential applications for waste transformation and energy generation technologies, and
    d. Landfilling as final option by acknowledging the need for long term disposal capacity and striving to maintain 20 to 30 years of ongoing collective disposal capacity.

- Policy C-RC 65: All solid waste management services and facilities shall conform to applicable federal, state, and local regulations and standards.

Health and Safety

- Policy C-HS 42 The long-term viability and safety of underground aquifers and groundwater systems countywide shall be protected to highest degree feasible.
- Policy C-HS 46 Hazardous materials, whether commercial, industrial, agricultural, or residential in character, should not be disposed of in any wastewater or on-site wastewater treatment system.

Transportation

- Policy C-TR 43 Upgrading the telecommunications infrastructure should be supported and encouraged as a means of enabling more telecommuting and the decentralization of work.

San José Zero Waste Strategic Plan

On October 30, 2007, the San José City Council adopted Resolution 74077, which established a goal to reduce the amount of material being sent to landfills by 75 percent by 2013, and a goal of zero waste by 2022. In San José, “zero waste” is defined as landfilling no more than 10 percent of waste or recycling 90 percent. To help reach the waste reduction goals, the City developed a Zero Waste Strategic Plan that identifies policies, programs, and facilities to be implemented in a phased approach in the short- and long-terms. In 2013, approximately 73 percent of the waste generated was diverted from landfill disposal through programs that include residential curbside recycling and yard trimmings collection programs, City facilities recycling, and the Construction and Demolition Diversion Deposit program.

Envision San José 2040 General Plan

The following Envision San José 2040 General Plan (2023 ~~2011~~) resource conservation policies may be applicable to the Project.

Infrastructure

- Policy IN-1.1 Provide and maintain adequate water, wastewater, and stormwater services to areas in and currently receiving these services from the City.
- Policy IN-1.3 Provide sustainable utility services and infrastructure in a cost-efficient manner consistent with Envision General Plan goals and policies related to Fiscal Sustainability.
- Policy IN-1.10 Require undergrounding of all new publicly owned utility lines. Encourage undergrounding of all privately owned utility lines in new developments. Work with electricity and telecommunications providers to underground existing overhead lines
- Policy IN-1.11 Locate and design utilities to avoid or minimize impacts to environmentally sensitive areas and habitats.
- Policy IN-3.1 Achieve minimum level of services: • For sanitary sewers, achieve a minimum level of service “D” or better as described in the Sanitary Sewer Level of

Service Policy and determined based on the guidelines provided in the Sewer Capacity Impact Analysis (SCIA) Guidelines. • For storm drainage, to minimize flooding on public streets and to minimize the potential for property damage from stormwater, implement a 10-year return storm design standard throughout the City, and in compliance with all local, State and Federal regulatory requirements.

- Policy IN-3.10 Incorporate appropriate stormwater treatment measures in development projects to achieve stormwater quality and quantity standards and objectives in compliance with the City's National Pollutant Discharge Elimination System (NPDES) permit.
- Policy IN-4.1 Monitor and regulate growth so that the cumulative wastewater treatment demand of all development can be accommodated by San José's share of the treatment capacity at the San José/Santa Clara Regional Wastewater Facility.
- Policy IN-5.3: Use solid waste reduction techniques, including source reduction, reuse, recycling, source separation, composting, energy recovery and transformation of solid wastes to extend the life span of existing landfills and to reduce the need for future landfill facilities and to achieve the City's Zero Waste goals.
- Policy IN-5.4: Support the expansion of infrastructure to provide increased capacity for Materials Recovery Facilities (MRF)/transfer, composting, and Construction and Demolition materials processing (C&D) at privately operated facilities and on lands under City control to provide increased long-term flexibility and certainty.

Measurable Sustainability

- Goal MS-5: Waste Diversion. Divert 100% of waste from landfills by 2022 and maintain 100% diversion through 2040.
- Policy MS-5.6: Enhance the construction and demolition debris recycling program to increase diversion from the building sector.
- Policy MS-6.5: Reduce the amount of waste disposed in landfills through waste prevention, reuse, and recycling of materials at venues, facilities, and special events
- Policy MS-6.8: Maximize reuse, recycling, and composting citywide
- Policy MS-18.12: Encourage stormwater capture and encourage, when feasible and cost-effective, on-site rainwater catchment for new and existing development.
- Policy MS-18.14: Participate in regional efforts to develop codes and standards for stormwater capture and graywater reuse, whenever feasible and cost-effective, and in areas that do not impact groundwater quality as determined through coordination with local agencies.
- Policy MS-20.3: Protect groundwater as a water supply source through flood protection measures and the use of stormwater infiltration practices that protect groundwater quality. In the event percolation facilities are modified for infrastructure projects, replacement percolation capacity will be provided.

Environmental Resources

- Policy ER-8.1 Manage stormwater runoff in compliance with the City's Post-Construction Urban Runoff (6-29) and Hydromodification Management (8-14) Policies.

- Policy ER-8.2 Coordinate with regional and local agencies and private landowners to plan, finance, construct, and maintain regional stormwater management facilities.
- Policy ER-8.4 Assess the potential for surface water and groundwater contamination and require appropriate preventative measures when new development is proposed in areas where storm runoff will be directed into creeks upstream from groundwater recharge facilities.
- Policy ER-8.5 Ensure that all development projects in San José maximize opportunities to filter, infiltrate, store and reuse or evaporate stormwater runoff onsite.
- Policy ER-8.7 Encourage stormwater reuse for beneficial uses in existing infrastructure and future development through the installation of rain barrels, cisterns, or other water storage and reuse facilities.

Community Development

- Policy CD-1.27 When approving new construction, require the undergrounding of distribution utility lines serving the development. Encourage programs for undergrounding existing overhead distribution lines. Overhead lines providing electrical power to light rail transit vehicles and high tension electrical transmission lines are exempt from this policy.

City of Morgan Hill General Plan

The following City of Morgan Hill 2035 General Plan (2017 ~~2016~~) resource conservation policies may be applicable to the Project.

Natural Resources and the Environment

- Policy NRE-7.2: Water Standards for Public Development. Promote water conservation and efficient water use in all public development projects. All new public buildings shall be designed to exceed State standards for water efficiency.
- Action NRE-7.A: Infrastructure Maintenance. Correct known deficiencies in the City’s sewer, storm drain, and water systems and work toward environmentally sustainable systems. Maintain the City’s infrastructure to ensure that facilities are up to date and incorporate efficiency and conservation mechanisms.

Safety, Services, and Infrastructure

- Policy SSI-6.8: Increased Capacity. Encourage increased stormwater and flood management infrastructure capacity in order to accommodate changes in climate, precipitation, and extreme weather events.
- Policy SSI-13.2: System Assessment. Evaluate the capacity and condition of water, wastewater, and stormwater facilities on a regular basis to assess each system’s ability to withstand increased wet and dry weather events, meet changes in demand, and determine system deficiencies.
- Action SSI-13.A: Utility Improvements. Create a plan a d schedule for converting overhead utilities to underground facilities.
- Action SSI-13.D: Inspections. Regularly inspect infrastructure more vulnerable to storms (e.g., wooden utilities poles) to ensure reliability during storm events.

- Policy SSI-14.1: Efficient Water Management. Manage the supply and use of water more efficiently through appropriate means, such as watershed protection, percolation, conservation, and reclamation. (South County Joint Area Plan 7.00.
- Policy SSI-14.7: Water District Programs. Encourage the Santa Clara Valley Water District to continue developing programs to assure effective management of water resources, such as well monitoring, percolation of imported water, reclamation, and conservation. (South County Joint Area Plan 7.07).
- Policy SSI-15.6: Regional Infrastructure Planning. Coordinate with Gilroy and Santa Clara County on the infrastructure and public services needed for future urban development, including their location and timing. (South County Joint Area Plan 17.08)
- Policy SSI-16.4: Regional System Compatibility. Coordinate with the Santa Clara Valley Water District to ensure compatibility of the local and regional storm drainage systems.
- Policy SSI-17.1: Waste Diversion. Maximize reuse, recycling, and composting citywide to reduce the amount of waste disposed of in landfills.
- Policy SSI-17.3: Public Waste Reduction. Reduce the amount of waste disposed of in landfills through waste prevention, reuse, and recycling at venues, public facilities, and special events.
- Policy SSI-18.1: Access and Availability. Work with service providers to ensure access to and availability of a wide range of state-of-the-art telecommunication systems and services for households, businesses, institutions, and public agencies in Morgan Hill.

3.21.3 Methodology and Approach to Impact Analysis

The impact analysis considers whether implementation of the Project would result in significant adverse impacts related to utilities and service systems. The analysis focuses on reasonably foreseeable effects of the Project on existing utility services based on review of data collected. This analysis considers temporary impacts, or short-term impacts that may occur during the 7-year construction period, as well as permanent impacts, or impacts considered to be long-term and/or that would result from ongoing facility operations and maintenance.

The direct and indirect impacts of the Project are described and evaluated according to significance criteria from Appendix G of the *CEQA Guidelines*, discussed below. The baseline used for the analysis of impacts to utilities consists of existing conditions at time of the EIR preparation as modified by FOCP implementation.

The assessment of impacts for the purposes of this section has been divided into construction-related impacts and operation-related impacts by Project ~~project~~ component, as identified and described in **Table 2-1** of Chapter 2, *Project Description*. **Table 3.21-1** provides a summary of projected construction excavation volumes expected at the BHBA, the PGBP, and the three staging areas. Additional information on impact assessment approach by Project ~~project~~ component is provided below.

Table 3.21-1. Summary of Construction Excavation Volumes

Location/Stage	Cubic Yards Excavated	Cubic Yards Unusable*	Cubic Yards Reusable	Reusable Percent
Basalt Hill Borrow Area	1,677,000 ~~1,170,000~~	470,000 ~~367,000~~	1,207,000 ~~803,000~~	72% ~~68%~~
Packwood Gravel Borrow Pit	205,000	45,000 ~~160,000~~	160,000 ~~45,000~~	78% ~~99%~~
Stage 1a	1,210,000 ~~1,104,000~~	117,500 ~~98,000~~	1,092,800 ~~1,006,000~~	91%
Stage 1b	1,573,700 ~~1,507,000~~	359,800 ~~324,000~~	1,213,900 ~~1,183,000~~	79% ~~76%~~
Stage 2a	899,000 ~~970,000~~	40,000	930,000	96%
Total	5,636,000 ~~4,956,000~~	1,032,300 ~~989,000~~	4,603,700 ~~3,967,000~~	82% ~~80%~~

Source: Valley Water 2023 ~~2021a~~

** Excavated dam foundation, materials excavated from portals, tunnels, structures, and the top materials from borrow areas that cannot be reused (or disposed of within the borrow areas themselves) would be disposed of within a designated Reservoir Disposal Area.*

3.21.3.1 Seismic Retrofit Construction

The impact analysis considers the potential for the construction of the Seismic Retrofit component to result in impacts that would require or result in the relocation or construction of new or expanded stormwater drainage, electric power, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. The analysis also considers whether the Project would generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, otherwise impair the attainment of solid waste reduction goals, or fail to comply with federal, State, and local management and reduction statutes and regulations related to solid waste. The location and nature of Seismic Retrofit construction activities are considered in the context of existing utilities and service systems that are within or immediately adjacent to the Project Area. The potential for Seismic Retrofit construction activities to result in a significant impact to the environment and public associated with utilities and service systems is evaluated. As described in Section 3.0, *Introduction*, the baseline for evaluating Seismic Retrofit construction effects is existing conditions at time of the EIR preparation as modified by FOCP implementation in 2020. Six Project ~~project~~ staging areas during seismic retrofit construction and construction of the Conservation Measures are proposed for the purposes of temporary offices and worker parking space, materials storage, construction vehicle and equipment parking and laydown areas, reservoir access, and stockpiling. As shown in **Table 2-4**, staging areas have been proposed in existing developed areas (picnic areas, parking lots) where possible, as well as some residential, open space, and undeveloped areas. Potential impacts to utilities consist of the protection of existing restroom facilities and the temporary removal of water fountains at the Live Oak Group Picnic Area during Project construction; and potentially the temporary removal of some lighting, landscaping and irrigation at a paved parking lot at the Anderson Reservoir boat launch parking lot. These construction-related impacts would be temporary and would not require or result in the relocation or construction of new or expanded facilities that could cause significant environmental effects. As a result, the potential impacts of the staging areas on utilities is not discussed further.

3.21.3.2 Conservation Measures Construction

Other components of the Project involve construction of Conservation Measures aimed at habitat restoration and facility improvements downstream of Anderson Dam. Impacts associated with utilities as noted above for the Seismic Retrofit component are analyzed for the Conservation Measure components. As described in Section 3.0, *Introduction*, the baseline for evaluating Conservation Measure construction effects is the existing conditions at time of the EIR preparation as modified by FOCP implementation.

Conservation Measures requiring construction activity that are evaluated in the impact analysis are:

- Ogier Ponds CM
- Maintenance Activities at Live Oak Restoration Reach
- Maintenance of the North Channel Reach ~~Extension~~
- Sediment Augmentation Program
- Phase 2 Coyote Perc Dam CM

3.21.3.3 Construction Monitoring

As described in Section 3.0, *Introduction*, the baseline for evaluating Construction Monitoring effects is the existing conditions at time of the EIR preparation as modified by FOCP implementation. Construction monitoring activities include data collection to monitor habitat environmental conditions (e.g., water quality, fisheries, sediment deposition, groundwater, invasive species); identify any changes to ecological functions and habitat values that have or may result from construction activity; and, where feasible, adjust construction activities to prevent or reduce the effect of those changes on baseline environmental conditions, often in compliance with Project regulatory permits. Construction monitoring activities are not considered in the impact analysis, as monitoring would involve data and information collection and assessment and would not result in direct or indirect adverse impacts related to utilities and service systems.

3.21.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

As described in Chapter 2, *Project Description*, Valley Water would maintain the seismically retrofitted Anderson Dam and Reservoir in accordance with the existing DMP, which covers the maintenance of this facility. The Final DMP Program EIR was approved in January 2012 (SCH No. 2007022052; Valley Water 2012), and the impacts to utilities and service systems associated with Anderson Dam and Reservoir were determined to be less than significant. Impacts related to utilities and service systems associated with post-construction dam maintenance activities would be largely the same as existing conditions, and therefore the impacts identified in the analysis do not differ substantially from those impacts identified in the DMP EIR, which would cover these activities. Furthermore, previously identified DMP impacts would not be exacerbated with implementation of the Project. Therefore, no new impacts would occur as a result of post-construction dam maintenance activities.

Therefore, post-construction dam maintenance activities are not discussed further in this section.

3.21.3.5 Post-Construction Conservation Measures Operations and Maintenance

Operations and maintenance of Conservation Measures involves typical inspection site activities, trash and debris removal, vegetation trimming, repair and replacement of equipment or materials and other minor activities associated with successful continued operation of the facilities. Post-construction operations and maintenance of Project ~~project~~ Conservation Measures, including maintenance of the Live Oak Restoration Reach, would not result in the need for construction of new or replacement of utility facilities. Nor would the amount of trash or debris to be removed during routine maintenance activities be in excess of state or local goals or otherwise limit attainment of waste reduction goals.

Therefore, operations and maintenance of Conservation Measures would not result in significant impacts related to utilities and service systems. Thus, these topics are not discussed further in this section.

3.21.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because they would not require the replacement, relocation, or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities. Also, they would not generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. These impacts are considered here at a programmatic level, because the detailed characteristics, timing, and/or locations of the proposed adaptive measures are not known at the time of EIR preparation. Project-specific CEQA review would be undertaken in the future, as necessary, when specific projects are proposed and project-specific details are available.

3.21.3.7 Applicable Best Management Practices and VHP Conditions

As noted in Chapter 2, *Project Description,* Valley Water would incorporate a range of BMPs, including measures from the VHP, to avoid and minimize adverse effects on the environment that could result from the Project. All relevant BMPs for the Project are included in Appendix A, *Best Management Practices and Santa Clara Valley Habitat ~~Conservation~~ Plan Conditions, Avoidance and Minimization Measures, and Mitigation Measures* ~~*Incorporated in the Project.* BMPs have been customized for the Project, as necessary, to increase the potential that the intended goals are achieved.~~ There are no relevant VHP conditions that would apply to utilities and service systems. BMPs relevant to utilities and service systems include the following:

> **WQ-16:** Prevent Stormwater Pollution – Would prevent stormwater pollution by installing sedimentation and erosion control measures.

> **WQ-17:** Manage Sanitary and Septic Waste – Would avoid the need for relocation or construction of wastewater treatment facilities through the use of temporary sanitary facilities.

3.21.3.8 Thresholds of Significance

For the purposes of this analysis, the Project would result in a significant impact on utilities and service systems if it would:

> **UTL-1:** Require or result in the replacement, relocation, or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects (criterion a); or

> **UTL-2:** Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, otherwise impair the attainment of solid waste reduction goals; or fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste (criteria d and e).

In addition to evaluating the physical effects of the Project to the study area's Utilities and Service Systems, applicable General Plan policies of the study area municipalities were considered when assessing the presence and severity of impacts on these systems, particularly with regard to Impact UTL-2.

3.21.3.9 Issues Dismissed from Further Review

CEQA Guidelines Appendix G suggests that projects may have a significant effect on utilities and service systems if they would require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects (criterion a). The Project would not involve the use, addition, replacement, or removal of natural gas pipelines or service within or immediately adjacent to the Project Area; therefore, no impact related to natural gas would result and this portion of the threshold (criterion a) is dismissed from further environmental evaluation. Project impacts to telecommunications facilities are addressed in Impact UTL-1 below.

CEQA Guidelines Appendix G suggests that projects may have a significant effect on utilities and service systems if they would have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years (criterion b). As discussed in the IS/NOP (Appendix B), the Project is designed to improve the safety, reliability, and flexibility of Valley Water's water supply by improving dam seismic stability. For this reason, the IS dismissed criterion b from further analysis. Impacts related to Valley Water's water supply are discussed in Section 3.13, *Water Supply*. Also, the Project by its very nature involves construction of new or expanded water supply facilities. These water supply facilities are described in Chapter 2, *Project Description*, and evaluated throughout this EIR, so are not separately evaluated in this section. The availability of water supply for construction activities, as well as water supply and supplemental groundwater replenishment supplies during construction while the Anderson Reservoir is drained and/or offline, are addressed in Section 3.13, *Water Supply*. The Project would not require construction of any new water supply treatment facilities. For these reasons, Project impacts on water facilities are not evaluated further in this section.

CEQA Guidelines Appendix G also suggests that projects may have a significant effect on utilities and service systems if they would result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments (criterion c). As described in the IS, during Project construction, portable toilets would be provided at the construction site, and wastewater generated from construction employees would be disposed of at the SCRWA wastewater treatment plant. The Project would comply with all State, RWQCB, and local requirements related to the disposal of sewage, and daily wastewater generated at the construction site would not exceed wastewater treatment requirements. Additionally, the Project would not result in any changes to the restrooms at Anderson Lake County Park, which would be closed throughout the Seismic Retrofit construction and would not result in the generation of additional wastewater requiring treatment and disposal.

The Project would have no impacts associated with wastewater treatment requirements, would not require new or expanded wastewater facilities, and thus, would have no impact on wastewater treatment demand or facilities. Lastly, Valley Water BMP WQ-17 would avoid the need for relocation or construction of wastewater treatment facilities through the use of temporary sanitary facilities. For these reasons, the impact with regard to wastewater service and facilities would be less than significant and this threshold (criterion c) is dismissed from further environmental evaluation.

During the public scoping period, the public expressed concern about the availability of irrigation water to residents along Coyote Road during Project construction. This issue is addressed in Section 3.13, *Water Supply*.

3.21.4 Impact Analysis

***Impact UTL-1: Require or result in the replacement, relocation, or construction of new or expanded stormwater drainage, telecommunication, or electric power facilities, the construction or relocation of which could cause significant environmental effects* (Less than Significant)**

Seismic Retrofit Construction

Construction of the Seismic Retrofit has the potential to impact utilities through the replacement, relocation, or construction of new or expanded stormwater drainage, telecommunication, or electric power facilities. The potential of the Seismic Retrofit to affect each resource type during construction and operation is discussed below.

Stormwater Drainage Facilities

As described in Chapter 2, *Project Description*, stormwater would be routed from upstream of the dam into the water diversion system and released into Coyote Creek; stormwater from downstream areas (at the spillway and outlet works construction areas and BHBA) would be collected and pumped to an ATS and released into Coyote Creek. Construction activities would also be subject to Valley Water BMP WQ-16, and conditions of the Project's SWPPP. In particular, BMP WQ-16 would protect stormwater quality through the use of sedimentation and erosion control measures. For the post-construction operations of the Anderson Dam Facilities, new or expanded stormwater facilities would not be required. Therefore, new or expanded stormwater drainage facilities (other than those included in the Project) would not be required for Seismic Retrofit components construction, and construction impacts on stormwater drainage would be less than significant.

Telecommunication Facilities

The existing SCADA copper-twisted pair telemetry cable would be replaced with 5,000 linear feet of new fiber optic SCADA telemetry cable between Anderson Dam and the Peet Road Junction Valve Vault. As described in Section 2.5.4 of Chapter 2, *Project Description*, the new telemetry cable would be installed using the cut-and-cover construction method with excavations up to 8-feet deep at locations of existing pullboxes and trenching up to 15-feet deep along existing conduit. Trenches would be shored to minimize excavation footprints. As noted above, all construction activities would be subject to Valley Water BMP WQ-16, and conditions of the Project's SWPPP. The proposed SCADA in-place replacement cables would serve the Anderson Dam, hydroelectric facility, and the Coyote Pumping warehouse and would not extend to existing or future offsite development. Aside from the telemetry cable installation, no activities related to telecommunication service would take place. These telecommunication cables would be located in areas that would be disturbed as a result of other construction activities associated with the Seismic Retrofit components, or within existing utility corridors. Therefore, construction impacts related to telecommunication facilities would be less than significant.

Electrical Facilities

Final decommissioning of the Anderson Dam hydroelectric facility would be a part of the Seismic Retrofit to improve cost efficiency of dam operations. Termination of the connection between the existing facility and PG&E infrastructure related to power generation occurred in 2018. As part of the Seismic Retrofit component, mechanical and electrical equipment would be disassembled and removed from the facility. This would occur during the first year of construction; all work would occur within the existing footprint of the facility. Following decommissioning, the hydroelectric facility would require minimal maintenance-related activities, including activities to prevent the dilapidation of the abandoned structure (e.g., routine annual inspections, building maintenance and repair, trash and debris removal, and vegetation management). Decommissioning of the hydroelectric facility would not require Valley Water or PG&E to construct new or expanded electrical facilities, because Valley Water stopped power generation at the facility in 2018 and is pursuing decommissioning as part of the Project due to the increasing cost to operate and maintain the aging infrastructure, which exceeded the value of the renewable energy that the facility generated.

During construction, electrical power would be supplied to all the Seismic Retrofit facilities (except facilities at the boat ramp parking area) by PG&E through an existing overhead 12.47 kV power distribution line along Coyote Road that will be constructed by PG&E during the FOCP. Toward the end of construction, the overhead line, power cables, utility poles, and distribution transformer would be relocated to new, permanent locations that are closer to the LLOW. Power needed for the temporary bypass pumping system in Year 2 and Year 6 may also require use of diesel-powered generators to support required pumping. Relocation of the overhead line, power cables, and distribution transformer would be implemented according to standard construction measures and best practices; accordingly, construction impacts would not be significant.

For those facilities located at the boat ramp parking area, electrical power would also be supplied by PG&E through overhead lines that connect to an existing overhead 12.47 kV power distribution line along Coyote Road. These overhead lines would be disconnected so the pole, transformers, and service equipment could be demolished for dam excavation and construction. Following completion of the dam, PG&E would install a new pole, service lines, and transformers at the left end of the dam. Reconstruction of the pole, service lines, and transformers would be implemented according to standard construction measures and best practices; accordingly, construction impacts would not be significant.

In the event of a major PG&E power outage, an emergency diesel generator and associated components, including an automatic transfer switch, installed during the FOCP near the diversion outlet structure, would be available for emergency power supply. The generator, rated at 277/480 Volt for a three-phase, four-wire distribution system, was sized at 500 kVA and would be able to be continuously operated. During the construction of the Seismic Retrofit components, the generator would be relocated to a location near the LLOW. Based on the above analysis, impacts related to electrical power facilities during Seismic Retrofit components construction would be less than significant.

Conservation Measure Construction

Construction of the Ogier Ponds CM would involve installation of a creek bypass system, partial or complete dewatering of Ponds 1, 2, 4, and 5, and construction of a spillway and outlet culvert. Construction of the Phase 2 Coyote Percolation Dam CM would include construction of a ramp up to the bladder dam foundation and alterations to provide adequate flow depth and velocity across the foundation and deflated bladder dam. ~~Construction~~ Maintenance of the North Channel ~~Extension~~ Reach would involve minor and intermittent maintenance activities (e.g., vegetation management, replacement plantings, and maintenance of the wetland bench~~)~~ ~~extending the channel previously modified during the FOCP to facilitate drainage and reconnection with Coyote Creek; work includes grading and vegetation removal~~. Construction activities included in Sediment Augmentation Program would improve geomorphic processes that create and maintain steelhead habitat (sediments and spawning gravels) and reduce channel incision that is typical in Lower Coyote Creek downstream of the dam. No new stormwater drainage, electrical power, or telecommunication infrastructure would be constructed as part of any of these Conservation Measures components.

Conservation Measures components construction activities would not require additional water supply or telecommunications facilities. Stormwater treatment and conveyance would conform to Valley Water BMP WQ-16 and SWPPP measures, as described above for Seismic Retrofit construction. Construction of the Conservation Measures components would rely upon electricity provided initially by onsite generators powered by diesel and/or propane and would not require the expansion of electrical utilities to the conservation measure sites. Construction activities associated with the Conservation Measures components would not result in an increased demand related to new or expanded storm water drainage, electrical power, or telecommunications facilities nor would the construction activities require the construction of new or relocation of existing utility facilities resulting in significant environmental effects. Therefore, impacts would be less than significant.

Post-Construction Anderson Dam Facilities Operations and Maintenance

Post-construction releases from Anderson Reservoir would be consistent with FAHCE rule curves and pulse flows. The proposed releases would not require new or expanded stormwater, telecommunications, or electrical facilities.

The Seismic Retrofit components, once constructed, would not substantially increase stormwater discharges to existing stormwater drainage systems, and therefore, would not require or result in the relocation or construction of new or expanded offsite stormwater management facilities. This impact would be less than significant.

Following relocation of the overhead line, power cables, and distribution transformer closer to the LLOW, operation and maintenance of electrical equipment would continue unchanged from current conditions. Similarly, after PG&E installs a new pole, service lines, and transformers at the boat ramp parking area, operation and maintenance of those facilities would conditions after implementation of the FOCP (existing conditions baseline). Electrical power for the operation of the dam facilities would be provided by existing electrical facilities.

Operations and maintenance of the existing electrical and telecommunications infrastructure associated with the Seismic Retrofit components would be similar to how those activities are performed under the existing conditions after implementation of the FOCP (existing conditions baseline). Operation and maintenance of the Seismic Retrofit components would not result in a substantial increase in electrical and telecommunications demand. Based on the above analysis, impacts related to the replacement, relocation, or construction of public utilities would be less than significant.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek Watershed, such as exotic species removal, replacement riparian planting, or additional sediment augmentation. These actions would occur when conservation measures are not functioning as intended or not meeting measurable objectives. Adaptive actions would occur in Anderson Reservoir or within the Coyote Creek floodplain and may require the limited use of water or electricity. These refinements would likely have impacts similar to those discussed in this section for Conservation Measure construction and post-construction operations. Thus, adaptive management-related impacts associated with the use of utilities would not result in an increased demand related to new or expanded stormwater drainage, electrical power, or telecommunications facilities. Impacts would be less than significant.

Significance Conclusion Summary

As described above, construction of the Seismic Retrofit components would not require construction of new stormwater, telecommunications, or electric facilities. Relocation of some power lines would be required as part of the Seismic Retrofit component, and this process has been incorporated into the design of the Seismic Retrofit components. The utility infrastructure proposed to be relocated to serve the seismically retrofitted facilities would not affect other users. Decommissioning of the hydroelectric facility would not require Valley Water or PG&E to construct replacement electrical facilities. Therefore, impacts related to the replacement, relocation, or construction of public utilities would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact UTL-2: Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, otherwise impair the attainment of solid waste reduction goals, or fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste **(Less than Significant)**

Seismic Retrofit Construction

As described in Section 3.21.2, *Regulatory Setting*, the SCCIWMP describes implementation methods to divert waste away from landfills and encourage recycling and composting. More specifically, the City of San José's Construction and Demolition Diversion Deposit Program requires projects to achieve a 50 percent recycling rate. The recycling requirement may be met through direct facility recycling, reuse of the materials on site, or donation to reuse and salvage businesses in the Bay Area.

As discussed above, excavated materials not suitable for disposal in the reservoir disposal area would be hauled to an appropriate landfill depending on the material quantity and composition. Solid waste generated by the Project would include construction debris, demolition materials, excavated soils, and refuse. As shown in **Table 3.21-1** above, Seismic Retrofit construction would involve excavation of approximately 5,636,000 cy of material. Most of this material would be reused as fill material or disposed of in reservoir disposal areas. However, Project activities would generate solid waste that would be disposed of at off-site facilities. Solid waste generated by the Project includes but is not limited to approximately 12,500 cy of steel reinforced concrete excavated during spillway replacement; approximately 20,740 cy of concrete and 6,915 cy of asphalt demolished during repaving of Cochrane Road; and additional excavated material from the Basalt Hill Borrow Area and the Packwood Gravel Borrow Pit that cannot be reused. The Newby Island Landfill, Guadalupe Landfill, and Zanker Material Processing Facility are all certified under the City of San José's program to process mixed construction and demolition (C&D) waste. The landfills in San José have an estimated combined remaining capacity of approximately 33 million cy, and all but the Zanker Material Processing Facility have an estimated closure date beyond 2040.

As discussed in Chapter 2, *Project Description*, earthen materials associated with the removal and reconstruction of Anderson Dam would be primarily re-used on-site. The Project design includes excavating the shells of the dam and most of the core down to clay core foundation to receive the new embankment. The excavated shell and core materials would be salvaged from the dam shell excavation and stockpiled for reuse. **Table 3.21-1** provides a summary of earthwork volumes and their respective re-usable rate. In addition, construction would require clearing and grubbing; much of the vegetative material removed during this process would be chipped and re-used onsite.

As shown in **Table 3.21-1**, Seismic Retrofit construction would meet the City of San José's 50 percent recycling rate through the reuse of earthwork onsite. Collectively, Seismic Retrofit components would result in an estimated 1,032,300 ~~1,150,000~~ cy of material that could not be re-used onsite and would be placed in a 30-acre Reservoir Disposal Area within the reservoir on the west side of the downstream portion of the southern reservoir arm. This use of the Reservoir Disposal Area would reduce the quantities of material that would be sent to local landfills. All solid waste generated by the Project that cannot be utilized onsite would be disposed of at one or more of the City-certified mixed C&D waste facilities. These landfills would have the capacity to accept the Project's solid waste spread out over the course of the approximately 7-year-long construction period. If any soil is found to contain hazardous materials, excess soils would be characterized, transported from the Project Area, and disposed of at an appropriate landfill in compliance with federal, state, and local regulations. Refer to Section 3.10, *Hazards and Hazardous Materials*, for information regarding disposal of hazardous materials.

Seismic Retrofit components would not generate solid waste that would exceed federal, State or local standards, or exceed the capacity of local infrastructure, or impair the attainment of any solid waste goals. Seismic Retrofit construction would comply with applicable management and reduction regulations related to solid waste and would achieve an overall 80 percent diversion rate of re-usable materials. Thus, the Seismic Retrofit would comply with AB 939 by achieving a greater than 75 percent diversion rate. As mentioned above, the Project would meet diversion requirements for City of San José's Construction and Demolition Diversion Deposit Program. Therefore, this impact would be less than significant.

Conservation Measure Construction

Both the Ogier Ponds CM and the Phase 2 Coyote Percolation Dam CM would generate solid waste during construction activities. For construction of the Ogier Ponds CM, placement of about 630,000 ~~494,000~~ cy of fill would be necessary. Approximately 135,700 ~~114,000~~ cy would be soil that is reused from the excavation site. Construction of the Phase 2 Coyote Percolation Dam CM would require approximately 10,000 ~~6,400~~ cy of engineered fill material.

In addition, both Conservation Measures components would result in the removal of debris from the sites. Debris removed would consist of the unusable excavation material, vegetation and other organic material, and materials typically associated with construction. Unusable materials consist of top materials from borrow areas that cannot be reused or disposed of within the borrow areas themselves. While some of debris material would be re-used onsite. However, as mentioned above, the landfills in San José have an estimated combined remaining capacity of approximately 33 million cy. Additionally, all the listed landfills except the Zanker Material Processing Facility have an estimated closure date of 2040 or beyond. Any non-recyclable solid waste generated by the construction of these measures would be processed at one or more of these mixed C&D City-certified facilities, which would dispose of the leftover residue.

Because some waste would be re-used and based on the nature of the conservation measure construction process, this component of the Project would not generate solid waste in excess of federal, State, or local standards, or in excess of the capacity of local infrastructure, or impair the attainment of any solid waste goals. Additionally, implementation of Conservation Measures would comply with applicable management and reduction regulations related to solid waste. Therefore, this impact would be less than significant.

Post-Construction Anderson Dam Facilities Operations and Maintenance

Post-construction releases from Anderson Reservoir would be consistent with FAHCE rule curves and pulse flows. The proposed releases would not generate solid waste. Maintenance of Anderson Dam facilities also would not generate substantial amounts of solid waste, and any solid waste impacts would be minimized by the DMP and its BMPs. Anderson Dam Facilities operations and maintenance activities would not generate solid waste that would exceed federal, State or local standards, or exceed the capacity of local infrastructure, or impair the attainment of any solid waste goals.

Post-Construction Project and FAHCE Adaptive Management

The implementation of adaptive actions as part of the Project and FAHCE AMP may include refinements to the timing, frequency, and duration of Anderson Dam flow releases or physical changes in the Coyote Creek Watershed. Adaptive actions may require excavation and/or removal of material. Impacts of adaptive actions are expected to be similar to but less than impacts of constructing the Conservation Measures being adaptively managed. Thus, this component of the Project would not generate solid waste in excess of federal, State, or local standards, or in excess of the capacity of local infrastructure, or impair the attainment of any solid waste goals. Therefore, this impact would be less than significant.

Significance Conclusion Summary

The Project would neither generate solid waste exceeding the capacity of existing local solid waste management facilities, nor conflict with the Santa Clara County Integrated Waste Management Plan, the City of San José's Zero Waste Strategic Plan or local or State policies or regulations. Therefore, the Project would not generate solid waste that exceeds State or local standards or exceeds capacity of local solid waste management infrastructure, or otherwise impair attainment of solid waste reduction goals. The Project would comply with federal, State, and local management and reduction statutes and regulations related to solid waste. Therefore, the Project's impacts related to solid waste would be **less than significant**.

Mitigation Measures

No mitigation is required.

3.21.5 Cumulative Impact - Utilities and Service Systems

The study area for the cumulative impact analysis on utilities and service systems includes portions of the communities of the county and San José and Morgan Hill that are within the footprint of the Project Area and within the construction limits of the Seismic Retrofit and Conservation Measure components of the Project. This section describes the Project's contribution to cumulative recreation impacts, as summarized in **Table 3.21-2**.

Cumulative impact thresholds for recreation are the same as the impact thresholds presented in Section 3.21.3.8, *Thresholds of Significance*.

Table 3.21-2. Summary of Project Impact Contribution to Cumulative Utilities Impacts

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact UTL-1: Require or result in the replacement, relocation, or construction of new or expanded stormwater drainage, telecommunication, or electric power facilities, the construction or relocation of which could cause significant environmental effects	No	No	NCC	None	No
Cumulative Impact UTL-2: Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, otherwise	No	No	NCC	None	No

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
impair the attainment of solid waste reduction goals, or fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste					

Key: NCC = not cumulatively considerable

Cumulative Impact UTL-1: Require or result in the relocation or construction of new or expanded water, stormwater drainage, or electric power facilities, the construction or relocation of which could cause significant environmental effects (**Not Cumulatively Considerable)**

As discussed in Section 3.21.4, construction, operations, and adaptive management-related impacts associated with the Project would not result in an increased demand related to new or expanded stormwater drainage, electrical power, or telecommunications, the construction or relocation of which could cause significant environmental effects.

Cumulative Effects of Project with the FOCP

As described in Chapter 2, *Project Description*, no changes to existing utilities were implemented as part of the FOCP. Therefore, impacts to utilities between the Project and the FOCP would not be cumulatively significant, and the Project's contribution would not be cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Construction of the Seismic Retrofit would include temporary impacts to utilities including the temporary rerouting of stormwater during construction; the protection of existing restroom facilities and the temporary removal of water fountains at the Live Oak Group Picnic Area during Project construction; and potentially the temporary removal of some lighting, landscaping and irrigation at a paved parking lot at the Anderson Reservoir boat launch parking lot; replacement of existing telecommunication lines with fiberoptic cable; relocation and construction of electric power lines and transformers within the Seismic Retrofit Project Area ~~project area~~; and the decommissioning of the Anderson Dam hydroelectric facility, which has been nonoperational since 2018 and which involves leaving the existing infrastructure in place. All construction activities would have a less than significant environmental effect with the implementation of Valley Water best management practices and standard construction measures. New or expanded stormwater drainage, telecommunication, and electric power facilities would not be required for the post-construction operations of the Anderson Dam Facilities and Anderson Lake County Park.

Relevant projects within the study area that could have a potential impact on utilities include the Pacheco Reservoir Expansion Project, the Valley Water Encampment Clean Up Program, Residential, Commercial, Industrial, and Recreation Area Development within Santa Clara County. The Pacheco Reservoir Expansion Project is slated for construction from 2027 through 2034 and is located approximately 53 miles southeast of the Project. Due to the location of this project relative to the Project and the need to comply with federal and state requirements, it is unlikely that cumulatively significant impacts to water, stormwater, or electrical utilities would occur.

Regarding the Valley Water Encampment Clean Up Program and future Residential, Commercial, Industrial, and Recreation Area Development generally in Santa Clara County, the timing of those projects is ongoing and may overlap with Project construction and implementation. While it is possible these projects could require the construction or relocation of utilities which could cause an individual or cumulatively considerable environmental effect, these projects will also be required to undergo an evaluation of any potential environmental impacts and provide avoidance and minimization or mitigation measures for any identified effects in compliance with federal, state, and local requirements. The Project's impacts when added to the impacts of other probable future impacts are not cumulatively significant, and the Project's contribution is not cumulatively considerable.

Significance Conclusion Summary

Project activities would not result in a significant environmental effect due to the relocation or construction of utilities. Additionally, as any impacts would be limited to the Project area in timing and scope and as other projects in the study area will be required to provide avoidance and minimization, or mitigation measures for any potential environmental effects resulting from the relocation or construction of new or expanded utilities, the Project's impacts when added to the impacts of other probable future impacts related to the relocation or construction of new or expanded utilities on local service areas are **not cumulatively significant**, and the Project's contribution is **not cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Cumulative Impact UTL-2: Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, otherwise impair the attainment of solid waste reduction goals, or fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste (Not Cumulatively Considerable)

As discussed in Section 3.21.4, the Project would re-use approximately 80 percent of all solid waste generated by the Project (in compliance with the City of San Jose's 50 percent recycling rate and AB 341 75 percent diversion requirements), resulting in approximately 1,032,300 ~~989,000~~ cubic yards of unusable solid waste, of which the majority would be placed in a 30-acre Reservoir Disposal Area onsite. Any waste off-hauled would be disposed of in compliance with federal, state and local management and reduction statutes and regulations related to solid waste.

Cumulative Effects of Project with the FOCP

As described in Section 2, *Project Description*, as part of the FOCP, excavated materials from the diversion portal and diversion tunnel material and other FOCP activities were stockpiled onsite in anticipation of future construction work. These quantities were minimal in comparison to the proposed Seismic Retrofit and have been incorporated into **Table 3.21-1**, Summary of Construction Excavation Volumes and compliance with City of San Jose and AB 939 requirements. Accordingly, the effect on solid waste generation of the Project with the FOCP is not cumulatively significant, and the Project's contribution is not cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Most of the cumulative projects listed in Section 3.0.5, *Approach to Cumulative Impacts*, regardless of construction date, would dispose of construction debris at available landfills, which would contribute to reductions in available landfill capacity. Similar to the Project, these projects would be subject to 75 percent diversion requirements pursuant to AB 341. Additionally, Santa Clara County's Integrated Waste Management Plan identified the unified goals, policies and objectives for waste management across the county, with an overall objective of complying with CIWMA. Accordingly, individual projects will be required to comply with applicable federal, state and local requirements for solid waste diversion both individually and cumulatively. Therefore, the Project with other probable projects is not cumulatively significant, and the Project's contribution is not cumulatively considerable.

Significance Conclusion Summary

The Project would not generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure. The Project would not otherwise impair the attainment of solid waste reduction goals, or fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste. The Project's impacts when added to the impacts of the FOCP or other probable future projects would **not be cumulatively significant**, and the Project's impacts would **not be cumulatively considerable**.

Mitigation Measures

No mitigation is required.

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3.22 Wildfire

This section describes the impacts of the Project related to wildfire. The regulatory setting and environmental setting are provided as a basis for evaluating significant impacts.

The study area used to assess impacts related to wildfire includes the Project Area of the Seismic Retrofit and Conservation Measures components (i.e., the Project Area), inclusive of construction limits, as well as any adjacent lands within a 500-foot buffer that are designated or zoned for fire hazard severity and/or wildland urban interface (WUI). The baseline used for the analysis of wildfire impacts consists of existing conditions at the time of EIR preparation as modified by the FOCP implementation.

3.22.1 Environmental Setting

The environmental setting presents existing wildfire conditions in the Project study area. **Figure 3.22-1** shows the Project Area in relation to CALFIRE's Fire Hazard Severity Zones (FHSZ) and the SRA, and **Figure 3.22-2** shows the Project Area in relation to WUI zones. Wildland urban interface is dense housing adjacent to vegetation that can burn in a wildfire while wildland urban intermix is housing development interspersed in an area dominated by wildland vegetation subject to wildfire (CALFIRE 2019a). The wildfire influence zone is wildfire susceptible vegetation up to 1.5 miles from WUI or wildland urban intermix (CALFIRE 2019a).

Fire Hazard Severity Zones

CALFIRE maps FHSZ based on factors such as fuel, slope, and fire weather. The designated zones are classified as having moderate, high, and very high fire severity. FHSZs do not predict where wildfires may occur, but they do indicate where the effects of a wildfire could be greater and have more impact to values at risk such as residences or watersheds. The goal of FHSZ mapping is to reduce the loss associated with wildfire by incorporating the risk of wildfire into planning, fire prevention, and fire mitigation measures. **Table 3.22-1** summarizes the areas of FHSZs within the Seismic Retrofit component area, which includes HFHSZ. These areas are shown in **Figure 3.22-1**.

A portion of the Project Area is located within a SRA, and it is designated a HFHSZ (CALFIRE 2007a). The Project Area also includes lands located within a LRA that are not considered a HFHSZ (CALFIRE 2008). Finally, the Project Area includes lands located within the WUI, as mapped by the County (County 2009) and shown in **Figure 3.22-2**. WUI areas are locations where urbanized areas adjoin wildland areas that contain fuel, terrain, and other characteristics that make them conducive to wildfire and the spread of wildfire from wildland areas into urbanized and developed areas.

Table 3.22-1. Fire Hazard Severity Zones Within the Project Area

Fire Hazard Severity Zone Classification	Acres Within the Seismic Retrofit Component Area
Moderate	469
High	57
No Fire Hazard Severity Zone	747

CALFIRE 2019b

Fire History

Although wildfires occur on an annual basis throughout the county, they are often contained through early identification, maintaining emergency access routes, and an extensive County-fire suppression response. However, fires can quickly increase in size and cause significant damage if ignitions occur during unfavorable weather (i.e., dry and windy) and/or in areas with poor access. Several fires have occurred in the Project Area vicinity, including but not limited to:

- The 2023 Cochrane Fire, which burned 72 acres north of Morgan Hill adjacent to the Kirby Canyon Landfill and Coyote Ridge Open Space Preserve (CALFIRE 2023a).
- The 2020 Santa Clara Unit Lightning Complex Fire, which was the third largest wildfire in California history, burning 396,624 acres and spanning Stanislaus, Santa Clara, Alameda, Contra Costa, and San Joaquin Counties (CALFIRE 2021). The closest perimeter of the Santa Clara Unit Lightning Complex Fire is located approximately 6 miles northeast of the Project Area.
- The 2020 Park Fire, which burned 343 acres southeast of Anderson Reservoir over three days. The extent of this fire included residential areas along East Dunne Avenue and Finley Ridge Road (CALFIRE 2023b).
- The 2011 McDonald Fire, which burned approximately 60 acres near McDonald Lane in Morgan Hill west of Anderson Reservoir (CALFIRE 2011).
- ~~The perimeter of t~~ The 2007 Lick Fire, which burned 47,183 acres. The perimeter of the 2007 Lick Fire is~~also~~ located approximately 6 miles northeast of the Project Area (CALFIRE 2007b ~~2020~~).

Other fire incidents have occurred recently in the Anderson Reservoir area that required emergency response from CALFIRE, including but not limited to a vehicle fire on Shady Lane Drive east of Anderson Reservoir in 2023. CALFIRE has historically used Anderson Reservoir as a source of water for firefighting, via dipping of water buckets by helicopter.

Fire Threat (CALFIRE)

A risk/hazard assessment of Morgan Hill conducted as part of the Santa Clara County CWPP identified the Project Area as having areas of low, moderate, high, and extreme risk for Fire Threat (County 2016 ~~SWCA 2016b~~), as summarized in **Table 3.22-2** and shown in **Figure 3.22-3**. A Fire Threat is a combination of two factors: 1) historic fire frequency, which is an indicator of the likelihood of a given area burning, and 2) potential fire behavior (hazard), based on fuels, terrain, wind patterns, and other characteristics that lead to a heightened risk of wildfire. These two factors are combined to create four threat classes ranging from moderate to extreme. Fire

Threat represents the relative likelihood of a damaging or difficult to control wildfire occurring in a given area. A portion of the Project Area is located within high and very high fire threat areas, indicating that fires that start within certain portions of the Project Area have the potential to be difficult to control and have the potential for impacts on various assets and values susceptible to fire.

Table 3.22-2. Fire Threat Zones Within the Project Area

Fire Threat Classification	Acres Within the Project Study Area
Low	27
Moderate	68
High	74
Very High	10
Unmapped	1,093

CALFIRE 2019b

Fire Suppression Access/Evacuation Routes

Access and evacuation routes typically overlap, with fire crews traveling towards an advancing fire as residents and visitors to an area travel away from the fire. Existing access roads to the Project site in case of emergency and potential evacuation routes within the study area include:

Highway 101: A north-south freeway extending northward to San Francisco and southward through Gilroy. US 101 is an eight-lane freeway (three mixed-flow lanes and one HOV lane in each direction) north of Cochrane Road. South of Cochrane Road, US 101 narrows to a six-lane freeway with no HOV lanes. Access to and from the Project Area and the San Pedro Avenue staging area is provided via the US 101 interchanges at Cochrane Road, Dunne Avenue, and Tennant Avenue. US 101 would also serve as the collector route for evacuations.

Las Animas Road: A two-lane local road that extends from the Las Animas Road eastern terminus to San Felipe Road. Las Animas Road would provide direct access to the Project Area via the constructed Shingle Valley Road Haul Road. Emergency vehicles may use this road to enter the Project Area while visitors to the surrounding recreational areas may use the road to evacuate, depending on the specific wildfire behavior.

Shingle Valley Road: A two-lane local road that extends from Las Animas Road in the east to Metcalf Road. Shingle Valley Road would provide direct access to the Project Area via the constructed Shingle Valley Road Haul Road. Emergency vehicles could use this road to enter the Project Area while visitors to the surrounding recreational areas could use the road to evacuate, depending on the specific wildfire behavior.

Shingle Valley Haul Road ~~Haul~~: The Project would include the construction of an extension of Shingle Valley Road that would provide direct access to the northwest side of Anderson Reservoir along Las Animas Creek. Emergency vehicles could use this road, once constructed, to gain further access to the Project Area, depending on the specific wildfire behavior.

Main Avenue: As designated as an arterial per the 2035 City of Morgan Hill General Plan, Main Avenue is a two-lane east-west roadway that extends from Cochrane Road to the east to John Telfer Drive to the west. Main Avenue provides access to the Project Area via Cochrane Road and access to the San Pedro staging area via Hill Road.

Cochrane Road: An east-west arterial per the 2035 City of Morgan Hill General Plan, Cochrane Road extends from Main Avenue to the east to Monterey Road to the west. Cochrane Road is a four-lane divided roadway west of Mission View Drive and a two-lane undivided roadway east of Mission View Drive. Cochrane Road provides direct access to the Project Area and provides access to Coyote Road. This road may be used by emergency vehicles to access the Project Area, and the roadway may also be used as an evacuation route for the surrounding area, depending on the specific wildfire behavior.

Monterey Road ~~Highway~~: A east-west arterial that extends from Cochrane Road to the east to First Street in San José to the west. Monterey Highway is a six-lane divided roadway that provides access to the Ogier Ponds CM area via Ogier Avenue from Monterey Highway.

Dunne Avenue: An east-west arterial per the 2035 City of Morgan Hill General Plan, Dunne Avenue transverses the City of Morgan Hill. The roadway provides access to the San Pedro Avenue staging area via Hill Road and provides access to Anderson Reservoir via Holiday Drive. This road may be used by emergency vehicles to access the Project Area, and the roadway may also be used as an evacuation route for the surrounding area, depending on the specific wildfire behavior.

Hill Road: A two-lane north-south undivided road that extends from Main Avenue to the north to Maple Avenue to the south. Hill Road provides direct access to the San Pedro Avenue staging area from East Dunne Avenue, an exit off US 101.

Holiday Drive: A two lane north-south undivided road that connects to East Dunne Avenue. This road has been identified as an evacuation route for the Holiday Lakes Estates and Jackson Oaks communities.

Quail Lane/ Copper Hill Drive: A two lane north-south undivided road that connects to Holiday Drive. This road has been identified as an evacuation route for the Holiday Lakes Estates and Jackson Oaks communities.

Jackson Oaks Drive: A two lane east-west undivided road that connects to Holiday Drive and East Dunne Avenue. This road has been identified as an evacuation route for the Holiday Lakes Estates and Jackson Oaks communities.

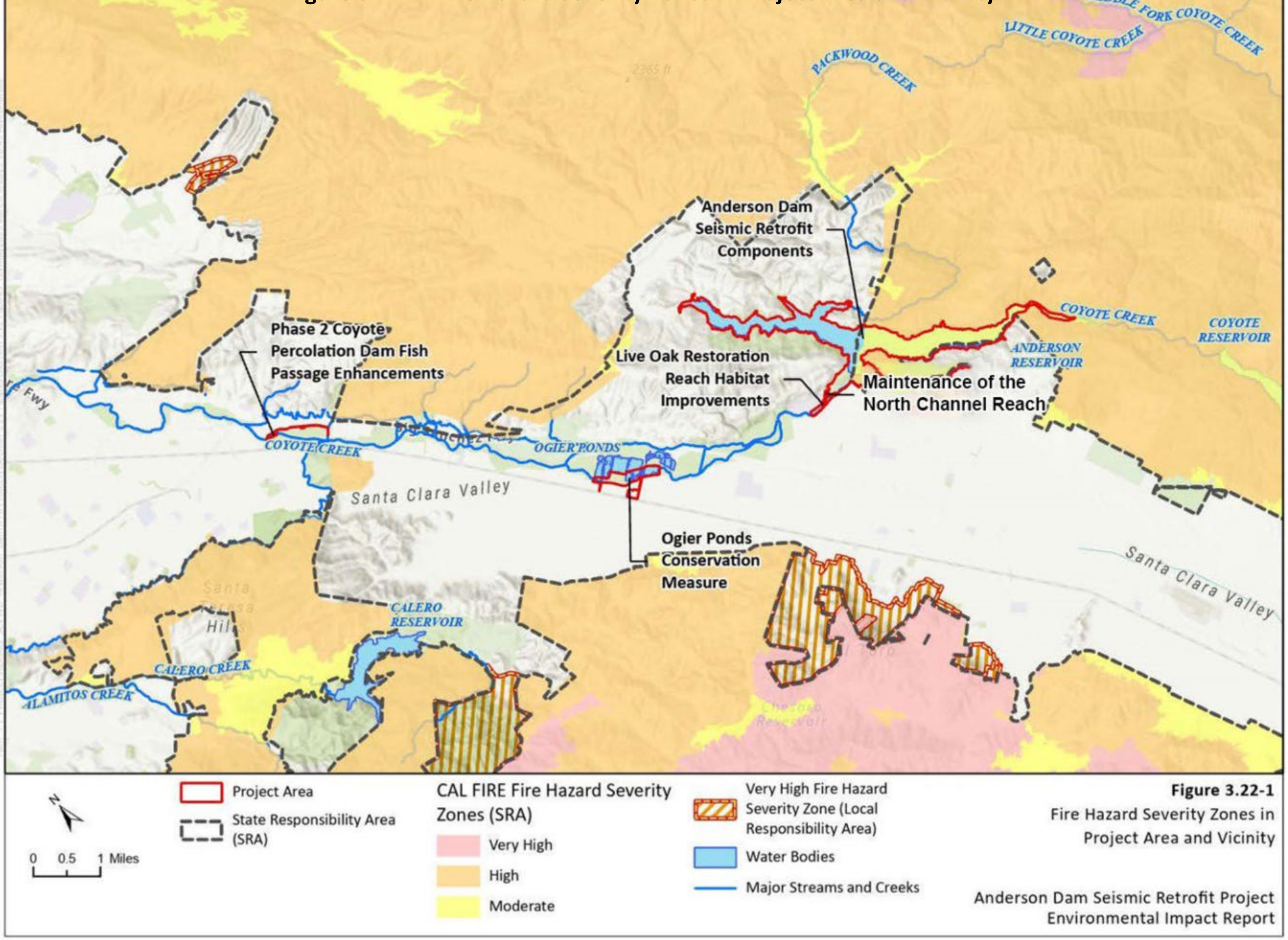
Oak Leaf Drive: A two lane north-south undivided road that connects to East Dunne Avenue. This road has been identified as an evacuation route for the Holiday Lakes Estates and Jackson Oaks communities.

Thomas Grade: A two lane east-west road that connects East Dunne Avenue at both ends, providing an alternative route to East Dunne Avenue. This road has been identified as an evacuation route for the Holiday Lakes Estates and Jackson Oaks communities

In general, despite these regional access/evacuation routes, the Project is located in an area where wildfire risk and associated evacuation challenges are a community concern. Residents in the surrounding areas, namely Holiday Lakes Estates and Jackson Oaks, have expressed concerns to Valley Water regarding the adequacy of evacuation routes during a wildfire event.

These communities have limited existing evacuation options, with a single primary route (East Dunne Avenue) available for residents to leave the area in the event of a wildfire. Regarding the lack of identified evacuation routes through the Rosendin Park area, please see discussion "Regulatory Setting, Community Wildfire Protection Plan" below.

Figure 3.22-1. Fire Hazard Severity Zones in Project Area and Vicinity



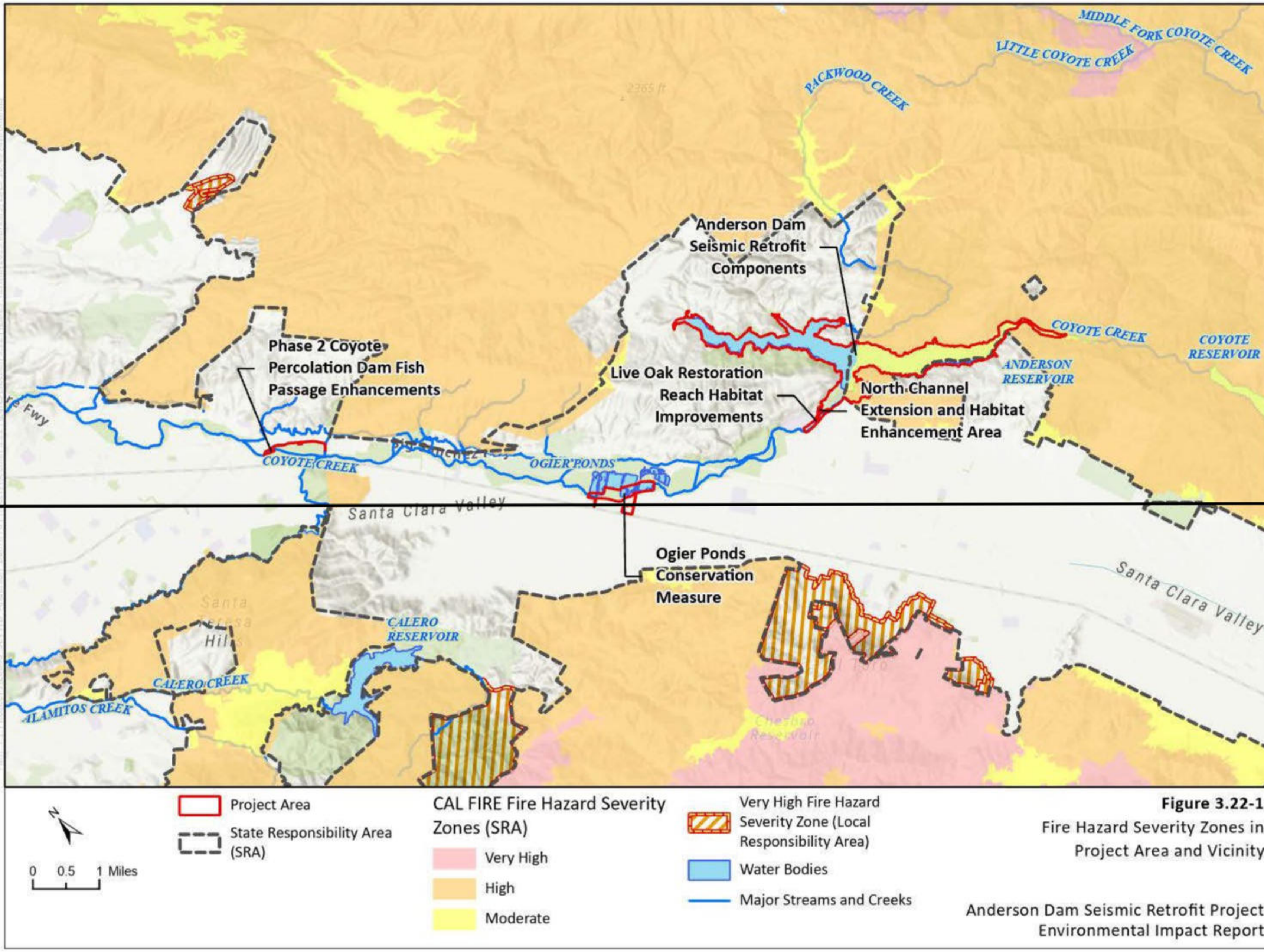
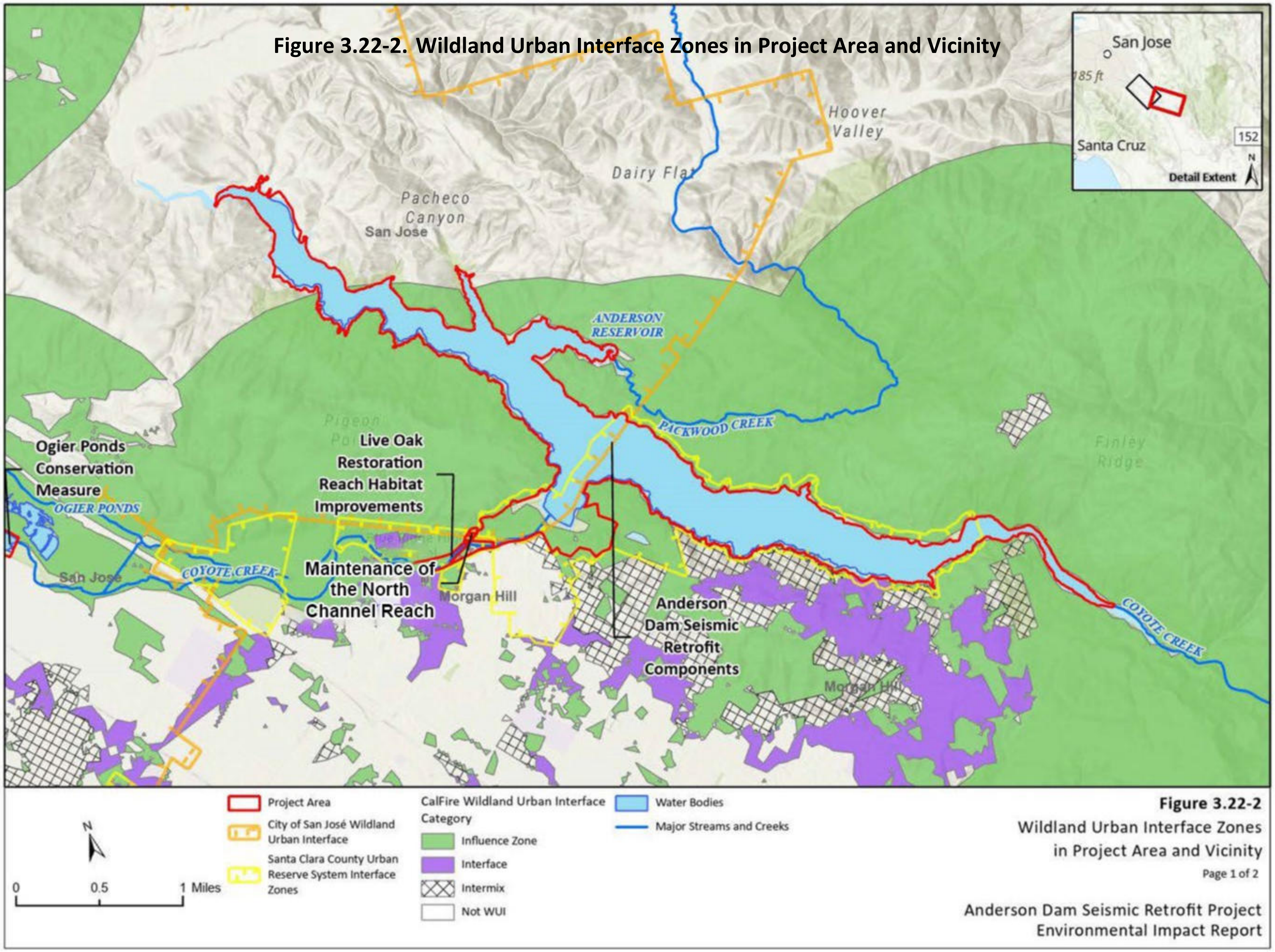


Figure 3.22-1
Fire Hazard Severity Zones in Project Area and Vicinity

Figure 3.22-2. Wildland Urban Interface Zones in Project Area and Vicinity



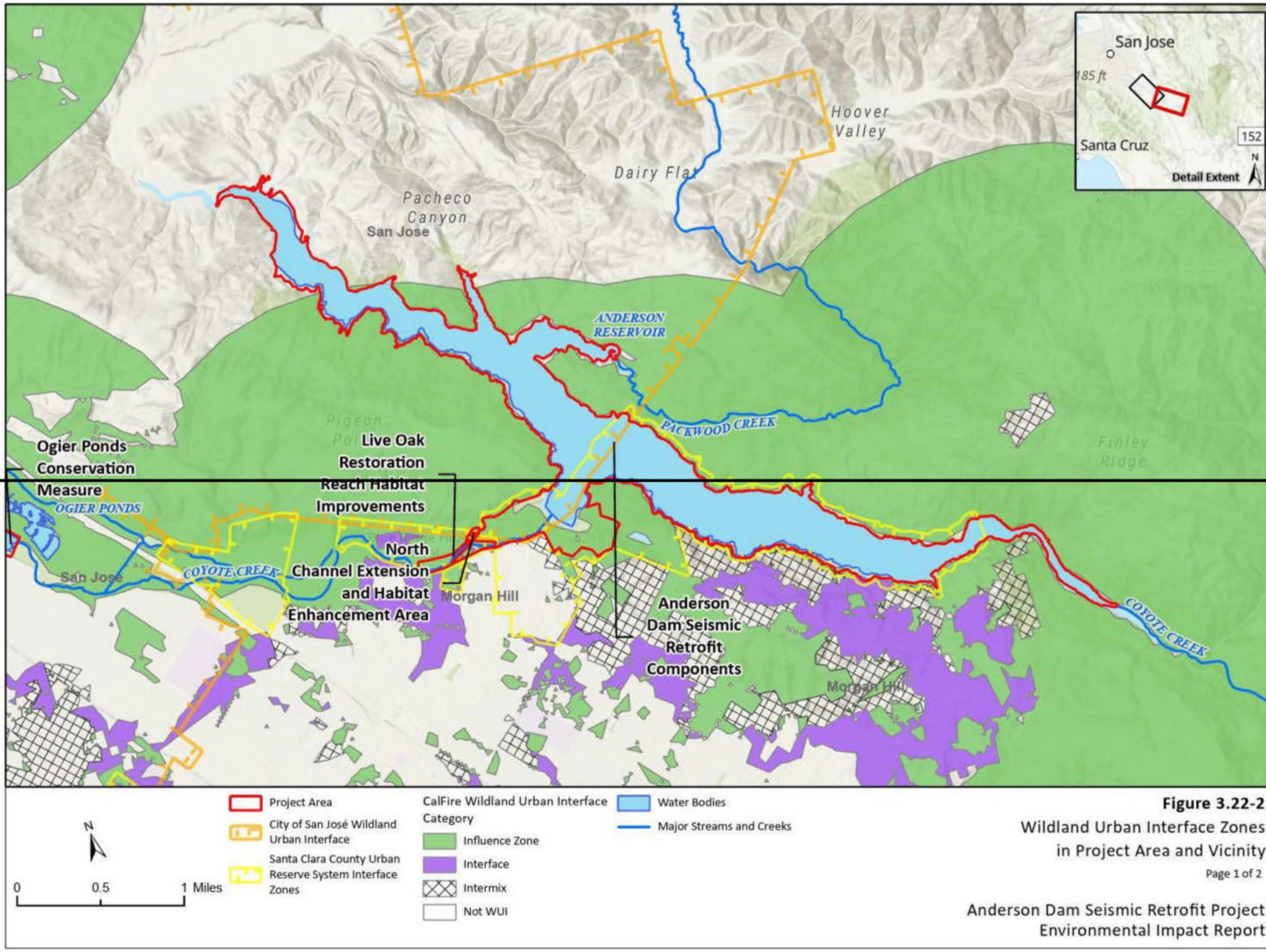


Figure 3.22-2
Wildland Urban Interface Zones in Project Area and Vicinity
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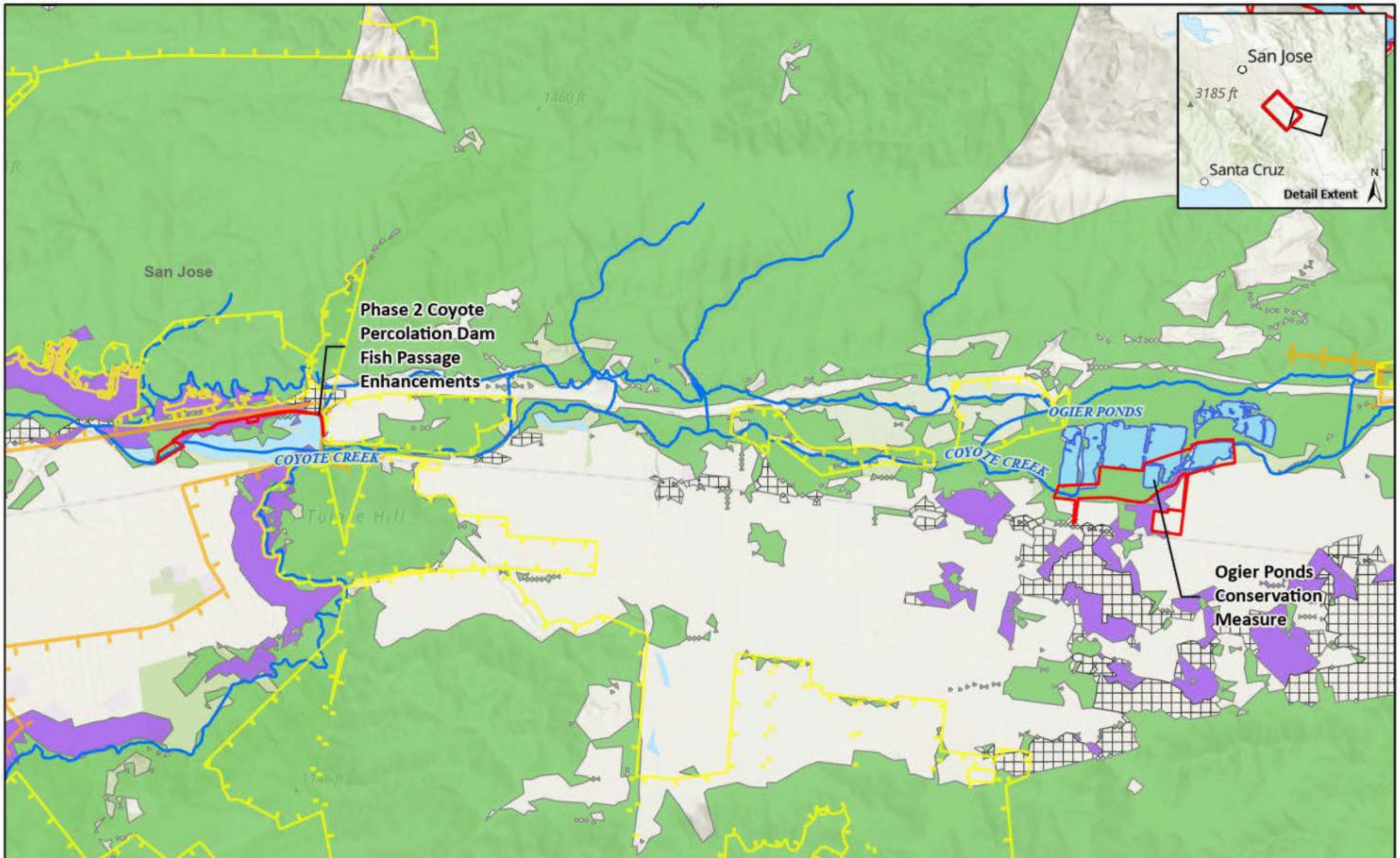

Figure 3.22-2
Wildland Urban Interface Zones in Project Area and Vicinity
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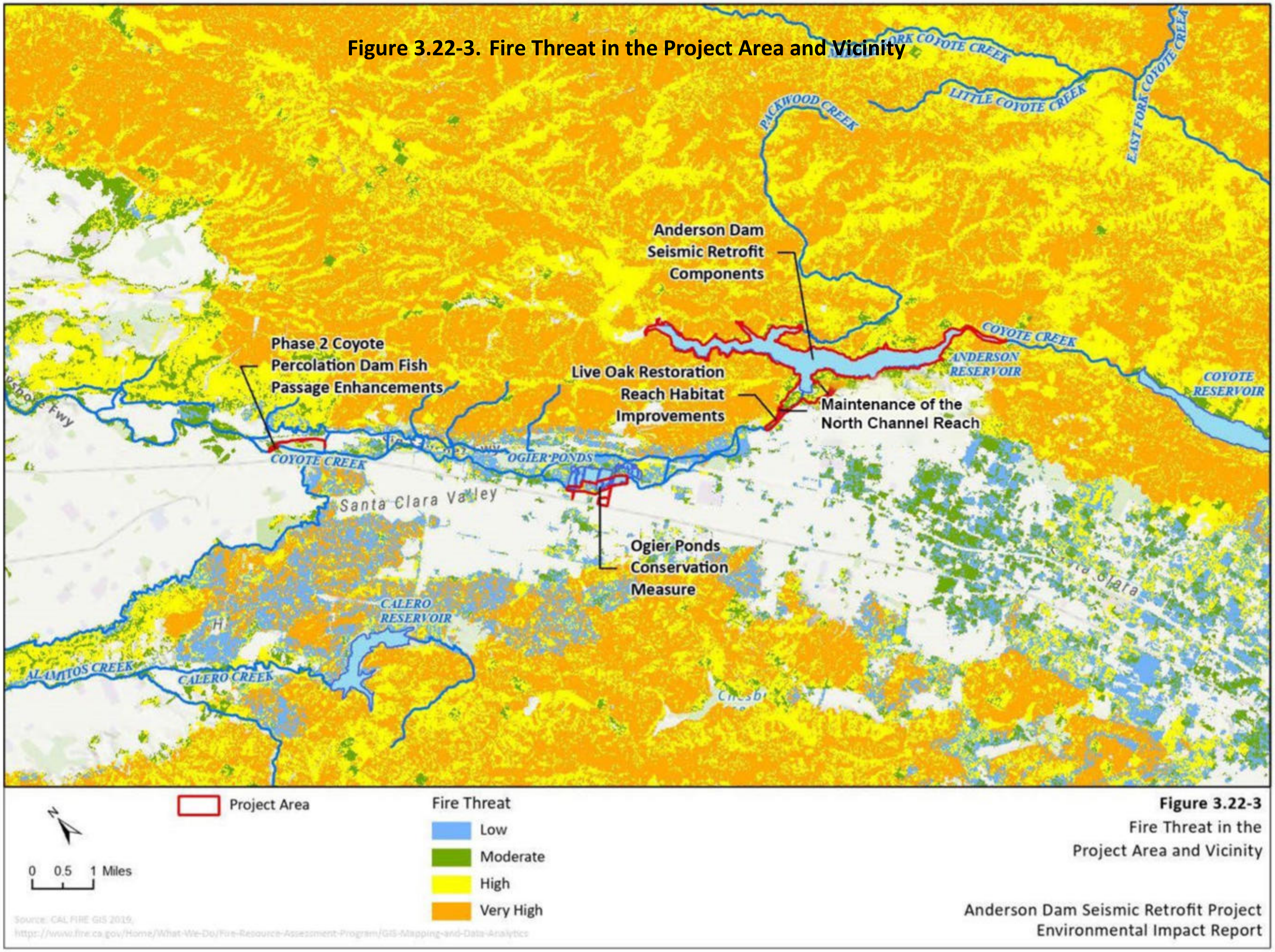
Figure 3.22-3. Fire Threat in the Project Area and Vicinity



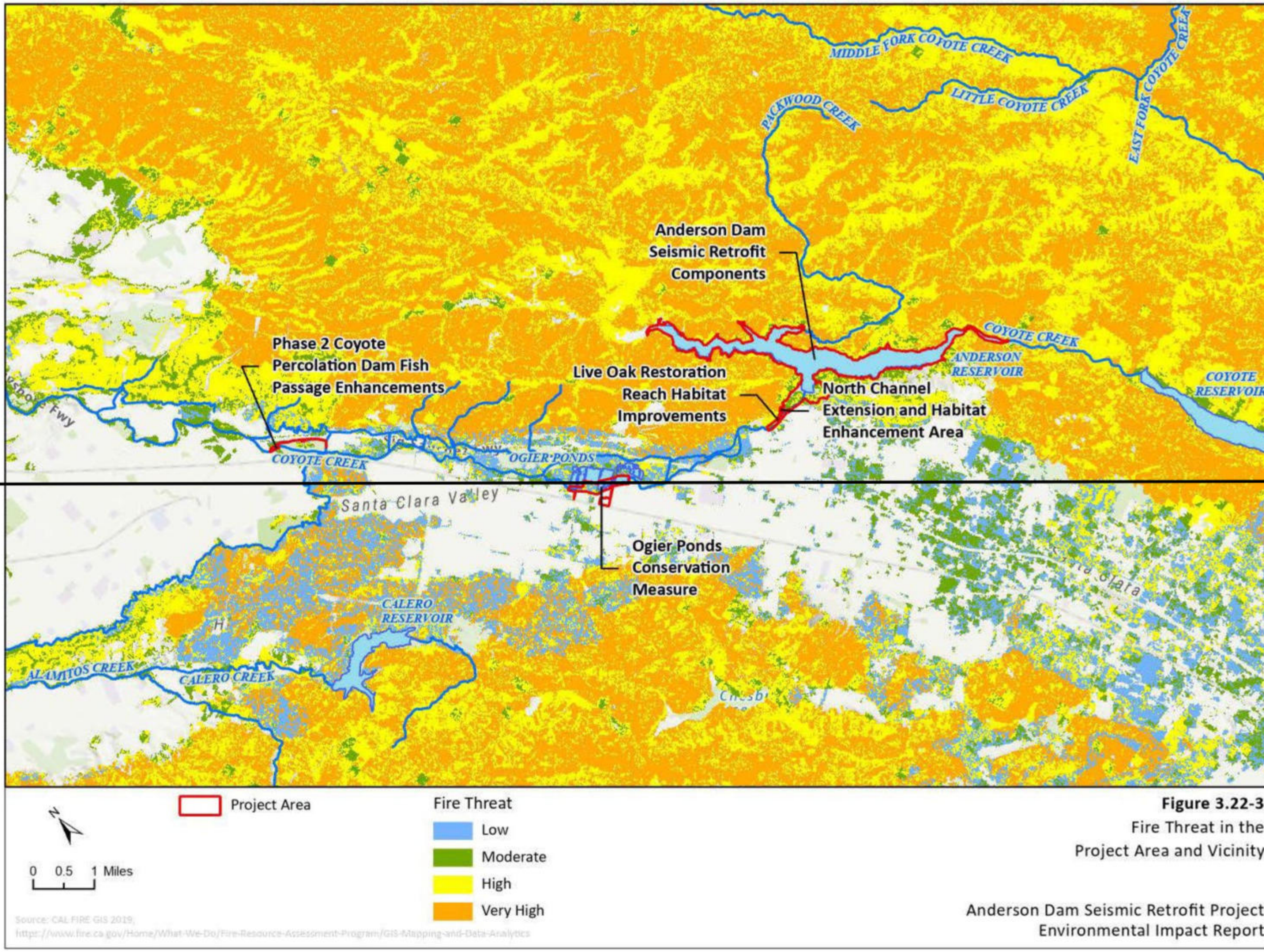


Figure 3.22-3
Fire Threat in the Project Area and Vicinity

Anderson Dam Seismic Retrofit Project
Environmental Impact Report

3.22.2 Regulatory Setting

There are no federal laws, regulations, or policies that are pertinent to the Project's impacts related to wildfire. This section summarizes State and local laws, regulations, and policies pertinent to the evaluation of the Project's wildfire impacts.

3.22.2.1 State Laws, Regulations, and Policies

California Public Resources Code

The PRC includes fire safety regulations restricting the use of certain equipment that could produce sparks or flames and specifies requirements for the safe use of gasoline-powered tools in fire hazard areas.

PRC Sections 4125-4137 (Responsibility for Fire Protection) requires the State Board of Forestry and Fire Protection to classify all state lands for the purpose of determining areas in which the financial responsibility of preventing and suppressing fires is primarily the responsibility of the State, or SRA, and therefore under the jurisdiction of CALFIRE. All state lands that are not classified as an SRA are considered to be the responsibility of local or federal agencies and are considered LRAs or Federal Responsibility Areas. There are no Federal Responsibility Areas in the vicinity of the Project Area.

PRC Sections 4201-4204 (Fire Hazard Severity Zones) directs CALFIRE to map and periodically review FHSZ within SRAs, based on determining factors such as fuel loading, slope, and fire weather and winds. These FHSZs are the basis for identifying requirements for fire protection found in other regulations such as the California Fire Code.

California Fire Code

The California Fire Code (Title 24 of the CCR, Part 9) establishes minimum requirements to safeguard public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings. Chapter 33 of the CCR contains requirements for fire safety during construction and demolition as follows:

> **3304.1 Smoking.** Smoking shall be prohibited except in approved areas. Signs shall be posted in accordance with Section 310. In approved areas where smoking is permitted, approved ashtrays shall be provided in accordance with Section 310.
>
> **3304.2 Combustible debris, rubbish, and waste.** Combustible debris, rubbish, and waste material shall comply with the requirements of Sections 3304.2.1 through 3304.2.4.
>
> **3304.2.1 Combustible waste material accumulation.** Combustible debris, rubbish, and waste material shall not be accumulated within buildings.
>
> **3304.2.2 Combustible waste material removal.** Combustible debris, rubbish, and waste material shall be removed from buildings at the end of each shift of work.
>
> **3304.2.3 Rubbish containers.** Where rubbish containers with a capacity exceeding 5.33 cubic feet (40 gallons) (0.15 m^3 [cubic meter]) are used for temporary storage of combustible debris, rubbish, and waste material, they shall have tight-fitting or self-closing

lids. Such rubbish containers shall be constructed entirely of materials that comply with either of the following:

1. Noncombustible materials.
2. Materials that meet a peak rate of heat release not exceeding 300 kW/m^2 when tested in accordance with American Society for Testing Materials E1354 at an incident heat flux of 50kW/m^2 in the horizontal orientation.

3304.2.4 Spontaneous ignition. Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container.

3304.6 Cutting and welding. Operations involving the use of cutting and welding shall be done in accordance with Chapter 35.

3304.7 Electrical. Temporary wiring for electrical power and lighting installations used in connection with the construction, alteration, or demolition of buildings, structures, equipment, or similar activities shall comply with the California Electrical Code.

3308.1 Program superintendent. The owner shall designate a person to be the fire prevention program superintendent who shall be responsible for the fire prevention program and ensure that it is carried out through completion of the Project. The fire prevention program superintendent shall have the authority to enforce the provisions of this chapter and other provisions, as necessary, to secure the intent of this chapter. Where guard service is provided, the superintendent shall be responsible for the guard service.

3308.2 Prefire plans. The fire prevention program superintendent shall develop and maintain an approved prefire plan in cooperation with the fire chief. The fire chief and the fire code official shall be notified of changes affecting the utilization of information contained in such prefire plans.

3310.1 Required access. Approved vehicle access for firefighting shall be provided to all construction or demolition sites. Vehicle access shall be provided to within 100 feet of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads, capable of support vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available.

3316.1 Conditions of use. Internal combustion–powered construction equipment shall be used in accordance with all of the following conditions:

1. Equipment shall be located so that exhausts do not discharge against combustible material.
2. Exhausts shall be piped to the outside of the building.
3. Equipment shall not be refueled while in operation.
4. Fuel for equipment shall be stored in an approved area outside of the building.

CCR Title 14, Division 1.5, Chapter 7, Subchapter 2 contains the SRA Fire Safe regulations. These regulations apply to all new construction within SRAs. Local agencies may adopt ordinances that meet or exceed these minimum standards.

California Building Code

The California Building Code Chapter 7A and California Fire Code Chapter 49 includes regulations adopted to increase the ability of buildings constructed in any Fire Severity Zone to resist the intrusion of flames or burning embers projected by a vegetation fire. The intent is to reduce structure loss associated with wildfire.

California Department of Forestry and Fire Protection

CALFIRE provides fire protection and stewardship of over 31 million acres of California's privately-owned wildlands. In addition, CALFIRE provides varied emergency services in 36 of the state's 58 counties via contracts with local governments. Portions of the Project Area are located within lands subject to an SRA designation. These are lands where the State of California bears financial responsibility for the prevention and suppression of wildfires.

Portions of the Project Area are also located within the CALFIRE Santa Clara Unit (SCU). The SCU prepares an annual Strategic Fire Management Plan for the upcoming fire season. The plan documents an assessment of the fire situation in the SCU, includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work within the local fire problem area.

2018 Strategic Fire Plan for California

The Strategic Fire Plan, developed by the State Board of Forestry and Fire Protection, provides direction and guidance to CALFIRE and its 21 field units. The 2018 Strategic Fire Plan sets forth a number of goals focused on fire prevention, natural resource management, and fire suppression efforts. These goals are summarized below:

a. Improve the availability and use of consistent, shared information on hazard and risk assessments

b. Promote the role of local planning processes, including general plans, new development, and existing developments, and recognize individual landowner/ homeowner responsibilities

c. Foster a shared vision among communities and the multiple fire protection jurisdictions, including county-based plans and community-based plans such as Community Wildfire Protection Plans (CWPP)

d. Increase awareness and actions to improve fire resistance of man-made assets at risk and fire resilience of wildland environments through natural resource management

e. Integrate implementation of fire and vegetation fuels management practices consistent with the priorities of landowners

f. Determine and seek the needed level of resources for fire prevention, natural resource management, fire suppression, and related services

g. Implement needed assessments and actions for post-fire protection and recovery

Space for Fire Protection

The State of California requirements regarding defensible-space are contained in PRC Section 4291 and Government Code Section 51182. PRC Section 4291 primarily directs the creation of defensible space in SRAs. The code generally includes a requirement to maintain defensible space of 100 feet from each side and from the front and rear of structures, but not beyond the property line except under specific circumstances.

California Public Utilities Commission

The CPUC has a significant role in permitting investor-owned utility transmission and substation facilities. This oversight applies to the Project's power transmission lines and substations as they were constructed and are operated by PG&E under the jurisdiction of the CPUC. General Order (GO) 95 applies to the construction, operation, and maintenance of overhead lines that are subject to CPUC jurisdiction.

Wildfire Mitigation Plans

California SB 901 was enacted in 2018. SB 901 requires every electric utility to prepare a wildfire mitigation plan. California AB 1054, signed into law July 2019, created the California Wildfire Safety Advisory Board, a board of independent expert advisors, to advise a new Wildfire Safety Division within the CPUC on wildfire safety measures, including plans written by utilities, so that the CPUC can more effectively regulate the safety of investor-owned utilities.

3.22.2.2 Regional and Local Laws, Regulations, and Policies

Santa Clara County Emergency Operations Plan and Wildfire Annex

The Santa Clara Office of Emergency Management updated the County EOP in 2022 ~~2017~~ (Santa Clara Office of Emergency Management 2022 ~~2017~~). The EOP provides a comprehensive, single source of guidance and procedures for the County to prepare for, respond to, and manage significant or catastrophic natural or man-made threats, crises, incidents, or events that produce situations requiring a coordinated response.

The Santa Clara County Emergency Operations Plan Wildfire Annex (Wildfire Annex) was updated in 2019 (Santa Clara County Office of Emergency Management 2019). The Wildfire Annex is intended as a reference guide for readers to consult at key moments during preparedness and response, as well as by organizational planners during annex review and revision. In addition, the Wildfire Annex includes resources and tools available for use to successfully manage a wildfire event and includes a section on evacuation considerations. Under the procedures outlined in the Wildfire Annex, field-level Unified Command will act as the lead in evacuating the public from designated evacuation areas with support from the Santa Clara County Fire Department and other mutual aid partners.

Santa Clara County Fire Department/Fire Marshal

The Fire Chief serves as the County Fire Marshal and provides management oversight for Santa Clara County's Office of Emergency Management and 9-1-1 Communication Center. The County Fire Marshal's Office is responsible for fire prevention activities in most unincorporated areas of the county. The department also provides emergency response to over 226,000 residents in the communities of Campbell, Cupertino, Los Altos, Los Altos Hills, Los Gatos, Monte Sereno, Redwood Estates, Saratoga, and adjacent unincorporated areas.

Santa Clara County Fire Marshal Standards and Specifications

Section A33-47 of Santa Clara County Code and Section 101 of the California Fire Code give the County Fire Marshal the authority to make and enforce such rules and regulations for the prevention and control of fire and fire hazards that may be necessary to carry out the intent of the Code. Copies of the Santa Clara County Fire Marshall Standards and the County Fire Code Amendments can be found on the Santa Clara County Department of Planning and Development website (County 2021).

The Fire Marshal's Office also has the responsibility for enforcing Title 19 of the CCR, and portions of the California Building Code, as adopted by the County. A copy of the County Fire Code is kept at the County Clerk of the Board's Office (County ~~Santa Clara County Fire Marshal~~ 2021).

Santa Clara County Community Wildfire Protection Plan

The Santa Clara County CWPP was developed in 2016 (County ~~Santa Clara Fire~~ 2016) to provide a countywide strategic plan with goals for creating a safer WUI community, accompanied by report annexes that address specific issues and projects by jurisdiction and stakeholder organizations to meet the strategic goals.

As described in the CWPP, there are potential emergency evacuation routes that utilize trails within Anderson Lake County Park and the Rosendin Park Area. However, according to the CWPP website FAQ, the CWPP and various annexes are considered final drafts that have not been officially approved or adopted. Specifically, the FAQ states: "The most recent [CWPP] final draft was completed in August 2016 and couldn't be approved before the Loma Fire started in September 2016. With the Loma Fire burning 4,474 acres before the CWPP could be approved, many priority fire prevention projects identified in various CWPP Annexes became no longer applicable. Representatives from Santa Clara County Fire Department (SCCFD) and CALFIRE then agreed to postpone the approval and adoption process until the affected portions of the CWPP could be updated" (County 2023). Thus, the existing CWPP at the time of Final EIR preparation, including its Annex 18, is not an adopted emergency evacuation plan. Additionally, the County has clarified that any routes identified through the Rosendin Park Area, including the Rancho Laguna Seca Trail, are intended solely for the evacuation of park visitors and are not designated as formal public evacuation routes, nor were they designed, built or maintained for this purpose (E. Ross, Pers. Comms., December 19, 2024). CALFIRE (South Santa Clara County Fire District) has also stated that trails through Rosendin Park are not evacuation routes (C. Alcantar, Pers. Comms., December 18, 2024).

Furthermore, there is a new draft of CWPP Annex 18, *County of Santa Clara Department of Parks and Recreation*, that does not identify any evacuation routes, including in the Anderson Lake vicinity or in any other county parks facilities (County 2024). The updated Annex 18 is planned to be considered for adoption in 2025 as part of the updated countywide CWPP (R. Eisner, Pers. Comms., December 23, 2024). Based on the above information, trails within the Rosendin Park Area were not evacuation routes at the time of EIR preparation and are not included as future evacuation routes in the planned 2025 updated CWPP.

Santa Clara County General Plan

The Santa Clara County General Plan does not provide specific policies around wildfire but does include policies regarding general natural hazards. These policies include:

- **C-HS 29**: Inventories and mapping of natural hazards should be adequately maintained for use in planning and decision-making.
- **C-HS 30**: Local jurisdictions' urban development and land use policies should minimize the resident population within areas subject to high natural hazards in order to reduce the overall risk to life and property, and the cost to the general public of providing urban services and infrastructure to urban development.
- **C-HS 32**: Areas of significant natural hazards shall be designated in the County's General Plan as Resource Conservation Areas with low development densities in order to minimize public exposure to avoidable risks.
- **C-HS 33**: Development in areas of natural hazards should be designed, located, and otherwise regulated to reduce associated risks, by regulating the type, density, and placement of development where it will not be directly jeopardized by hazards, increase hazard potential, and increase risks to neighboring properties.
- **C-HS 35**: Information about the prevalence and threats of natural hazards shall be provided to the public to maintain general awareness and support for governmental actions needed to improve public safety.

City of Morgan Hill General Plan

The Goal of the City of Morgan Hill's General Plan for fire hazards is to minimize threats to persons, property, and the environment. The policies include:

- **SSI-3.1 Development in Fire Hazard Areas**: Minimize development in fire hazard areas and plan and construct permitted development so as to reduce exposure to fire hazards and to facilitate fire suppression efforts in the event of a wildfire.
- **SSI-3.2 Wildfire Risks**: Avoid actions which increase fire risk, such as increasing public access roads in fire hazard areas, because of the great environmental damage and economic loss associated with a large wildfire.
- **SSI-3.3 Public Facilities Location**: Locate, when feasible, new essential public facilities outside of high fire risk areas, including, but not limited to, hospitals and health care facilities, emergency shelters, emergency command centers, and emergency communications facilities, or identify construction methods or other methods to minimize damage if these facilities are located in a state responsibility area or very high fire hazard severity zone.
- **SSI-3.4 Adequate Infrastructure**: Design adequate infrastructure if a new development is located in a state responsibility area or in a very high fire hazard severity zone or high fire hazard severity zone as indicated on the City of Morgan Hill Wildland Urban Interface map, including safe access for emergency response vehicles, visible street signs, and water supplies for structural fire suppression.
- **SSI-3.5 Fire Risks**: Work cooperatively with CALFIRE and other public agencies with responsibility for fire protection to reduce fire risks in Morgan Hill.

- **SSI-3.6 Fire Hazard Severity Zones**: Continue to support special High Fire Hazard Severity Zone requirements.
- **SSI 3.7 Inspection Program**: Maintain a long-range inspection program for fire prevention with highest priority established by the level of occupancy and the nature of occupancy. Update all information regarding hazardous areas to reflect current knowledge.

Envision San José 2040 General Plan

The goal of the Envision San José 2040 General Plan for Wildland and Urban Fire Hazards is to protect lives and property from risks associated with fire-related emergencies at the urban/wildland interface. The policies include:

- **EC-8.1:** Minimize development in very high fire hazard zone areas. Plan and construct permitted development so as to reduce exposure to fire hazards and to facilitate fire suppression efforts in the event of a wildfire.
- **EC-8.2:** Avoid actions which increase fire risk, such as increasing public access roads in very high fire hazard areas, because of the great environmental damage and economic loss associated with a large wildfire.
- **EC-8.3:** For development proposed on parcels located within a very high hazard severity zone or wildland-urban interface area, implement requirements for building materials and assemblies to provide a reasonable level of exterior wildfire exposure protection in accordance with City-adopted requirements in the California Building Code
- **EC-8.4:** Require use of defensible space vegetation management best practices to protect structures at and near the urban/wildland interface.

3.22.3 Methodology and Approach to Impact Analysis

This impact analysis considers whether the construction and operation of the Project would result in significant adverse impacts to the environment related to wildfire. This analysis focuses on an evaluation of whether or not the Project's construction and operations would exacerbate wildfire risks and thereby expose the area to wildfire or the uncontrolled spread of wildfire. The evaluation was performed using geographic information systems and information available from CALFIRE and the General Plans for the County of Santa Clara, City of Morgan Hill, and City of San José to analyze the threat of wildfire throughout and within the vicinity of the Project Area. The analysis considers temporary impacts, or short-term impacts, that may occur during the 7-year construction period, and permanent impacts, or impacts considered to be long-term and/or those that would result from ongoing operations and maintenance activities.

The direct effects of the Project are described and evaluated according to the significance criteria from Appendix G of the *CEQA Guidelines*, discussed below. The baseline used for the analysis of wildfire impacts consist of existing conditions at the time of the EIR's preparation, as modified by FOCP implementation.

Impacts associated with wildfire are evaluated within the context of the effectiveness of standard wildfire risk abatement methods as they relate to the construction and operation of the Project. The general rule employed in this analysis is that if wildfire risk can be effectively lessened through implementation of standard regulatory requirements (e.g., compliance with the regulatory requirements described above in Section 3.22.2, then the impact would be less than significant.

The assessment of impacts for the purposes of this section has been divided into construction-related impacts and operation-related impacts by Project component, as identified and described in **Table 2-1** of Chapter 2, *Project Description*. Each Project component has been analyzed to determine if the Project's construction and operation would expose persons within the Project Area and adjoining vicinity to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; expose people or structures to significant risks as a result of post-fire slope instability; or expose people or structures to significant effects involving wildland fires.

3.22.3.1 Seismic Retrofit Construction

The potential for the Seismic Retrofit component construction activities to result in a significant impact to the environment and public related to the risk of wildfire is evaluated. As described in Section 3.0, *Introduction*, the baseline for evaluating Seismic Retrofit construction effects is the existing conditions following completion of the FOCP upgrades to the existing dam and reservoir facilities. Applicable Valley Water BMPs have been included in the Project and are also applicable to the impact analysis. The applicable BMPs are discussed below in Section 3.22.3.7 *Applicable Best Management Practices, VHP Conditions, Project Specific Avoidance and Minimization Measures*. The significance of impacts is evaluated following the incorporation of the applicable BMPs, as well as other State, regional, and local wildfire risk abatement requirements as described previously in Section 3.22.3. The general rule employed in this analysis is that if wildfire risk can be effectively lessened through implementation of standard regulatory requirements and BMPs, then the impact would be less than significant.

3.22.3.2 Conservation Measures Construction

The potential for the Conservation Measures component construction activities to result in a significant impact to the environment and public related to the risk of wildfire is evaluated. Conservation Measures that have been included in the Project and require construction activities are:

- Ogier Ponds CM
- Maintenance of the North Channel Reach ~~Extension~~
- Maintenance Activities at Live Oak Restoration Reach
- Sediment Augmentation Program
- Phase 2 Coyote Percolation Dam CM

As described in Section 3.0, *Introduction*, the baseline for evaluating impacts related to the construction of the Conservation Measures component is the existing conditions following implementation of the FOCP upgrades to the existing dam and reservoir facilities. Applicable Valley Water BMPs have been included in the Project and are applicable to the impact analysis. The applicable BMPs are discussed below in Section 3.22.3.7 *Applicable Best Management Practices, VHP Conditions, Project Specific Avoidance and Minimization Measures*. The significance of impacts is evaluated following the incorporation of the applicable BMPs, as well as other State, regional, and local wildfire risk abatement requirements as described previously in Section 3.22.3. The general rule employed in this analysis is that if wildfire risk can be effectively lessened through implementation of standard regulatory requirements and BMPs, then the impact would be less than significant.

3.22.3.3 Construction Monitoring

Construction monitoring activities are not further considered in the impact analysis, as monitoring would involve data and information collection and assessment and would not result in direct or indirect adverse impacts related to wildfire.

3.22.3.4 Post-Construction Anderson Dam Facilities Operations and Maintenance

Operational changes that would be implemented following the completion of the construction of the Seismic Retrofit component may result in significant impacts to the environment related to wildfire. As described in Section 3.0, *Introduction*, the baseline for evaluating post-construction operation effects is the existing conditions following implementation of the FOCP upgrades to the existing dam and reservoir facilities. Applicable Valley Water BMPs have been included in the Project and are applicable to the impact analysis. The applicable BMPs are discussed below in Section 3.22.3.7 *Applicable Best Management Practices, VHP Conditions, Project Specific Avoidance and Minimization Measures*. The significance of impacts is evaluated following the incorporation of the applicable BMPs, as well as other State, regional, and local wildfire risk abatement requirements as described previously in Section 3.22.3. The general rule employed in this analysis is that if wildfire risk can be effectively lessened through implementation of standard regulatory requirements and BMPs, then the impact would be less than significant.

Maintenance activities associated with Anderson Dam facilities were previously evaluated in the Final Dam Maintenance Program EIR (DMP EIR) prepared in January 2012 (SCH No. 2011082077; Valley Water 2012) and have been implemented throughout the Project Area since that time. The impacts identified in the DMP EIR would not be made more severe with implementation of the Project. The DMP EIR included **Mitigation Measure HAZ-1** that requires implementation of fire prevention measures where motorized equipment will be operated, restricts the areas where soldering and welding may occur, and requires fire extinguishers in areas where any of these activities will occur. Through implementation of this existing requirement, impacts related to wildfire associated with Post-Construction Dam Facility Maintenance Activities would be largely the same as the impacts identified in the DMP EIR. Therefore, no new impacts would occur as a result of Post-Construction Dam Maintenance Project activities. For these reasons, Post-Construction Dam Facility Maintenance activities are not discussed further in this section.

3.22.3.5 Post-Construction Conservation Measures Operations and Maintenance

Post-Construction Conservation Measures Operations and Maintenance activities would be focused on improving fish habitat (e.g., gravel augmentation, separation of Coyote Creek from Ogier Ponds, and fish passage enhancement throughout Coyote Creek). As described in Section 3.0, *Introduction*, the baseline for evaluating Post-Construction Conservation Measures

Operation and Maintenance effects is the existing conditions following implementation of the FOCP upgrades to the existing dam and reservoir facilities.

The Conservation Measures would operate passively, without mechanical or human intervention, and are planned in accordance with proposed Anderson Dam Reservoir flow releases that are included in the *Project Description*.

Additionally, as described in Chapter 2, *Project Description*, Valley Water would maintain Coyote Percolation Dam per Valley Water's existing DMP. Maintenance of Coyote Percolation Dam facilities was previously evaluated in the Final DMP EIR (Valley Water 2012), Applicable BMPs and avoidance and minimization measures associated with the DMP would be implemented that would minimize potential impacts related to wildfire during maintenance activities (e.g., ongoing vegetation management in-stream, weed abatement). All maintenance activities associated with the Conservation Measures would be done in accordance with existing Valley Water maintenance plans, including the Stream Maintenance Program (SMP), and no additional impacts would occur. Therefore, Post-Construction Conservation Measures maintenance activities are not discussed further in this section.

3.22.3.6 Post-Construction Project and FAHCE Adaptive Management

The FAHCE AMP would guide post-construction adaptive management of Project ~~project~~ flow operations and Conservation Measures that have met their specified success criteria, as defined through the regulatory permitting process. As required by the FAHCE AMP framework, the Project and FAHCE AMP includes four key elements: measurable objectives, monitoring, adaptive actions, and reporting. Monitoring and adaptive actions involve physical activities that could have environmental impacts.

The Project and FAHCE AMP monitoring program would inform selection of adaptive management measures to implement in response to management triggers, and includes compliance, validation, effectiveness, and long-term monitoring. Validation, effectiveness, and long-term trend monitoring would build on existing Valley Water monitoring infrastructure (e.g., hydrologic monitoring network), water quality monitoring (e.g., water temperature monitoring network), habitat monitoring (e.g., habitat mapping), and fisheries monitoring (e.g., VAKI Riverwatcher, PIT tag detectors, genetics sampling, electrofishing surveys). Impacts of these monitoring activities are not evaluated in the impact analysis because they would have very minor impacts on the potential for wildfires within or adjacent to the Project area.

The Project and FAHCE AMP identifies triggers for adaptive actions to help meet measurable objectives. Adaptive actions for FAHCE flows and imported water storage/releases would include refinements of reservoir releases, which would have impacts and benefits similar to the original FAHCE flows and imported water storage/releases. Adaptive actions for Conservation Measures would generally include minor construction and maintenance actions, whose impacts would be similar but less than those from original Conservation Measure construction. Impacts of these adaptive actions are not evaluated in the impact analysis because they would have very minor impacts on the potential for wildfires within or adjacent to the Project area.

3.22.3.7 Applicable Best Management Practices <u>and</u> VHP Conditions

As noted in Chapter 2, *Project Description*, Valley Water would incorporate BMPs, VHP Conditions, and AMMs to avoid and minimize adverse effects on the environment that may result from Project implementation. All relevant BMPs, VHP Conditions, and AMMs for the Project are included in Appendix A, *Best Management Practices and Santa Clara Valley Habitat ~~Conservation~~ Plan Conditions<u>, Avoidance and Minimization Measures, and Mitigation Measures</u> ~~Incorporated in the Project~~*~~. Project specific AMMs have been customized for the Project to specifically achieve the intended goals for minimizing Project effects.~~

There are no relevant VHP Conditions or Project specific AMMs that would apply to wildfire. BMPs relevant to wildfire risk include the following:

HM-12: Incorporate Fire Prevention Measures – would reduce the potential for fire ignition as a result of Project actions.

TR-1: Incorporate Public Safety Measures – would reduce the potential for safety impacts to the public from additional traffic that would result from Project construction.

3.22.3.8 Thresholds of Significance

For the purposes of this analysis, the Project would result in a significant impact related to wildfire if it would:

WF-1: Exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors (criterion b);

WF-2: 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 (criterion c);

WF-3: 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 (criterion d); or,

WF-4: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires (Hazards and Hazardous Materials criterion g).

3.22.3.9 Issues Dismissed from Further Review

CEQA Guidelines Appendix G also suggests that projects may have a significant impact related to wildfire if they would substantially impair an adopted emergency response plan or emergency evacuation plan (criterion a). This criterion is evaluated in Section 3.10, *Hazards and Hazardous Materials*, and Section 3.19, *Transportation*, and that evaluation is not repeated here.

3.22.4 Impact Analysis

***Impact WF-1: Exacerbate wildfire risks and expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors* (Less than Significant)**

Seismic Retrofit Construction

As discussed in Section 3.17, *Public Services*, following the complete dewatering of Anderson Reservoir (Year 2), CALFIRE would be unable to access water in the reservoir for firefighting purposes until the reservoir begins refilling (Year 6). Currently, Anderson Reservoir is used as a water supply for regional firefighting service. From Year 2 through Year 6, the water supply available for firefighting uses would be temporarily inaccessible due to the fully dewatered reservoir. Therefore, if there were no alternative water sources the temporary restrictions on available water for emergency services could exacerbate existing wildfire risks.

Within the general vicinity of Anderson Reservoir there are several alternative water sources for firefighting that would remain available throughout the Seismic Retrofit component construction, including Coyote, Chesbro, and Uvas Reservoirs. During a November 2, 2020, meeting between Valley Water and CALFIRE, CALFIRE did not express any concerns over the lack of access to water for firefighting during the time when Anderson Reservoir would be drawn down to deadpool or fully dewatered during Seismic Retrofit Years 2 through 6 (Valley Water 2018 ~~2020~~). Therefore, the reduction in the water supply available for emergency services that would be present within Anderson Reservoir throughout construction activities would not result in a significant impact related to an increased risk of wildfire. Conditions for exposing Project workers to pollutant concentrations from wildfire, or the contribution of the Project to the uncontrolled spread of wildfire would therefore also not increase beyond those conditions that were present following the construction of the FOCP improvements.

The construction of the Seismic Retrofit component would also not result in the creation of new wildland areas that may increase the risk of fire dangers within the vicinity of the Project Area; all work would occur in areas that have been previously disturbed, there would be no change in access within or from the Project Area, or creation of areas that would provide additional fuel load for wildfires beyond those conditions present following the construction of the FOCP improvements.

Seismic Retrofit component construction would include the use of construction equipment in and around vegetated areas (including HFHSZs) that may generate sparks or extreme heat during the dry summer months when fire danger is the highest. Smoking by construction workers or other persons on the Project site could also cause accidental fires. ~~;therefore,~~ Therefore, there is potential for accidental ignition of a wildland fire during construction activities. However, construction-related vehicular traffic would primarily occur on existing roadways and within cleared areas (e.g., established access roads), and parking or refueling would only occur in designated, vegetation-free areas, reducing the likelihood of ignition. Further, the access roads and stockpile areas within the reservoir, generally 30 to 60 feet wide, comprised of dirt, and devoid of vegetation, span most of the reservoir from north to south and would act as partial fire or fuel breaks, helping to limit the spread of wildfire between the east and west sides of the reservoir and provide access to fire agencies in responding to a potential wildfire.

Implementation of BMP HM-12 (Incorporate Fire Prevention Measures) will also minimize these impacts by requiring onsite fire suppression equipment and spark arrestors on all equipment with internal combustion engines and prohibiting smoking except in designated staging areas. Construction would also be required to comply with the requirements of the California Fire Code, which would include the removal of combustible materials, proper containment of oily, combustible materials, the development and implementation of pre-fire plans, compliance with the California Electrical Code for the provision of temporary electrical facilities, and provision of fire access within 100 feet of construction activities. Through the implementation of these measures, construction of the Seismic Retrofit component would not exacerbate wildfire risks, and this impact would be less than significant.

Conservation Measures Construction

Construction activities associated with the construction of the Conservation Measures component may result in similar construction-related impacts related to wildfire ignition as described above for the Seismic Retrofit portion of the Project, when compared to conditions following FOCP implementation. Furthermore, the Conservation Measure Project ~~project~~ components are not located within mapped high fire severity zones. Implementation of BMP HM-12, which requires onsite fire suppression equipment and spark arrestors on all equipment with internal combustion engines, and prohibits smoking, except in designated staging areas, would further minimize potential impacts from wildland fires, as would compliance with Fire Code provisions described under Seismic Retrofit component impacts.

Construction of the Conservation Measures component would not involve the placement of people or habitable structures in areas without adequate fire protection and would not result in the creation of new wildland areas or extend the existing WUI, which could increase fire dangers. Therefore, impacts to exacerbation of wildfire risks that would occur as a result of the construction of the Conservation Measures component would be less than significant.

Significance Conclusion Summary

Infrastructure associated with construction of the Seismic Retrofit and Conservation Measures components may result in the accidental ignition of a wildfire. Implementation of BMP HM-12 (requires fire suppression equipment and measures, and spark arrestors on equipment) and implementation of California Fire Code provisions and CALFIRE requirements will reduce the risk of accidental ignition from construction equipment, minimizing the impacts of the Project on exacerbation of wildfire risks. Post-construction operations would not require the use of equipment that could generate sparks or extreme heat; therefore, there would be no impact related to wildfire. Based upon these considerations, the Project would not exacerbate wildfire risks, and the impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact WF-2: Require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment **(Less than Significant)**

Seismic Retrofit Construction

Seismic Retrofit component construction would involve the installation and maintenance of new and modified infrastructure that, as discussed above under Impact WF-1, has the potential to result in the accidental ignition of a wildland fire. Wildfires could be accidentally ignited through the generation of sparks or heat generated by construction equipment during the dry summer months when fire danger is the highest. Implementation of BMP HM-12 (Incorporate Fire

Prevention Measures) would minimize this risk by requiring onsite fire suppression equipment and spark arrestors on all equipment with internal combustion engines and prohibiting smoking except in designated staging areas. All construction activities would also comply with the requirements of the California Fire Code, which would require the removal of combustible materials, proper containment of oily and combustible materials, the development and implementation of pre-fire plans, compliance with the California Electrical Code for the provision of temporary electrical facilities, and provision of fire access within 100 feet of construction activities.

Construction of the Seismic Retrofit component would include the permanent modification of Coyote Road. The roadway would be widened, and a permanent access road would be constructed leading to public parking areas that would be constructed at the base of the dam. The roadway modifications would not expand into new wildland areas or improve access to new wildland areas that may introduce new wildfire risks; the modifications would, however, improve access for emergency vehicles to the Project Area. The roadway modifications would also implement BMP HM-12 (Incorporate Fire Prevention Measures) that will require onsite fire suppression equipment and spark arrestors on all equipment with internal combustion engines and prohibit smoking except in designated staging areas. Therefore, the construction of the roadway modifications would not exacerbate wildfire risk.

Electrical power for the Seismic Retrofit component would be supplied by PG&E through an existing overhead 12.47 kV power distribution line along Coyote Road. This existing distribution line crosses Coyote Creek with medium-voltage power cables to a pole and distribution transformer. The Seismic Retrofit component construction would include the removal of the distribution line, power cables over Coyote Creek, power pole, and distribution transformer. PG&E would replace this infrastructure with new underground power cables that would connect to a new distribution transformer at a permanent location that is closer to the low-level outlet structure. The construction of the new transformer would be required to adhere to the Rules for Overhead Electric Line Construction (CPUC 2015). Adherence to these standards would reduce the potential for this infrastructure to exacerbate wildfire risk as these standards would require clearance from buildings and vegetation, and proper grounding and insulation which would minimize the accidental ignition of materials as a result of construction activities. Construction of the underground power cables would be required to adhere to the Rules for Construction of Underground Electric Supply and Communication Systems (CPUC 2006). Adherence to these standards would reduce the potential for accidental ignition of materials by providing that the underground lines are properly documented, insulated, and buried at a sufficient depth. The replacement of the existing overhead lines with underground lines would remove the risk of accidental ignition of vegetation or ignitable materials as the potential for incidental powerline contact would be removed.

Based in the above analysis, including implementation of BMP-HM-12 and applicable California Fire Code requirements, and infrastructure improvements that would lessen the risk of wildfire, wildfire risks would not be exacerbated, and this impact would be less than significant.

Conservation Measures Construction

Construction of the Conservation Measures component would include the use of heavy equipment for the construction of the Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Maintenance Activities at Live Oak Restoration Reach, Sediment Augmentation

Program, and Phase 2 Coyote Percolation Dam CM. The areas surrounding the work areas are located within or adjacent to waterways, where the risk of accidental of ignition of a wildfire is low; however, the work areas all contain vegetation, and accidental ignition would still be possible. Through the implementation of BMP HM-12 (Incorporate Fire Prevention Measures), onsite fire suppression equipment and spark arrestors on all equipment with internal combustion engines would be required, and smoking would be prohibited except in designated staging areas. Once construction is completed, the Conservation Measures infrastructure would not introduce new facilities or uses that would exacerbate wildfire risk or adversely affect the environment. Therefore, infrastructure associated the Conservation Measures component would not exacerbate wildfire fire risks.

Significance Conclusion Summary

Infrastructure associated with construction of the Seismic Retrofit and Conservation Measures components may result in the accidental ignition of a wildfire. Through the implementation of BMP HM-12 (Incorporate Fire Prevention Measures), onsite fire suppression equipment and spark arrestors on all equipment with internal combustion engines will be required, and smoking would be prohibited except in designated staging areas. Implementation of applicable Fire Code Provisions would further reduce wildfire risks. The Project would include the modification, construction, and/or relocation of roads and electrical transmission infrastructure; however, access throughout the Project Area and existing power lines would be relocated and improved through Project implementation, thus providing an improvement over existing conditions. Post-construction operations of the powerlines would also be similar to post-FOCP implementation conditions. Therefore, infrastructure associated with the Project would not exacerbate wildfire risks, and this impact would be **less than significant.**

Mitigation Measures

No mitigation is required.

Impact WF-3: 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 (Less than Significant)

Seismic Retrofit Construction

Anderson Dam is located in an area surrounded by rolling hills with steep slopes susceptible to landslides. As described in Section 3.8, *Geology and Soils*, five major landslides exist along the southern portion of Anderson Dam on the east and west side; these slides have a history of movement during previous drawdowns of the reservoir and during months of heavy rainfall (see **Figure 3.8-5**). However, and as described elsewhere in this EIR, this existing condition is a function of environmental factors that are not related to wildfire.

Existing landslides along the reservoir could become unstable following a wildfire as moderate to high severity wildfire can greatly increase the likelihood of debris sliding, land sliding, and debris flows (Haas et al. 2017). In addition, rainstorms after wildfires can result in flash floods, debris flows, and post-fire instability, which can adversely impact people or structures that are located below an area that has burned. However, as discussed in the previous impact evaluations under Impacts WF-1 and WF-2, implementation of the Project would not exacerbate or increase the risk of wildfire in the vicinity. It thus follows that the Project would not increase the risk of post-fire landslides beyond the level of risk that is already present, and the impact from the Project would be less than significant. Implementation of the FOCP resulted in drainage changes to Coyote Creek immediately downstream of Anderson Dam with the re-establishment of the North Channel. The construction of the Seismic Retrofit component would modify portions of the North Channel to accommodate the inclusion of an in-channel weir, and releases from the new HLOW and LLOW, as described in Chapter 2, *Project Description*. The increased releases from Anderson Reservoir that may occur as a result of these Project features would not result in increased flooding in a post-wildfire scenario because these components are directly downstream of the dam, and releases may be monitored and adjusted by Valley Water depending on downstream conditions. Similarly, the temporary diversion system that would allow releases to bypass the Seismic Retrofit construction area at the dam into Coyote Creek would result in temporary changes in creek flows, but would not result in increased flood risk during a post-wildfire scenario as releases would be monitored and adjusted by Valley Water depending on downstream conditions. The ongoing low water levels within the reservoir that would be present throughout Seismic Retrofit component construction activities would also limit releases into downstream Coyote Creek.

Based on the above analysis, construction of the Seismic Retrofit component would not 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. This impact would therefore be less than significant.

Conservation Measures Construction

The downstream portions of Coyote Creek where the Ogier Ponds CM, Maintenance of the North Channel Reach, ~~Extension,~~ Maintenance Activities at Live Oak Restoration Reach, Sediment Augmentation Program, and Phase 2 Coyote Percolation Dam CM would be constructed and/or implemented do not contain steep slopes that could result in landslides. Construction of the Conservation Measures component would modify and enhance downstream portions of Coyote Creek to improve fish habitat and/or passage but would not impact drainage patterns in a way that would substantially increase flooding risks or otherwise expose people or structures to the risk of flooding or landslides following a wildfire. Although the Ogier Ponds CM would alter the Coyote Creek drainage to re-establish the original creek channel, it would still allow high flow events to spill over into the expanded floodplain. Thus, construction of the Conservation Measures component would not increase flooding risks or otherwise expose people or structures to risk from flooding in a post-wildfire scenario as Coyote Creek would continue to provide adequate capacity to accommodate increased flows following a wildfire. Additionally, no steep slopes would be created that would increase the potential for landslides. Therefore, construction of the Conservation Measures component would not 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. This impact therefore would be less than significant.

Significance Conclusion Summary

The Project would not exacerbate or increase wildfire risks in the area, and therefore would not increase the risks of post-fire effects, such as landslides and flooding. Therefore, the Project would not result in significant risks to people or structures from downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes, and this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact WF-4: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires (Less than Significant with Mitigation)

Seismic Retrofit Construction

The construction of the Seismic Retrofit component would occur over 7 years, spanning seven or eight fire seasons. Construction would include use of construction equipment in and around vegetated areas (including HFHSZs) that could generate sparks or extreme heat during the dry summer months when fire danger is the highest. Construction-related vehicular traffic would primarily occur on existing roadways and within cleared areas (e.g., established access roads), and parking or refueling would only occur in designated, vegetation-free areas, reducing the likelihood of ignition. Smoking by construction workers or other persons on the Project site could also cause accidental fires. Therefore, there is potential for accidental ignition of a wildland fire during construction.

Two housing developments, Holiday Lake Estates and Jackson Oaks, are located to the south of Anderson Reservoir just outside the Project Area. Throughout construction of the Seismic Retrofit component, these residents, in addition to construction workers, could be subject to wildfire risks from accidental ignition of vegetation or flammable materials. The Holiday Lake Estates and Jackson Oaks neighborhoods have limited existing evacuation routes and the Project itself would not exacerbate the existing wildfire risk. As discussed in Impact WF-1, however, ~~However,~~ implementation of BMP HM-12 (Incorporate Fire Prevention Measures) would minimize impacts by requiring onsite fire suppression equipment and spark arrestors on all equipment with internal combustion engines and prohibiting smoking except in designated staging areas. Furthermore, construction activities would be required to comply with the requirements of the California Fire Code, which would include the removal of combustible materials, proper containment of oily combustible materials, the development and implementation of pre-fire plans, compliance with the California Electrical Code for the provision of temporary electrical facilities, and provision of fire access within 100 feet of construction activities. Also, construction-related vehicular traffic would primarily occur on existing roadways and within cleared areas (e.g., established access roads), and parking or refueling would only occur in designated, vegetation-free areas, reducing the likelihood of ignition. Lastly, the access roads and stockpile areas within the reservoir, generally 30 to 60 feet wide, comprised of dirt, and devoid of vegetation, span most of the reservoir from north to south and would act as partial fire or fuel breaks, helping to limit the spread of wildfire between the east and west sides of the reservoir and provide access to fire agencies in responding to a potential wildfire.

During construction of the Seismic Retrofit component, a section of Cochrane Road would be closed on four occasions, which would disrupt traffic flows and require use of adjacent roads, which could impede emergency response or evacuation procedures in the event of a wildland fire. A significant impact would occur if local roadways were to be impacted from construction activities such that emergency response and evacuation procedures would be substantially hindered during a wildfire, thus exposing people or structures to a significant risk of loss, injury, or death. Currently, the Holiday Lake Estates and Jackson Oaks neighborhoods have limited evacuation options, with a single primary route (East Dunne Avenue) available for residents to leave the area in the event of a wildfire; however, the Project would not result in partial or full closure of East Dunne Avenue and would not exacerbate evacuation risks associated with this existing evacuation route condition. During Years 2 through 7 of Seismic Retrofit construction, the north and south haul roads would provide emergency access. Specifically, the north haul road (Shingle Valley Haul Road) would provide access from US 101 to Metcalf Road to Shingle Valley Road (private) to Stockpile Area L. The south haul road (Holiday Estates) would provide access from US 101 to Dunne Avenue to Holiday Drive to Staging Area 6 (Holiday Lake Estates Boat Ramp Parking Lot). Usage of these haul roads would reduce emergency response and evacuation impacts associated with the closure of a section of Cochrane Road.

Implementation of BMP TR-1 (Incorporate Public Safety Measures) would reduce this impact. It requires construction warning that would minimize the potential for changes in local roadway access to impact emergency response and/or evacuation routes. Mitigation measures would further reduce this impact to less-than-significant levels. Implementation of **Mitigation Measure PS-1** (Traffic Management Plan) will reduce impacts on emergency response and evacuation by requiring the preparation and implementation of a TMP and coordination with local and state agencies. The notification and communication requirements of the TMP would require that local emergency managers, such as CALFIRE, the Morgan Hill Fire Department, the San José Fire Department, and SSCFPD be made aware of any traffic management issues and would share that information with first responders. Coordination with these agencies would minimize the impact on evacuation and emergency response access in the event of a wildfire and thus minimize the exposure of people or structures to significant loss from a wildfire. Implementation of **Mitigation Measure WF-1** (Reduce Emergency Response and Evacuation Interference during Construction and develop a Response and Evacuation Strategy ~~Coordinate with Emergency Response Agencies~~) will minimize the impact of roadway closures in the vicinity of the Project Area by requiring Valley Water to coordinate with local and State emergency response and fire agencies and prepare a Response and Evacuation Strategy to maintain adequate emergency response and evacuation routes throughout construction of the Project in locations where Project construction substantially interferes with emergency access and evacuation ~~identify an alternative temporary refuge area or provide emergency access to the Woodchopper's Flat Picnic Area during Seismic Retrofit component construction~~ in the event of a wildfire.

Construction workers could be exposed to existing wildfire risks, even if Seismic Retrofit component construction does not substantially exacerbate them. This is a significant impact. **Mitigation Measure PS-1** will reduce this impact to less-than-significant levels by providing efficient evacuation routes for construction workers. The plan would include the identification of evacuation routes that are not reliant on the Holiday Lake Estates neighborhood road system to avoid exacerbating egress/ingress for wildfire fighting and public access. This plan would also include ongoing coordination with the County and CALFIRE to ensure that local authorities are aware of the access conditions throughout the Project.

With implementation of **Mitigation Measures PS-1** and **WF-1** construction of the Seismic Retrofit component will not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Therefore, this impact would be less than significant with mitigation.

Conservation Measures Construction

Construction activities associated with the Conservation Measures component would include the implementation of the Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Maintenance Activities at Live Oak Restoration Reach, Sediment Augmentation Program, and Phase 2 Coyote Percolation Dam CM. These activities would be similar to those described above for construction of the Seismic Retrofit component. Construction activities associated with Conservation Measures component may result in similar construction-related impacts related to wildfire ignition as described above for the Seismic Retrofit component. The work area for the Conservation Measure components are not located within areas mapped as high fire severity zones, reducing the risk of wildland fires in these areas. As explained above, implementation of **BMP HM-12** would minimize impacts by requiring onsite fire suppression equipment, spark arrestors on all equipment with internal combustion engines, and prohibiting smoking except in designated staging areas. Construction of the Conservation Measures components would involve the operation and temporary storage of large construction equipment and transportation of construction materials that have the potential to disrupt traffic flow along roads adjacent to staging and construction areas required for the Conservation Measures. The presence of large construction equipment and haul trucks could impede movement and access of emergency response vehicles or cause localized congestion, thereby interfering with emergency response or evacuation in the event of a wildfire.

As described above, implementation of BMP TR-1 (Incorporate Public Safety Measures) requires the implementation of construction warning signs, safety fencing, and detours. Furthermore, implementation of **Mitigation Measure PS-1** will reduce impacts on emergency response and evacuation by requiring the preparation and implementation of a TMP and coordination with local and state agencies, including local emergency response managers and first responders. Thus, coordination with these agencies would minimize the impact on evacuation and emergency response access in the event of a wildfire and thus minimize exposing people or structure to significant risk of loss, injury, or death from a wildfire. Impacts would be less than significant with mitigation.

Significance Conclusion Summary

The construction of the Seismic Retrofit and Conservation Measures components could result in accidental ignition of a wildfire. However, implementation of **BMP HM-12,** and compliance with the California Fire Code would reduce the risk of accidental ignition from construction equipment such that the Project would be unlikely to exacerbate wildfire risk. Post-construction operations would not require the use of equipment that could generate sparks or extreme heat.

Construction traffic and road closures would result in impacts on emergency response and evacuations, in the event of a wildland fire. Traffic impacts on emergency response and evacuations would be reduced through implementation of **BMP TR-1** which requires implementation of construction warning signs, safety fencing, and detours; however, a significant impact would still occur. Implementation of **Mitigation Measure PS-1** (Traffic Management Plan), which requires preparation and implementation of a TMP and coordination with State and local agencies and **Mitigation Measure WF-1** (Reduce Emergency Response and

Evacuation Interference during Construction and develop a Response and Evacuation Strategy ~~Coordinate with Emergency Response and Fire Agencies~~), which requires coordination with emergency response and fire agencies and preparation of the Response and Evacuation Strategy to maintain adequate emergency response and evacuation routes in locations where Project construction substantially interferes with emergency access and evacuation ~~to identify an alternative temporary refuge area or access to the Woodchoppers Flat Picnic Area during a wildfire will minimize impacts on emergency response and evacuation procedures~~.

Construction workers could be exposed to existing wildfire risks, a significant impact, but **Mitigation Measure PS-1**, which would provide efficient evacuation routes for construction workers to minimize this risk. With the above mitigation measures, the Project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. This impact would be **less than significant with mitigation.**

Mitigation Measures

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) ~~an Emergency Action Plan~~

Before construction of Project components, Valley Water will prepare an RES ~~EAP~~ and coordinate with local and state emergency response agencies through regular meetings, written communications, and review of construction schedules so that adequate emergency response and evacuation routes are maintained through construction of the Project in locations where Project construction substantially interferes with emergency access and evacuation. Emergency response agencies will be notified in advance of all lane and road closures, reducing the potential for construction activities to significantly interfere with emergency response or designated and functional community evacuation routes. The RES will include a communication protocol outlining how Valley Water will provide construction updates to local agencies, such as traffic control plans and road closure schedules, to assist with emergency response planning and facilitate timely evacuation notifications to residents. The communication protocol will also establish procedures for how Valley Water and/or the construction contractor will quickly notify emergency responders should a wildfire or other emergency situation be detected.

Prior to commencement of the Project construction, Valley Water will coordinate with local and state emergency response agencies to allow emergency response vehicles to access all areas affected by construction activities. In locations where Project construction substantially interferes with use of designated and functional community evacuation routes, the RES ~~The EAP~~ will also include alternate ~~routes to certain areas to provide~~ evacuation routes that are passable to allow residents to evacuate an affected area. The draft RES, including the alternate evacuation routes and communication protocol, will be provided to representatives of Holiday Lakes Estates and Jackson Oaks for review before being finalized. ~~Furthermore, prior to commencement of the Project, Valley Water will coordinate with local and state emergency response agencies and identify an alternative temporary refuge area to replace the Woodchoppers Flat Picnic Area or will provide emergency access to the Woodchoppers Flat Picnic Area. Emergency access may be provided through a system such as an electromagnetic lock that can be remotely unlocked via satellite during a wildfire or other emergency, or other method that allows for emergency use of Woodchoppers Flat Picnic Area as a temporary refuge area.~~

PS-1 Prepare and Implement Traffic Management Plan.

3.22.5 Cumulative Impacts

The geographic study area for the cumulative impact analysis for wildfire are areas near projects listed in Table 3.0-2, in particular residential, commercial, and industrial development in the county. This section describes the Project's contribution to cumulative wildfire impacts, as summarized in **Table 3.22-3**.

Cumulative impact thresholds for wildfire are the same as the impact thresholds presented in Section 3.22.3.8, *Thresholds of Significance*.

Table 3.22-3. Summary of Project Impact Contribution to Cumulative Wildfire Impacts

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
Cumulative Impact WF-1: Exacerbate wildfire risks and expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors	No	No	NCC	None	No
Cumulative Impact WF-2: Require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment	No	No	NCC	None	No
Cumulative Impact WF-3: Expose people or structures to significant risks, including downslope or downstream flooding or	No	No	NCC	None	No

Impact	Cumulatively Significant with FOCP?	Cumulatively Significant with other projects?	Incremental Project Contribution	Applicable Project Mitigation	Cumulatively Considerable after Mitigation?
landslides, as a result of runoff, post-fire slope instability, or drainage changes					
Cumulative Impact WF-4: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires	No	Yes	CC	WF-1 PS-1	No

Key: CC = cumulatively considerable; NCC = not cumulatively considerable

***Cumulative Impact WF-1: Exacerbate wildfire risks and expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors* (*Not Cumulatively Considerable*)**

Wildfires could be accidentally ignited through the generation of sparks or heat generated by construction equipment during the dry summer months when fire danger is the highest. Implementation of BMP HM-12 (Incorporate Fire Prevention Measures) would minimize this risk by requiring onsite fire suppression equipment and spark arrestors on all equipment with internal combustion engines and prohibiting smoking except in designated staging areas. All construction activities would also comply with the requirements of the California Fire Code, which would require the removal of combustible materials, proper containment of oily and combustible materials, the development and implementation of pre-fire plans, compliance with the California Electrical Code for the provision of temporary electrical facilities, and provision of fire access within 100 feet of construction activities.

Construction of the Seismic Retrofit and Conservation Measures components would not involve the placement of people or habitable structures in areas without adequate fire protection and would not result in the creation of new wildland areas or extend the existing WUI, which could increase fire dangers. Therefore, impacts to exacerbation of wildfire risks that would occur as a result of the construction of the Seismic Retrofit and Conservation Measures components would be less than significant.

Cumulative Effects of Project with the FOCP

The FOCP improvements would cause the reduction in the water supply available for emergency services within Anderson Reservoir; however, this reduction would not result in a significant impact related to an increased risk of wildfire. Also, FOCP improvements would not cause conditions for exposing Project workers to pollutant concentrations from wildfire or contribute to the uncontrolled spread of wildfire and construction of the FOCP would be completed prior to construction of the Project. Therefore, the cumulative impact on wildfire resulting from the

Project in combination with the FOCP would not be significant, and the Project's contribution would not be cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Probable future projects, programs, and plans would be required to adhere to state, regional and local policies and regulations to reduce wildfire risks and minimize exposing project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors. Therefore, the cumulative impact on wildfire resulting from the Project in combination with other probable future projects, programs, and plans would not be significant and the Project's contribution would not be cumulatively considerable.

Significance Conclusion Summary

The cumulative impact on exacerbating wildfire risks or exposing project occupants to pollutant concentrations from a wildfire from the Project, FOCP, and other probable future projects, programs and plans would not be cumulatively significant, and the Project's contribution would be **not cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Cumulative Impact WF-2: Require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment **(*Not Cumulatively Considerable*)**

Construction of the Seismic Retrofit component would include the permanent widening of Coyote Road. The roadway modifications would not expand into new wildland areas or improve access to new wildland areas that may introduce new wildfire risks; the modifications would, however, improve access for emergency vehicles to the Project Area. The roadway modifications would also implement BMP HM-12 (Incorporate Fire Prevention Measures) that require onsite fire suppression equipment and spark arrestors on all equipment with internal combustion engines and prohibit smoking except in designated staging areas. Therefore, the construction of the roadway modifications would not exacerbate wildfire risk.

In addition, as described in Section 2, *Project Description*, PG&E would replace aboveground electric infrastructure with new underground power cables that would connect to a new distribution transformer at a permanent location that is closer to the low-level outlet structure. Adherence to state standards would reduce the potential for this infrastructure to exacerbate wildfire risk as these standards would require clearance from buildings and vegetation, and proper grounding and insulation which would minimize the accidental ignition of materials as a result of construction activities. Adherence to state standards would also reduce the potential for accidental ignition of materials by providing that the underground lines are properly documented, insulated, and buried at a sufficient depth. The replacement of the existing overhead lines with underground lines would remove the risk of accidental ignition of vegetation or ignitable materials as the potential for incidental powerline contact would be removed. Therefore, infrastructure associated with the Project would not exacerbate wildfire risks, and this impact would be less than significant.

The Conservation Measures infrastructure would not introduce new infrastructure that would exacerbate wildfire risk or adversely affect the environment. The Project would not exacerbate wildfire risks, and the impact would be less than significant.

Cumulative Effects of Project with the FOCP

As described in Section 2, *Project Description*, PG&E would construct a distribution line that crosses Coyote Creek with medium-voltage power cables to a pole and distribution transformer as part of the FOCP. However, during construction of the Seismic Retrofit component, PG&E would underground these cables as described in Impact WF-2. Therefore, the cumulative impact on wildfire resulting from the Project infrastructure in combination with the FOCP would not be significant, and the Project's contribution is not cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

There are no known probable future projects, programs, plans that would expand infrastructure around Anderson Reservoir or the areas of the Conservation Measures that could increase wildfire risk. Any future project would be required to comply with state, regional and local policies and regulations regarding the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment. Therefore, the cumulative impact on wildfire resulting from the Project infrastructure in combination with other probable future projects, programs, and plans would not be significant, and the Project's contribution would not be cumulatively considerable.

Significance Conclusion Summary

The cumulative impact on wildfire risk and the environment resulting from the installation of associated infrastructure from the Project, FOCP, and other probable future projects, programs and plans would not be cumulatively significant, and the Project's contribution would be **not cumulatively considerable**.

Mitigation Measures

No mitigation is required.

Cumulative Impact WF-3: 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 **(*Not Cumulatively Considerable*)**

Existing landslides along the reservoir could become unstable following a wildfire as moderate to high severity wildfire can greatly increase the likelihood of debris sliding, land sliding, and debris flows (Haas et al. 2017). In addition, rainstorms after wildfires can result in flash floods, debris flows, and post-fire instability, which can adversely impact people or structures that are located below an area that has burned. The downstream portions of Coyote Creek where the Ogier Ponds CM, Maintenance of the North Channel Reach ~~Extension~~, Maintenance Activities at Live Oak Restoration Reach, Sediment Augmentation Program, and Phase 2 Coyote Percolation

Dam CM would be constructed and/or implemented do not contain steep slopes that could result in landslides.

The Project would not exacerbate or increase wildfire risks in the area, and therefore would not increase the risks of post-fire effects, such as landslides and flooding. Therefore, the Project would not result in significant risks to people or structures from downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes, and this impact would be less than significant.

Cumulative Effects of Project with the FOCP

Implementation of the FOCP would result in drainage changes to Coyote Creek immediately downstream of Anderson Dam with the re-establishment of the North Channel. However, the increased releases from Anderson Reservoir would not result in increased flooding in a post-wildfire scenario because these components are directly downstream of the dam, and releases may be monitored and adjusted by Valley Water depending on downstream conditions. Also, construction of the FOCP would be completed prior to construction of the Project so there would be no overlap of wildfire risk during the two projects. Therefore, the cumulative impact on wildfire risk and post-fire effects resulting from the Project in combination with the FOCP would not be significant, and the Project’s contribution would not be cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

As discussed in the impact evaluations for Impacts WF-1 and WF-2, implementation of the Project would not exacerbate or increase the risk of wildfire in the vicinity. It thus follows that the Project would not increase the risk of post-fire landslides beyond the level of risk that is already present. Probable future projects, programs, plans would be required to comply with state, regional and local policies and regulations regarding exposing people or structures to significant wildfire risks, and are also unlikely to increase risk from downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Therefore, the cumulative impact on wildfire risk and post-fire effects resulting from the Project in combination with other probable future projects, programs, and plans would not be significant, and the Project’s contribution would not be cumulatively considerable.

Significance Conclusion Summary

The cumulative impact on the environment resulting from exposing people or structures to risks caused wildfires and post-fire effects from the Project, FOCP, and other probable future projects, programs and plans would not be cumulatively significant, and the Project’s contribution would be **not cumulatively considerable**.

Mitigation Measures

No mitigation is required.

***Cumulative Impact WF-4: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires* (*Not Cumulatively Considerable*)**

The construction of the Seismic Retrofit component would occur over 7 years, spanning seven or eight fire seasons. Construction would include use of construction equipment in and around vegetated areas (including HFHSZs) that could generate sparks or extreme heat during the dry summer months when fire danger is the highest. In addition, during construction of the Seismic Retrofit component, a section of Cochrane Road would be closed on four occasions, which would disrupt traffic flows and require use of adjacent roads, which could impede emergency response or evacuation procedures in the event of a wildland fire. Also, Seismic Retrofit construction workers would be exposed to wildfire risks. Construction of Conservation Measures could cause similar impacts on emergency response and evacuation, and on construction workers in the event of a wildland fire. Implementation of BMP TR-1 (Incorporate Public Safety Measures) would reduce these impacts because it requires construction warning that would minimize the potential for changes in local roadway access to impact emergency response and/or evacuation routes during a wildland fire, but impacts would still be significant.

Mitigation Measure PS-1 (Traffic Management Plan) requires the preparation and implementation of a TMP and coordination with local and state agencies, and **Mitigation Measure WF-1** (Reduce Emergency Response and Evacuation Interference during Construction and develop a Response and Evacuation Strategy ~~Coordinate with Emergency Response Agencies~~) requires Valley Water to coordinate with local and State emergency response and fire agencies and prepare a Response and Evacuation Strategy, to maintain adequate emergency response and evacuation routes ~~to identify an alternative temporary refuge area or provide emergency access to the Woodchopper's Flat Picnic Area during Seismic Retrofit component construction~~ in the event of a wildfire. Implementation of **Mitigation Measures PS-1 and WF-1** would reduce impacts from exposing people or structures to a significant risk of loss, injury or death involving wildland fires to less than significant.

Cumulative Effects of Project with the FOCP

Construction of the FOCP would create similar wildfire risks through the generation of sparks or heat from construction equipment as the Project. However, construction of the FOCP would be completed prior to construction of the Project so there would be no overlap of wildfire risk during the two projects. Therefore, the cumulative impact on wildfire risks resulting from the Project in combination with the FOCP would not be significant, and the Project's contribution would not be cumulatively considerable.

Cumulative Effects of Project with Probable Future Projects, Programs, and Plans

Probable future projects, programs, and plans could exacerbate wildfire risks to people or structures through the use of construction equipment in dry vegetated area or through road closures or increased congestion from truck traffic which could impact emergency response and evacuation during wildfires. These projects would be required to comply with state, regional and local policies and regulations regarding exposing people or structures to wildfire risks; however, many of the areas around Anderson Reservoir are at high risk for wildfire. Therefore, the cumulative impact on wildfire risks resulting from the Project in combination with other probable future projects, programs, and plans is significant, and the Project's contribution would be cumulatively considerable.

Significance Conclusion Summary

Construction of the FOCP would be completed prior to construction of the Project so there would be no overlap of wildfire risk during the two projects. Therefore, the cumulative impact on wildfire resulting from the Project in combination with the FOCP would not be significant, and the Project's contribution would not be cumulatively considerable.

The construction of the Seismic Retrofit component, when combined with other probable future projects in the area surrounding Anderson Reservoir, would have a cumulatively significant impact to risk from wildland fires, and the Project's contribution is cumulatively considerable. **Mitigation Measures PS-1 and WF-1** would reduce the Project's contribution to this risk to less than significant. After mitigation, the Project's impact to cumulative wildfire risks would be **not cumulatively considerable**.

Mitigation Measures

WF-1 *Reduce Emergency Response and Evacuation Interference during Construction and develop a Response and Evacuation Strategy ~~an Emergency Action Plan~~*

PS-1 *Prepare and Implement Traffic Management Plan.*

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Chapter 4
OTHER STATUTORY REQUIREMENTS

4.1 Introduction

Chapter 4 covers the other statutory requirements required under California Environmental Quality Act (CEQA). In addition to identifying the effects of the Proposed Project, No Project Alternative, and other alternatives and measures to mitigate significant effects, the CEQA Guidelines require the following additional discussions:

- Significant irreversible environmental changes [*CEQA Guidelines* section 15126.2(d)]
- Significant and unavoidable environmental impacts [*CEQA Guidelines* section 15126(b) and 15126.2(c)]
- Growth-inducing impacts [*CEQA Guidelines* section 15126.2(e)]

4.2 Irreversible Impacts

CEQA section 21100(b)(2)(B) and *CEQA Guidelines* section 15126.2(d) require that an EIR identify significant irreversible environmental changes caused by implementation of the P~~p~~roject. Construction of the Project would indirectly result in the commitment of nonrenewable natural resources used in the construction process. These include gravel, concrete, soils, petroleum products, construction-related chemicals and paints, steel, and other materials. The Project would also result in the commitment of slowly renewable materials, such as wood products. This would not, however, be considered a significant adverse impact.

4.3 Significant and Unavoidable Impacts

In accordance with section 21100(b)(2)(A) of CEQA and with sections 15126(b) and 15126.2(c) of the *CEQA Guidelines*, the purpose of this section is to identify project-related environmental impacts that could not be eliminated or reduced to a less-than-significant level with implementation of all feasible mitigation measures, as identified in Chapter 3, *Regulatory and Environmental Setting and Impact Analysis*.

Significant and unavoidable Project impacts identified in Chapter 3 are as follows:

- Impact AES-2: Substantial degradation of the existing visual character or quality of public views of the site and its surroundings
- Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan

- Impact ~~AIR~~ AQ-2: Cumulatively considerable net increase of any criteria pollutant for which the P~~p~~roject region is non-attainment under an applicable federal or state ambient air quality standard
- Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations
- Impact TERR-1(h): Have a substantial adverse effect, either directly or through habitat modifications, on pallid bat
- Impact TERR-4: Interfere substantially with the movement of any native resident or migratory species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Impact HYD-1(i): Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site
- Impact WQ-1: Impair beneficial uses of surface waters OR violate any applicable surface water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality OR conflict or obstruct implementation of a water quality control plan
- Impact NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the P~~p~~roject in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, or generation of substantial incremental increase in noise levels

Cumulative Impacts that remain cumulatively considerable after mitigation identified in Chapter 3 are as follows:

- Cumulative Impact AES-2: Substantial degradation of the existing visual character or quality of public views of the site and its surroundings
- Cumulative Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan
- Cumulative Impact ~~AIR~~ AQ-2: Cumulatively considerable net increase of any criteria pollutant for which the P~~p~~roject region is non-attainment under an applicable federal or state ambient air quality standard
- Cumulative Impact TERR-1(h): Have a substantial adverse effect, either directly or through habitat modifications, on pallid bat
- Cumulative Impact TERR-4: Interfere substantially with the movement of any native resident or migratory species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Cumulative Impact HYD-1(i): Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site

- Cumulative Impact WQ-1: Impair beneficial uses of surface waters OR violate any applicable surface water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality OR conflict or obstruct implementation of a water quality control plan
- Cumulative Impact NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the P~~p~~roject in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, or generation of substantial incremental increase in noise levels

4.4 Growth Inducement

Section 15126.2(e) of the *CEQA Guidelines* requires that an EIR discuss “the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas)”… “It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.”

The Project would not directly induce growth, because it does not involve the development of new housing or businesses that would attract additional population. Project construction would not extend roads or include other infrastructure that could indirectly induce growth, and it would not displace substantial numbers of housing or people. Given the relatively small size of the construction workforce, with the largest workforce occurring during Year 4 of the Seismic Retrofit activities (shown in **Table 2-2**, Seismic Retrofit Workers by Construction Phase, Chapter 2, *Project Description*), Project construction would not be expected to induce demand for housing by attracting workers from outside the area, as workers are expected to be drawn from the local labor pool. Long-term operation of the Anderson Dam Seismic Retrofit Project also would not increase the number of workers employed by Valley Water and Santa Clara County Parks and Recreation Department, as discussed in section 2.8~~7~~, *Post-Construction Anderson Dam Facilities Operations and Maintenance*. Furthermore, the Project would not create or expand a water supply source that could remove water supply limitations as a potential obstacle to growth.

Based on this analysis, the Project would not have a substantial growth-inducing impact.

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Chapter 5
ALTERNATIVES

5.1 Introduction

The purpose of the alternatives analysis in an EIR is to describe a range of reasonable alternatives to the Project that can feasibly attain most of the identified Project objectives but would reduce or avoid one or more of the Project's significant impacts. This chapter presents the Project objectives, summarizes the significant effects of the Project including those that cannot be avoided or reduced to a less-than-significant level, and describes the methodologies used to develop alternatives and analyze their impacts. Later sections in this chapter describe the potential alternatives that were considered but dismissed from further evaluation and the alternatives that were evaluated in detail. The chapter then evaluates the impacts of each of the alternatives evaluated in detail relative to those of the Project and evaluates the relationship of the alternatives to the Project ~~project~~ objectives. An environmentally superior alternative is identified at the end of this chapter.

5.2 CEQA Requirements

Section 15126.6 of the *CEQA Guidelines* requires that an EIR "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives." Additionally, the *CEQA Guidelines* state the following:

- The specific "no project" alternative shall be evaluated along with its impact. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives [*CEQA Guidelines* Section 15126.6(e)(1)(2)].
- An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. An EIR is not required to consider alternatives that are infeasible. The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects. The EIR should briefly discuss the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination. Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are (i) failure to meet most

of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts [*CEQA Guidelines* Section 15126.6(a)(c)].

- The "range of alternatives" is governed by the "rule of reason," which requires the EIR to describe and consider only those alternatives necessary to permit informed public participation, and an informed and reasoned choice by the decision-making body [*CEQA Guidelines* Sections 15126.6(a) and (f)]. The description or evaluation of alternatives does not need to be exhaustive, and an EIR need not consider alternatives for which the effects cannot be reasonably determined and for which implementation is remote or speculative. An EIR need not describe or evaluate the environmental effects of alternatives in the same level of detail as the proposed project, but must include enough information to allow meaningful evaluation, analysis, and comparison with the proposed project [*CEQA Guidelines* Section 15126.6(d)].

Regarding the feasibility of alternatives, feasible means "capable of being accomplished in a reasonable period of time taking into account economic, environmental, legal, social and technological factors" (*CEQA Guidelines* Section 15364). The concept of feasibility also encompasses whether a particular alternative promotes the project's underlying goals and objectives, and whether an alternative is impractical or undesirable from a policy standpoint. (See City of *Del Mar v. City of San Diego* [1982] 133 Cal. App. 3d 410 and *California Native Plant Society v. City of Santa Cruz* [2009] 177 Cal. App. 4th 957.)

Also, CEQA does not require EIRs to include multiple variations of the alternatives it considers in detail (*Village Laguna of Laguna Beach v. Board of Supervisors* [1982] 134 Cal. App. 3d 1022).

5.3 Alternatives Development Process

Project purpose, objectives, and benefits, and significant and unavoidable environmental impacts proposed to result from the Project, are identified below as they inform and direct the development of alternatives.

5.3.1 Project Purpose and Objectives,

As described in Section 2.3, *Project Purpose, Objectives, and Benefits*, the purpose of the Project is to seismically retrofit, maintain, and operate Anderson Dam and Reservoir to meet FERC and DSOD requirements, thereby allowing Valley Water to maximize water supply and groundwater recharge capacity and benefits, while avoiding and minimizing environmental impacts of the implementation of those safety directives and requirements.

The Project objectives are as follows:

- Seismically retrofit and maintain the dam so that Valley Water may continue to operate it at capacity. This objective would be achieved by:
    - Replacing the existing dam to withstand the MCEs[1] on the Calaveras and Coyote Creek Range Front faults

[1] The MCE is the maximum considered earthquake for a specific area. It is generally considered an earthquake that is expected to occur once every 2,500 years, or with a 2 percent exceedance in 50 years.

  - Replacing the existing spillway to meet FERC and DSOD safety requirements related to the safe passage of the PMF
  - Replacing the outlet works to meet current DSOD outlet works requirements and accommodate fault offset
- Improve cost efficiency of dam operations by decommissioning the hydroelectric facility
- Avoid and minimize impacts of construction and operations

5.3.2 Significant Environmental Impacts of the Project

Table 5-1 summarizes those resource topic areas found to have significant impacts resulting from the Project as analyzed in Chapter 3, *Regulatory and Environmental Setting and Impact Analysis*. For most of these significant impacts, corresponding cumulative impacts are also cumulatively considerable, with the same mitigation measure effectiveness in reducing them to less-than-cumulatively-considerable levels. For a complete summary of all Project impacts and mitigation measures, see **Table ES-1** in the *Executive Summary*.

Table 5-1. Significant Project Impacts

Impact	Significance before Mitigation [a]	Significance after Mitigation [b]
Aesthetics		
AES-2: Substantial degradation of the existing visual character or quality of public views of the site and its surroundings	S	SU
AES-3: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	S	LSM
Air Quality		
AQ-1: Conflict with or obstruct implementation of the applicable air quality plan	S	SU
AQ-2: 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	S	SU
AQ-3: Expose sensitive receptors to substantial pollutant concentrations	S	SU
Biological Resources – Wildlife and Terrestrial Resources		
TERR-1: A substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS Service		
TERR-1a: Special-Status Plants	S	LSM
TERR-1c: California Tiger Salamander, California Red-legged Frog, and Foothill Yellow-legged Frog	S	LSM
TERR-1e: Bald Eagle and Golden Eagle	S	LSM
TERR-1g: Nonbreeding Special-Status Birds	S	LSM
TERR-1h: Pallid Bat	S	SU

Impact	Significance before Mitigation [a]	Significance after Mitigation [b]
TERR-1j: San Francisco Bay Special-Status Species	S	LSM
TERR-2: A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS	S	LSM
TERR-3: A substantial adverse effect on State or federally protected wetlands through direct removal, filling, hydrological interruption, or other means	S	LSM
TERR-4: Interfere substantially with the movement of any native resident or migratory species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	S	SU
Cultural Resources		
CR-2: Cause a substantial adverse change in the significance of an archaeological resource	S	LSM
CR-3: Disturb Human Remains	S	LSM
Geology and Soils		
GEO-4: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides	S	LSM
GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	S	LSM
Greenhouse Gas Emissions		
GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	S	LSM
GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases	S	LSM
Hazards and Hazardous Materials		
HAZ-2: Create a Significant Hazard to the Public or the Environment through Reasonably Foreseeable Upset or Accident Conditions Involving the Release of Hazardous Materials	S	LSM
HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school	S	LSM
HAZ-4: 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 create a significant hazard to the public or the environment	S	LSM
HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	S	LSM

Impact	Significance before Mitigation [a]	Significance after Mitigation [b]
Hydrology		
HYD-1a: 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 ~~matter~~ which would result in substantial erosion or siltation on- or offsite	S	SU
Groundwater Resources		
GW-1: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin	S	LSM
GW-2: Violate groundwater water quality standards or substantially degrade groundwater quality	S	LSM
GW-3: Conflict with or obstruct implementation of the San Francisco Bay Basin Plan groundwater provisions or the District's GWMP	S	LSM
Water Supply		
WS-2: Require or result in the relocation or construction of new or expanded water facilities, the construction of which could cause significant environmental effects	S	LSM
Water Quality		
WQ-1: Impair beneficial uses of surface waters OR violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality OR conflict or obstruct implementation of a water quality control plan	S	SU
Noise		
NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, or generation of substantial incremental increase in noise levels	S	SU
NOI-2: Generate excessive groundborne vibration or groundborne noise levels	S	LSM
Public Services		
PS-1: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection	S	LSM

Impact	Significance before Mitigation [a]	Significance after Mitigation [b]
Impact PS-2: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection	S	LSM
Recreation		
REC-1a: Temporary increased use of neighboring land-based recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated	S	LSM
Transportation		
TR-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities	S	LSM
TR-4: Inadequate emergency access	S	LSM
Tribal Cultural Resources		
TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource listed or eligible for listing in the California Register of Historical Resources or determined by Valley Water, to be significant	S	LSM
Wildfire		
WF-4: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires	S	LSM

Notes

[a.] S = significant

[b.] SU = significant and unavoidable, LSM = less than significant with mitigation

As summarized in **Table 5-1** and described in detail in Chapter 3, significant impacts were identified resulting from the Project on the following environmental resources: aesthetics, air quality, wildlife and terrestrial resources, cultural resources, energy, geology and soils, GHG emissions, hazards and hazardous materials, hydrology, groundwater resources, water supply, water quality, noise and vibration, public services, recreation, transportation, tribal cultural resources, and wildfire. Some of the significant impacts could be reduced to a less-than-significant level by applying mitigation measures as described in Chapter 3. However, impacts could not be mitigated to a less-than-significant level for all or some thresholds for the following resource topics: aesthetics, air quality, wildlife and terrestrial resources (pallid bat and wildlife nurseries), hydrology (erosion or siltation), water quality, and noise. Therefore, the Project would result in significant and unavoidable impacts on those resources.

5.3.3 Alternatives Development and Screening

As part of early Project planning, an alternatives development process was initiated by Valley Water. In addition to the No Project Alternative required by CEQA, Valley Water considered a number of potential alternatives to the Project and individual components based on the Project objectives, FERC and DSOD requirements, feasibility, input from Valley Water staff and the FAHCE Initialing Parties, the FAHCE TWG, and public scoping comments.

The process for identifying alternatives included consideration of alternatives for both construction and post-construction operations phases of the Project. Alternatives were formulated based on the following planning rationales:

- Address the dam embankment seismic instability
- Minimize the size of excavation and buttress
- Provide for operational flexibility
- Minimize costs associated with the Project
- Avoid impacts on Cochrane Road
- Minimize the time to construct the Project
- Adherence to FAHCE *Settlement Agreement*
- Quality of the Project and ease of construction
- Reduction of environmental impacts
- Maintain community and stakeholder relations

The process for identifying alternatives included:

- Reviewing ideas and alternative measures suggested during EIR scoping and from input from regulatory agencies and stakeholders
- Determining whether identified strategies and alternative concepts meet Project objectives or could reduce impacts
- Reviewing feasibility issues with respect to technical, institutional, and regulatory concerns. If an identified strategy or alternative concept was determined to be infeasible, it was eliminated from further consideration.
- Developing and refining alternatives for detailed CEQA analysis in Section 5.5, *Alternatives Evaluated in the Draft EIR*.

5.3.4 Preliminary Conceptual Design Process

During the conceptual design process, various conceptual design options were considered and used as building blocks to ultimately develop conceptual alternatives that were further reviewed for feasibility. Some of these preliminary conceptual design options included a combination of the following measures:

- Different reservoir elevations during construction (i.e., options to complete construction without fully draining the reservoir)
- Different types of cofferdams for upstream remediation work

- In situ treatment (e.g., jet grouting) versus remove-and-replace approaches to remediate liquefiable lower fine fill and alluvium
- Underwater dredging excavation for upstream construction work versus working in the dry behind cofferdams
- Varying sizes of upstream and downstream buttresses
- Modification of the existing intake structure for lower outlet works versus construction of new intake
- Use of steel pipelines in an enlarged tunnel to address potential fault offsets for the lower outlet works
- Use of an upper-level outlet for reservoir drawdown capacities
- Left versus right abutment alignments for the LLOWs
- Raising the spillway walls and dam to various elevations versus widening or deepening the spillway to various depth capacities to accommodate increased PMF (HDR 2017)

After screening various combinations involving these options, alternatives were further conceptualized and evaluated for feasibility, the ability to meet Project objectives, and potential significant impacts resulting from carrying out such options. Alternatives which met these planning criteria are discussed below in further detail.

5.3.5 Alternatives Submitted during EIR Scoping

Participants in the EIR scoping process presented topics for consideration during the alternative project development process. **Table 5-2** summarizes alternative considerations and concepts raised during the public scoping process and states how they were integrated into the Project or other alternative projects or provides the reason for their elimination from detailed consideration, as appropriate.

Table 5-2. Concepts Proposed during Scoping

Proposed Alternative Consideration	Disposition
Cofferdam alternatives	Cofferdam alternatives were evaluated based on ability to withstand reservoir conditions for the timeline of construction, and long-term impacts on water quality. This included an evaluation of the degradation of cofferdam materials over time to both support the project during construction and not impair water quality within the reservoir during future operation.
Dredging the reservoir as part of the project	This concept was incorporated into the Increased Dredge Alternative.
Development of alternatives for both wet and dry years	Evaluation of the Project schedule for flexibility in the order of implementation of Project elements for aboveground construction (e.g., not including tunneling) included a statistical evaluation of weather delay days to determine feasibility of changes in Project implementation order. This included an evaluation of Project timelines depending on the order of Project component implementation.

Proposed Alternative Consideration	Disposition
Cofferdam to be built to protect the reservoir	A cofferdam is included in the Project to manage incoming waters into the reservoir throughout Project construction activities.
Inclusion of fish passage facilities for native steelhead and other fish	Fish passage facilities were included in the downstream Phase 2 Coyote Percolation Dam CM.
Construction of a second cofferdam on the upper, north end of the reservoir to protect wildlife	Continuous flows will be released from Coyote Reservoir, in accordance with current operations, to support wildlife and habitat at the north end of the reservoir. Therefore, an additional water feature is not necessary to support wildlife; habitat will be maintained between Coyote and Anderson Reservoirs.
Inclusion of outlet works with capability for selective withdrawal from various elevations in reservoir for purpose of controlling water temperature in Coyote Creek downstream of the dam	The Project includes a LLOW, which would be used, among other purposes, to control water temperature in Coyote Creek downstream of the dam.
Inclusion of outlet works with ability to release a range of flows for the various life history stages of anadromous salmonids downstream of the dam	The Project outlet works would support a range of flows. Releases from the reservoir would be governed by the FAHCE rule curves, which were formulated to improve outcomes for various life history stages of anadromous salmonids downstream of the dam.
Avoid impacts to historic resources (Cochrane Road properties)	The Project was redesigned to avoid impacts on historic Cochrane Road properties. These include structures located along Cochrane Road that are over 50 years in age (historic homes and barns).
Alternatives to using Live Oak Picnic Area as a staging area.	Other open parcels were considered for staging areas throughout Project construction; however, the proximity of the Live Oak Area minimizes impacts to the environment and provides the most efficient access to the work area by minimizing air quality, GHG, and traffic impacts with the close proximity of the Live Oak Area to the Project area.

5.4 Potential Alternatives Considered and Dismissed

Various alternatives to the Project were developed that could meet Project objectives and/or reduce impacts of the Project. Those alternative projects that were considered and eliminated from further consideration are discussed below. Potential project alternatives were eliminated based on one of the following conditions:

- The alternative was not substantially different from one of the considered alternatives.
- The alternative failed to meet most of the basic Project objectives.

- The alternative was for an individual Project component, rather than the Project as a whole.[2]
- The alternative would be infeasible to implement or operate.
- The alternative would not avoid or lessen one or more significant environmental impacts.[3]

Those alternatives carried forward for detailed evaluation are described in Section 5.5, *Alternatives Evaluated in the Draft EIR*.

5.4.1 Operation of Anderson Dam for Flood Risk Reduction Only

The Operation of Anderson Dam for Flood Risk Reduction Only Alternative (Flood Risk Reduction Alternative) would leave the existing Anderson Dam in place following completion of the FOCP and the Anderson Dam Tunnel Project. No Project construction would occur as described in the *Project Description* (Section 2). Following completion of the FOCP, Anderson Dam would be operated at a reduced capacity, consistent with FERC orders, to allow for incidental flood risk reduction, but the reservoir's ability to sufficiently support current and future regional water supply needs with water would be eliminated.

Under the Flood Risk Reduction Alternative there would be no changes to Anderson Dam beyond the FOCP. The maximum water elevation would be maintained at 492 feet, just above deadpool and Anderson Reservoir would no longer provide water supply benefits to the county. Valley Water would procure water to meet water demand from other sources such as expanded water conservation efforts, water transfers, and water recycling and purified water.

Valley Water would not construct flood risk reduction measures in Anderson Reservoir. Flows from San Felipe Creek, Packwood Creek, and Coyote Reservoir would be conveyed directly to Coyote Creek, up to the capacity of Stage 1 diversion structure constructed under FOCP. Valley Water would not implement changes to Coyote Dam under this alternative, which would continue to be subject to ~~seismic~~ restrictions on storage. With no storage in Anderson Reservoir the FAHCE rule curves would not be implemented, and Valley Water would not manage a cold-water management zone for fish downstream on Coyote Creek.

This alternative would not require excavation of borrow material, so there would be no excavation at PGBS or BHBA. The hydroelectric facility would remain inactive. While decommissioning the hydroelectric facility is not included in the description of this alternative, the Flood Risk Reduction Alternative is not incompatible with decommissioning the facility.

Coyote Creek would continue to flow through Ogier Ponds rather than in a dedicated channel as under the Conservation Measures, and Valley Water would not implement a Sediment Augmentation Program, geomorphic flows to manage fish habitat, as under the Fish Habitat Restoration Plan, as under Project Conservation Measures.

It is speculative at this time to project how the existing dam and infrastructure would be operated under this alternative, considering FERC and DSOD restrictions on Anderson Dam operations.

[2] Valley Water elected to evaluate some alternatives for individual Project components, even though not required to do so.
[3] This EIR screened and carried forward one alternative that did not reduce any significant impacts, the Anderson Dam Operated with FAHCE-Plus Modified Rule Curves. This alternative, however, improves outcomes for fisheries resources.

Under this alternative construction-related impacts on aesthetics, air quality, terrestrial species, energy, GHG emissions, and noise would be avoided. The alternative would meet the objective to avoid and minimize impacts of construction and operation but may not be feasible to implement given that it would not meet DSOD requirements to have the capacity to lower the maximum storage by 10 percent in 7 days and the full content within 90 days, and that the spillway be able to contain the probably maximum flood.

This alternative would not meet the Project objective to meet FERC, DSOD, and Valley Water safety requirements, thereby allowing Valley Water to operate Anderson Dam safely at capacity through seismic retrofit. It could also generate new significant impacts to water supply, groundwater in Coyote Valley, and aquatic species as it would eliminate Valley Water's ability to control flows downstream of Anderson Reservoir and the ability to store and release local water for the benefit of groundwater recharge and water supply.

The Flood Risk Reduction Alternative was dismissed from further consideration, because it would not meet the Project objective to meet FERC and DSOD safety requirements, thereby allowing Valley Water to operate Anderson Dam safely at capacity through seismic retrofit.

5.4.2 Removal of Anderson Dam and Provision of Alternative Water Supply Sources (Removal of Anderson Dam Alternative)

The Removal of Anderson Dam Alternative proposes the complete removal of Anderson Dam, with no replacement.

Under the Removal of Anderson Dam Alternative, it is assumed that FERC would approve decommissioning Anderson Dam subject to conditions to be determined. Decommissioning would involve removal of all structural components of the dam, spillway, and hydroelectric power generation facility. A design to demolish the reservoir and restore Coyote Creek would be prepared and environmental impacts of the decommissioning would be analyzed and disclosed, as required by FERC (Manahan and Verville 2005). Mitigation and Conservation Measures would be developed and implemented to mitigate for dam deconstruction.

- Flows to downstream Coyote Creek would be directly connected to San Felipe Creek and Packwood Creek. Valley Water would not implement changes to Coyote Dam under this alternative and Coyote Dam would continue to be subject to ~~seismic~~ restrictions on storage. The FAHCE rule curves would not be implemented, and Valley Water would not manage a cold-water management zone for fish downstream on Coyote Creek. Flows would be based on natural hydrology and releases from Coyote Reservoir. Pulse flows for fish would result from stream flows rather than managed releases but barriers to fish migration upstream to Coyote Dam would be removed.
- Valley Water would procure water supply from alternate sources, potentially including expanded water conservation, water transfers, and water recycling and purified water to meet future water demand as projected in Valley Water's UWMP.
- Coyote Creek would continue to flow through Ogier Ponds rather than in a dedicated channel as under the Conservation Measures and Valley Water would not implement a Sediment Augmentation Program, geomorphic flows to manage fish habitat, as under the Fish Habitat Restoration Plan, as under Project Conservation Measures.

The Removal of Anderson Dam Alternative would avoid significant impacts on aesthetics (removal of mature oak trees and changes to topography at BHBA) and terrestrial resources (plants, wildlife, and wetlands). The alternative is feasible to implement and would meet the objective to avoid and minimize impacts of construction and operation.

However, this alternative would not meet the Project objective to meet FERC, DSOD, and Valley Water safety requirements, thereby allowing Valley Water to operate Anderson Dam safely at capacity through seismic retrofit. It does not allow Valley Water to implement its mission under the District Act to provide groundwater recharge for water supply and to prevent subsidence or allow Valley Water to provide incidental flood protection under the 1982 rule curve. It would also not meet the Project ~~project~~ purpose of meeting FERC and DSOD requirements while allowing Valley Water to maximize water supply and groundwater recharge capacity and benefits. The health and safety and ecological benefits that accompany Valley Water's operation of Anderson Reservoir (specifically, the mission to protect sustainable groundwater recharge and water supply and provide flood risk reduction) using an integrated water management approach would be eliminated. This includes benefits such as the provision of environmental instream flows in otherwise intermittent reaches of Coyote Creek to support aquatic, riparian and wetland habitats and support related beneficial uses, management of creek temperatures to provide cooler water in the CWMZ to benefit fish and other aquatic species. Incidental flood protection provided by Anderson Dam would be eliminated.

The Dam Removal Alternative would not meet the Project objective to operate Anderson Dam safely at capacity through seismic retrofit and would not meet the Project purpose of meeting FERC and DSOD requirements while allowing Valley Water to maximize water supply and groundwater recharge capacity and benefit. It would also not allow Valley Water to meet its obligations under the District Act, providing sufficient water for groundwater recharge for water supply and to reduce subsidence. For these reasons, this alternative was dismissed from further consideration.

5.4.3 Project with Downstream Fix Only

This alternative proposes restricting excavation to the downstream shell of the embankment only by removing and replacing portions of the potentially liquefiable material and reconstructing the dam and constructing a large buttress on the downstream slope of the embankment. For this alternative, the water surface level in the reservoir would be maintained at the FERC-restricted level (deadpool), so no further dewatering would be required during construction. The crest of the dam would be raised to elev. 656 feet (approximately 8 feet) to maintain the freeboard required during a PMF event.

This alternative would involve less borrow and fill material than the Project as it would eliminate the teardown and reconstruction of the dam. For this reason, significant impacts of the Project associated with the mining of borrow materials (e.g., noise and vibration impacts related to blasting, air pollutants and greenhouse gas emissions associated with equipment used to excavate, and movement of borrow materials) would be lessened under this alternative. In addition, because this alternative would not involve complete dewatering of the reservoir, downstream water quality impacts related to sediments and temperature would be reduced relative to the Project impacts because the presence of a pool would decrease the amount of sediment suspended near the dam during rain events and increase settling of suspended sediment entering the reservoir.

This alternative would meet the Project objective to avoid and minimize impacts of construction and operation. While decommissioning the hydroelectric facility is not included in the description of this alternative, it is not incompatible with decommissioning the facility.

However, this alternative would not fully meet the Project ~~project~~ objective to seismically retrofit the dam. Shoring up the dam would fail to address the safety issues identified by FERC, DSOD, and Valley Water. This alternative would not remove all liquefiable materials from within the dam, and therefore would still be subject to liquefaction and surface fault rupture stresses. Therefore, this alternative would not meet the Project objective to seismically retrofit and maintain the dam so that it can be operated at capacity. Because this alternative would not meet this Project objective, this alternative was dismissed from further consideration.

5.4.4 Reduction of Excavation from Anderson Dam Embankment

The Reduction of Excavation from Anderson Dam Embankment Alternative would reduce the volume of material to be excavated compared to the Project, particularly during the middle year when the dam is excavated to its lowest level and the new embankment is built back to starting elevation for that year (URS 2019). The reduction in volume would be achieved by retaining a larger portion of the core and portions of the upstream and downstream shells of the existing dam than proposed for the Project. Because of the reduced volume of earthwork, this alternative could be constructed in 5 years: Year 1 to prepare in-reservoir access roads and disposal areas, Year 2 through Year 4 to remove and replace the new dam, and Year 5 for restoration activities. This alternative would include all the other elements described for the Project.

This alternative would reduce construction-related impacts (air quality, GHG emissions, noise and vibration, and transportation) relative to the Project, because less excavation of the embankment would be involved and less borrow material would need to be excavated and transported to reconstruct the dam. This alternative would meet the Project objective to avoid and minimize impacts of construction and operation. While decommissioning the hydroelectric facility is not included in the description of this alternative, it is not incompatible with decommissioning the facility.

However, it is unknown whether this alternative would fully meet the Project objective to meet FERC, DSOD, and Valley Water safety requirements to allow Valley Water to operate and maintain Anderson Dam at capacity through seismic retrofit. Because of uncertainties regarding seismic performance due to the larger existing dam remnant and retention of some liquefiable material, FERC and DSOD have indicated that this alternative would not be approved. Furthermore, the Board of Consultants (BOC) indicated that it would reject this alternative for the same reasons. Because this alternative is therefore infeasible, and because the alternative addresses construction options for only one Project component, this alternative was dismissed from further consideration.

5.4.5 Use of Offsite Borrow Materials and Cut Material Off-Hauled

This alternative would be similar to the Project, except that all borrow material for retrofitting the dam would be hauled in from an offsite borrow location and cut material would be hauled off rather than reused to avoid impacts to the BHBA and avoid putting materials in the reservoir. This alternative assumes that borrow material could be mined from offsite locations and would be hauled to the Project area via US 101 and Cochrane Road. There is no known alternative borrow sites are available in the county that would provide the amount of material needed for dam construction (source), so these materials, approximately 4,300,000 cy of appropriate materials, would have to be obtained from outside the county.

This alternative would achieve all the Project objectives and would avoid the significant and unavoidable aesthetic impact associated with grading the BHBA. However, this alternative would increase the severity of significant and unavoidable impacts associated with truck trips including air quality, GHG emissions, and noise, and increase traffic impacts to local and regional roadways, as materials would need to be transported from areas in further reaches of the county instead of within the Project Area. This alternative would also greatly increase the cost of the Project in hauling and dumping fees. Because this alternative would increase the severity of several significant impacts, and because the alternative addresses construction options for only one Project component, it was dismissed from further consideration.

5.4.6 Extended Construction Schedule Alternative

The Extended Construction Schedule would involve extending the construction schedule from a total of 10 years to a total of 15 years to reduce the impact from NOx emissions. The Extended Construction Schedule would meet the Project objective to seismically retrofit and maintain the dam so that Valley Water may continue to operate it at capacity. In addition, it is feasible to construct. It would lower significant construction impacts on air quality from NOx emissions. However, this alternative is not feasible because the additional time required for construction would create an increased and unacceptable risk to public health and safety and would increase the severity of several significant impacts that are caused by the drained reservoir, such as hydrology, water quality, and geology and soils. For this reason, and because the alternative addresses construction options for only one Project component, this alternative was dismissed from further consideration.

5.5 Alternatives Evaluated in the Draft EIR

5.5.1 No Project Alternative

CEQA Guidelines Section 15126.5(e) requires an EIR to evaluate the No Project Alternative. The purpose of evaluating the No Project Alternative is “to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.” The No Project Alternative does not necessarily correspond strictly to existing conditions. Instead, the No Project Alternative must describe reasonably foreseeable conditions if the Project were not approved.

Under the No Project Alternative, the Project would not proceed, and existing (post-FOCP) environmental conditions and Valley Water operations would be maintained. Following completion of the FOCP (which includes construction of ADTP), the existing Anderson Dam would be left in place, eliminating Project construction and other Conservation Measures as described in the Project Description (Section 2). Valley Water would not undertake new construction at Anderson Dam but would continue to maintain the facility consistent with the DMP. FOCP construction avoidance and minimization measures, including imported water releases using chillers if necessary, would not be continued following FOCP construction.

Accordingly, the liquefiable materials in the dam embankment and other materials vulnerable to seismic movement would not be removed and replaced. No increased outlet capacity would be accommodated; the maximum outlet capacity would remain at 2,500 cfs (2,000 cfs from the newly constructed tunnel under the ADTP plus the existing outlet with 500 cfs of capacity). Because the No Project Alternative would not address seismic vulnerability, including potential deformation due to seismically induced liquefaction, the maximum water elevation would remain at the restricted level (deadpool) as ordered by FERC. This order also directed Valley Water to construct the proposed low-level outlet as soon as possible to allow for faster drawdown of reservoir water levels. This low-level outlet is underway as the ADTP. Finally, the February 20, 2020 FERC Order directed Valley Water to expedite design, permitting, and implementation of the Seismic Retrofit.

The No Project Alternative would provide flood risk reduction because of FERC requirements to restrict Anderson Reservoir water levels to a near deadpool. Since the outflow capacity from Anderson Reservoir would be capped at 2,500 cfs, it is likely that water levels in very wet years would rise above the FERC-restricted level. However, the ADTP would increase the ability of Valley Water to release flows quickly from the reservoir to avoid long-term storage of water behind the dam, but not to the level required by DSOD.

The No Project Alternative would not provide a full reservoir to support water supply and managed groundwater recharge, or incidental supplemental in-stream flows or cooler flow for Coyote Creek. Anderson Reservoir provided approximately 89,000 AF of storage for both local and imported water supplies. Stored water could be discharged to Coyote Creek for in-stream groundwater recharge or could be provided to Valley Water's water treatment plants. Under the No Project Alternative local water could no longer be stored at Anderson Reservoir and would be discharged downstream as it enters the reservoir. This would result in an overall increase in temperatures of water stored within the reservoir as the depth of the reservoir would never increase, and the historic stratification that resulted in a cold pool of water that was released through the existing outlet structure would no longer exist. Imported water would not be stored at Anderson Reservoir; Calero Reservoir is the only other reservoir in the county that can store imported water but has a capacity of only about 9,700 AF (currently restricted to 4,400 AF due to seismic concerns).

Imported water could continue to be released to Coyote Creek for groundwater recharge. The No Project Alternative would not implement the FAHCE program providing pulse flows for fish habitat.

The No Project Alternative would avoid construction and ground disturbance related impacts to aesthetics, air quality, wildlife and terrestrial resources, cultural resources, energy, GHG emissions, paleontological resources, hazards and hazardous materials, water quality (from blasting), and noise and vibration, public services, transportation, tribal cultural resources, and wildfire relative to the Project. However, it would also cause new or substantially more severe significant impacts compared to the Project, as explained in Section 5.

The No Project Alternative would not meet the Project to seismically retrofit, maintain, and operate Anderson Dam and Reservoir to meet FERC and DSOD safety requirements, thereby allowing Valley Water to maximize water supply and related incidental benefits, while avoiding and minimizing environmental impacts of the implementation of those safety directives and requirements. It also would not meet the fundamental Project objective to seismically retrofit and maintain the dam so that Valley Water may continue to operate it at capacity consistent with providing groundwater recharge and protecting public safety. Furthermore, the No Project Alternative would not be feasible because it would conflict with the February 20, 2020 FERC Order, which directed Valley Water to "continue to work with all haste to design and secure the necessary permits and complete the design for the larger Anderson Dam Seismic Retrofit Project" and DSOD requirements to have the ability to lower the maximum storage by 10 percent in 7 days and the full content within 90 days, and that the spillway be able to contain the probably maximum flood. Although the No Project Alternative is infeasible because it would not comply with the FERC directive of February 20, 2020, and DSOD requirements, the No Project Alternative was retained because it is required by CEQA. This alternative also informs the decision-makers and public of the impacts of the No Project Alternative compared to impacts of the Project and action alternatives.

5.5.2 Increased Dredge Alternative

The Increased Dredge Alternative[4] would remove a larger volume of sediment from the Anderson Reservoir bed compared to the Project, but all other components of the Project would remain the same. The purpose of this alternative is to reduce temporary downstream turbidity impacts during the construction of the Project which would result in significant unavoidable impacts to hydrology and water quality. By excavating a large amount of sediment from the reservoir bed and providing area for upstream sediment to settle and deposit, this alternative reduces downstream sediment transport and thereby meaningfully reduces the potential for increased temporary erosion and sediment transport during certain-sized storm events the 7-year Project construction period.

5.5.2.1 Construction Process, Equipment, Schedule, Workforce, and Staging

Prior to the start of the Seismic Retrofit construction, approximately 1,400,000 cy of sediments would be dredged from the bed of the reservoir in the dead pool. Dredged sediments would be transported by pipeline to Stockpile K (North and South) and Stockpile Area M for sediment drying. Dried sediments would be transported to Ogier Ponds or South San Francisco Bay Salt Ponds for beneficial reuse by truck. Construction activities would take place in the 2 years preceding the start of construction (Year Minus 2 and Year Minus 1), during the dry season. Site mobilization would take place from April 15 to April 30. Sediment dredging would take place from May 1 to August 31 (4 months). Truck transport of dried sediments would take place from June 15 to October 15 (4 months). Site demobilization would take place from October 1 to October 15. Equipment would be mobilized and demobilized each construction year.

Hauling activities and work at the drying piles would be conducted during a single 8-hour shift between 8:00 a.m. and 4:30 p.m., Monday through Friday. However, sediment dredging would be conducted 24 hours a day, 7 days a week. An average of 40 workers would be required between 8:00 a.m. and 4:30 p.m., reducing to an average of 20 workers outside these hours and on weekends. The maximum number of workers required at any one time is estimated to be 80 workers.

[4] Although this alternative addresses construction options for only one Project component, it was nevertheless retained for detailed consideration.

The types of equipment needed for construction and durations of use would vary based on the construction activity. A detailed summary of typical construction equipment required for each construction activity is provided in **Table 5-3**. The number of hours per day that each type of equipment would be operated is provided in **Table 5-4**.

Table 5-3. Types of Construction Equipment – Increased Dredge Alternative

Construction Year	Construction Activity	Approximate Duration (Months)	Equipment Type
Year Minus 2	Site mobilization	0.5	Bulldozers, excavators, loaders
Year Minus 2	Sediment dredging, drying, and disposal	5	Barges, cranes, skiffs, bulldozers, excavators, loaders, highway dump trucks, generators
Year Minus 2	Site demobilization	0.5	Bulldozers, excavators, loaders
Year Minus 1	Site mobilization	0.5	Bulldozers, excavators, loaders
Year Minus 1	Sediment dredging, drying, and disposal	5	Barge, crane, bulldozers, excavators, loaders, highway dump trucks, generators
Year Minus 1	Site demobilization	0.5	Bulldozers, excavators, loaders

Table 5-4. Construction Equipment Utilization

Equipment Type	Quantity	Hours/Day
Barge	2	24
Crane	2	24
Skiff	1	12
Bulldozer	4	8
Excavator	4	8
Loader	4	8

Similar to the Project, Staging Area K (North and South) and Stage Area M would be graded as required. Haul roads would be constructed from Staging Area 5 to Staging Area K (North and South) and Stage Area M. The boat ramp would be used for staging. This construction activity is the same as proposed for the Project except that the timing of using these sites differs from the Project.

5.5.2.2 Sediment Dredging, Transport, and Drying

Sediments would be dredged using barge-mounted cranes equipped with cable-deployed dredge pumps. Dredged sediments would be transported by pipeline to Stockpile K (North and South) and Stockpile Area M for sediment drying using a system of geotextile tubes. **Table 5-5** shows the quantity of sediment to be dredged from the deadpool in Year Minus 2 and Year Minus 1.

Table 5-5. Material Handling – Sediment Dredging

Construction Year	Sediments, In Place (cy)
Year Minus 2	700,000
Year Minus 1	700,000

There would be no releases from Anderson Reservoir during sediment dredging. Downstream flow would come from imported water via the CDL and Cross Valley Pipeline Extension.

5.5.2.3 Sediment Disposal

Dried sediments would be removed from geotextile tubes at Staging Areas K and M and loaded onto highway dump trucks using bulldozers, excavators, and loaders. Hauling would take place from 8:00 a.m. to 4:30 p.m., Monday to Friday. Dried sediments would be trucked to Ogier Ponds or South San Francisco Bay Salt Ponds for beneficial reuse via Staging Area 5, Holiday Drive, East Dunne Avenue, and US 101. **Table 5-6** shows the anticipated total number of truck trips per year for sediment transport to the reuse sites.

Table 5-6. Truck Traffic, Sediment Hauling to Sediment Reuse Sites Only

Construction Year	Total Truck Trips	Avg Daily Truck Trips
Year Minus 2	63,000	750
Year Minus 1	63,000	750

It is assumed that materials would be dry enough for transport to the reuse sites after 6 weeks of drying. As stated above in Section 5.5.2.1, truck transport of dried sediments would take place from June 15 to October 15.

The Increased Dredge Alternative is feasible and includes all the other elements as the Project, with a change only in removal of sediment from the reservoir bed starting two years prior to planned construction. It would meet the first Project objective, to seismically retrofit and maintain the dam so that Valley Water can continue to operate it at capacity. The Increased Dredge Alternative would reduce the magnitude of impacts of the Project related to turbidity and downstream sedimentation during the construction period because the sediment removal would create an area where sediments picked up by flows could be deposited. However, the alternative would increase the severity of significant and unavoidable impacts associated with earth movement and truck trips including aesthetics, air quality, energy, GHG emissions, and noise, and increase traffic impacts to local and regional roadways, as 2 additional years of excavation (1.4 million cy of material) and trucking (750 truck trips per day) would be needed. The alternative would significantly increase costs through additional hauling of materials. Thus, it would not fully achieve the Project objective to avoid and minimize the environmental effects of construction and operation.

5.5.3 Anderson Dam Operated with FAHCE-Plus Modified Rule Curves (FAHCE-Plus Modified) Alternative

The FAHCE-Plus Modified Alternative[5] was developed through consultation with the Project TWG which includes state and federal resource agencies to create an alternate regime of flow releases designed to increase and better diversify salmonid migration on Coyote Creek. The FAHCE-Plus Modified Alternative evolved from the FAHCE rule curves (evaluated as part of the Project in this EIR) and the FAHCE-Plus rule curves proposed for implementation in consultation with the AMT in Stevens Creek and Guadalupe watersheds; ~~River proposed for implementation in consultation with the AMT in Stevens Creek and Guadalupe watersheds;~~ they were included ~~(included~~ in the FAHCE Fish Habitat Restoration Plan, Appendix A to the FAHCE Final EIR (Valley Water 2024 ~~2023~~).

As part of this alternative, as suggested by NMFS during Endangered Species Act technical assistance recommendations developed in consultation with the TWG, Valley Water would develop an Anderson Dam Operations Work Group (OWG) to discuss and provide updates on FAHCE-Plus Modified operations. The OWG would include representatives from NMFS and CDFW. Three key responsibilities of Valley Water within the OWG are: (1) to hold an annual coordination meeting, (2) to provide frequent operational updates, and (3) to schedule additional coordination as needed during dry or low storage years. The annual meeting would be scheduled to occur no later than February 15th of each year, with a focus on potential modifications to operations based on current conditions in the watershed and projections of 90 percent historical flow exceedance for the remainder of the water year. More frequent coordination would occur as needed in low storage and/or dry and very dry years, which could include monthly meetings. The Valley Water Operations team would provide updates to the OWG via email as changes occur associated with multi-purpose and smolt pulse releases, geomorphic flows, winter baseflow changes, and operations that lead to a deviation from FAHCE-Plus Modified operations. The OWG would acknowledge required trade-offs among steelhead life history stages and provide consensus-based management decisions. The purpose of the coordination meetings is to:

- Review, discuss, and provide input on pulse flows (including variability in the pulse), winter baseflows, and implementation of the security pulse; and
- Discuss any in-season changes to modify program actions based on hydrologic conditions such as drought, low storage, or other hydrologic factors.

To ensure agreement is reached on proposed actions, when applicable, the Kaner (1996) consensus gage would be used in the decision-making process. It is not expected that changes to winter baseflows and pulse flows would be needed in most years. The OWG would be used to make in-season flow release adjustments to benefit fish as different conditions arise, such as during low storage and dry years. Any long-term changes associated with operations would occur through the AMT.

[5] Although this alternative addresses only one Project component, it was nevertheless retained for detailed consideration.

The FAHCE-Plus Modified Alternative would retain all other components of the Project, including long-term post-construction adaptive management pursuant to the Project and FAHCE AMP in consultation with the AMT, except that the FAHCE-Plus Modified rule curves ~~curve~~ rather than the FAHCE rule curves ~~curve~~ would govern Anderson Dam ~~dam~~ releases after completion of Project construction, including construction of all Conservation Measures, as described below.

The FAHCE-Plus Modified rule curves are intended to increase the benefit of reservoir releases for fisheries during key salmonid life stages. Based on hydrologic modeling outputs, the FAHCE-Plus rule curves for Coyote Creek combine concepts of the FAHCE flow measures (comprised generally of winter base flows, winter and spring migration period pulse flows, and summer cold water management releases) with an enhanced set of rules for spring attraction, safeguard and outmigration pulse flows designed to maximize fish migration. The FAHCE-Plus Modified operational rules are similar to those for FAHCE, with the following modifications:

- ~~Summer base flow is adjusted to include a slight increase in temperature limits of summer cold water releases, still within the normal temperature range for steelhead rearing, to enhance summer rearing habitat. This allows a greater portion of the reservoir volume to be used to provide summer flows.~~
- FAHCE-Plus Modified rule curves contain differences in the timing and release of pulse flows compared to the FAHCE scenario. Generally, in Coyote Creek FAHCE-Plus Modified:
    - Expands the time window available for pulse releases to December 1 through/including May 31
    - Initiates higher magnitude and more frequent pulse flows compared to FAHCE intended to increase passage opportunities for adult steelhead by increasing water depths through critical riffles
    - Includes prioritization of attraction and outmigration pulse flows to aid in both up- and outmigration of steelhead, as well as late season outmigration specific pulse flows. In addition to attraction and outmigration pulse flows, a safeguard pulse flow (described in more detail below) is also initiated if triggers for the other pulse flows are not met by January 15, combined storage in Anderson and Coyote Reservoirs is above a certain threshold, and downstream flows are above a certain threshold of any given water year.
    - Adds a security pulse. If no pulse has been released by March 1 and other conditions are met a security pulse flow (described in more detail below) may be released at the discretion of the OWG.

~~To accommodate increased magnitude, duration, and number of pulse flow releases under FAHCE-Plus Modified, the definition of the cold pool within Anderson Reservoir was also modified. The increases in pulse flow releases made prior to May 31 deplete cold water storage in Anderson reservoir to a greater deter than pulse flow releases under FAHCE. To expand the volume of the cold-water pool available for the summer cold water release program, FAHCE Plus Modified revises the summer steelhead rearing period (May 31 to October 1) local cold water release temperature limitation for flows from the reservoir from 14°C or less under FAHCE to 16°C or less under FAHCE-Plus Modified. This increased reservoir release temperature restriction is based on modeling and observed water temperatures showing that releases with a~~

~~temperature of 16°C or less are typically sufficient to maintain temperatures of 18°C or less throughout the FCWMZ, and, after completion of Ogier Ponds restoration, throughout the CWMZ.~~

The performance of FAHCE and the original FAHCE-Plus rule curves with respect to providing in-stream flows beneficial to steelhead was evaluated for Coyote Creek in WEAP modeling (Appendix F) and is summarized below:

- Pulse Flow Revisions: Review of the hydrologic modeling results suggest that additional and more diverse migration opportunities could be provided if adjustments were made to the Project pulse flow (or FAHCE) design. A new safeguard pulse flow was developed for FAHCE-Plus specific to Coyote Creek Watershed. In addition to increases ~~changes~~ in magnitude and duration, the timing of pulse flows was expanded to include pulse checks throughout the adult salmonid upstream migration period. To produce connection flows in as many years as possible, the safeguard pulse flow was added in March with a lower reservoir storage threshold than standard pulse flows. The safeguard pulse flow would be activated if upstream steelhead migration flows (or attraction flows) were not available by March 1 of any given water year. In addition, a regular outmigration pulse flow was added in mid-April of each year regardless of migratory opportunities earlier in the year. Safeguard and outmigration pulse releases would occur in years when storage is available to support summer rearing while still enabling a minimum reservoir carryover.
- Summer Base Flow Adjustments: Summer base flows under the FAHCE rule curves would be more reliable and cooler compared to the Pre-FERC Order Conditions Baseline. WEAP modeling for the FAHCE Plus rule curves shows that to ~~To~~ enhance summer rearing habitat with the FAHCE-Plus rule curves, temperature criteria used to calculate cold pool volumes could be raised ~~were raised~~ from 14°C or less to 16°C or less, while still maintaining a temperature not to exceed a daily average of ~~attaining~~ 18 °~~C or less~~ within the Coyote Creek CWMZ to support steelhead rearing. The FAHCE-Plus Modified Alternative has not been modeled at this time so the FAHCE-Plus modeling results are used as a proxy for estimating relative habitat changes between FAHCE-Plus Modified and the Project, which assumes FAHCE flows. This increase in temperature criteria could allow ~~allows~~ a greater portion of the reservoir volume to be used to provide summer flows and would provide additional rearing habitat downstream, according to the model. However, consistent with NMFS technical recommendations agreed upon by the TWG, Valley Water would use the 14 degrees Celsius (°C) criterion pursuant to the Project for calculating the cold water pool under the FAHCE-Plus Modified Alternative and this is not anticipated to cause major changes in habitat relative to the modeled FAHCE-plus.

Flows under the FAHCE-Plus Modified Alternative compared to the original FAHCE-Plus flows differ by ~~minor~~ changes in pulse timing, frequency, a downstream flow trigger, and flow for the safeguard flow, which would occur in winter if conditions had not been met to release an attraction flow. FAHCE Plus Modified also uses the original FAHCE Settlement Agreement threshold of 14°C for calculating the cold pool volume. In addition, the FAHCE-Plus Modified rule curves retain the ~~provide~~ longer pulse flow duration and increased volume of pulse flow from FAHCE Plus, with an increase in number of years with a pulse flow, and an increase in the number of pulses to comprise attraction, outmigration pulse, and safeguard pulses through the period December 1 to May 31, and vary the length of each type of pulse under some conditions in order to provide a diversity in migratory opportunity.

- Safeguard flows for adult steelhead upmigration and juvenile steelhead outmigration would occur between mid-January and the end of March (rather than waiting to check only once on March 1) and would be shorter in duration than FAHCE-Plus flows, allowing for two pulses to occur over a more diverse timeframe. A downstream flow trigger at stream gage 5058 was added so that managed pulse flows would coincide with natural precipitation events.
- Outmigration flows would occur between April 1 and the end of May (rather than waiting to check on April 15) and would be shorter in duration than FAHCE-Plus flows, allowing for two pulses to occur over a more diverse timeframe. A downstream flow trigger at stream gage 5058 was added so that managed pulse flows would coincide with natural precipitation events. Outmigration pulses can trigger regardless of whether attraction, safeguard, or security pulses have already been released.

The FAHCE Plus Modified rules also include the addition of a "security pulse flow" which may be released at the discretion of the OWG if certain conditions are met indicating a need for the pulse. The security pulse would be a magnitude of 90 cfs for four days (variations using the same volume of water allowable) and would be available to release if:

- By March 1st, no pulse has been released during the current water year and the safeguard pulse storage threshold is not met.
- Connection from Anderson Reservoir to San Francisco Bay has been made.
- Local inflows into Anderson and Coyote reservoir for the current water year have been greater than the 90 percent exceedance probability (i.e., dry year inflows) based on historical records (1936 to current water year).
- Valley Water is not pursuing, receiving, or planning to receive emergency water supply allocations from the State Water Project (i.e., Human Health and Safety allocations) or the Central Valley Project (i.e., Public Health and Safety allocations) during the current water year.
- Storage in Anderson and Coyote reservoirs would remain above the 20,000 Acre-Feet required for emergency water supply after the pulse is completed.

Table 5-7 compares details of the rule curves for the Project (FAHCE rule curves) to the FAHCE-Plus Modified Alternative.

Compared to the Project, which would implement FAHCE, the FAHCE-Plus Modified Alternative would:

- Extend the duration for Attraction Pulse flows from February 11 through/including April 1 to the annual period from December 1 through/including April 1.
- Increase the Attraction Pulse flows from 50 cfs for 5 days for up to 2 total pulses, to 90 cfs for 10 days, up to 2 pulses per month and 9 total pulses.
- Add a new safeguard pulse flow of 90 cfs for 10 days between mid-January and the end of March if the triggers described in **Table 5-7** are met. This pulse is tailored for

attraction flows, but also provides suitable depth and velocities for outmigration of steelhead.

- Add a new security pulse flow of 90 cfs for four days to be released at the discretion of the OWG when conditions are met.
- Add a new outmigration pulse flow between April 1 and the end of May. When triggers described in **Table 5-7** are met, outmigration release would be 60 cfs for 3 days; up to two pulses possible during period; after the end of the first pulse, there would be a pause of at least 7 days before another pulse would be initiated. Outmigration pulses are triggered regardless of juvenile migration opportunities earlier in the year.
- ~~Raise temperature criteria used to calculate cold pool volumes for summer releases (May 31 to October 1) of Anderson reservoir flows to 16 from 14°C or less to 16°C or less, while still attaining 18 °C or less within Coyote Creek FCWMZ (and, after completion of Ogier Ponds, the CWMZ) to the maximum extent feasible to allow a greater portion of the reservoir volume to be used to provide summer flows and to provide additional rearing habitat downstream.~~
- To help offset any depletion of the reservoir cold water pool during the FAHCE-Plus Modified pulse flow period under FAHCE-Plus Modified, summer reservoir releases may be augmented with releases from the CDL for groundwater water recharge and incidental summer cold water flow management within the CWMZ If imported water from the CDL is 14°C or less. The releases from the CDL to Coyote Creek would be combined with releases from Anderson Reservoir to meet the target of providing water with a temperature of 18°C or less and a minimum flow of 1 cfs at the downstream end of the CWMZ. Prior to the completion of the Ogier Ponds Restoration Project, benefits of cold water pool management may only be observed in the FCWMZ, due to warming that occurs in the pond complex.

Table 5-7. Comparison of Project (FAHCE Rule Curves) and FAHCE-Plus Modified Alternative (FAHCE-Plus Modified Rule Curves)

Pulse Type	Pulse Details	FAHCE	FAHCE-Plus Modified	Notes
Attraction Pulse	Magnitude (cfs)	50	90	
Attraction Pulse	Duration (days)	5	10	
Attraction Pulse	Calendar Window	2/01 - 4/30	12/01 - 04/01	
Attraction Pulse	Storage Threshold (combined Anderson + Coyote Reservoirs in acre-feet)	80,000	80,000	
Attraction Pulse	Number of Events	Up to 2 per Year	Up to 2 per month; up to 9 total	
Attraction Pulse	Approximate Water Volume per Event (acre-feet)	52	1,012	
Attraction Pulse	Approximate Water Volume Total (acre-feet)	104	9,104	
Safeguard Pulse	Magnitude (cfs)	-	90	
Safeguard Pulse	Duration (days)	-	5	
Safeguard Pulse	Calendar Window	-	01/15 - 03/31	
Safeguard Pulse	Storage Threshold (combined Anderson + Coyote Reservoirs)	-	55,000	
Safeguard Pulse	Number of Events	-	Up to 2 total	FAHCE-Plus Modified: Begin pulse if storage >= 55,000 and streamflow station 5058 flow >= 30 cfs for at least two consecutive days FAHCE-Plus Modified: If 30 cfs trigger is not met by March 1 and combined storage >= 55,000, then make pulse release of 90 cfs for 10 days FAHCE-Plus Modified: If Attraction Pulse initiates, the Safeguard will not trigger
Safeguard Pulse	Approximate Water Volume per Event (acre-feet)	-	516	

Pulse Type	Pulse Details	FAHCE	FAHCE-Plus Modified	Notes
Safeguard Pulse	Approximate Water Volume Total (acre-feet)	-	1,031	
Security Pulse	Magnitude (cfs)	-	90	
Security Pulse	Duration (days)	-	4	
Security Pulse	Calendar Window	-	Timing of pulse will be determined by the OWG if conditions are met.	
Security Pulse	Storage Threshold (combined Anderson + Coyote Reservoirs in acre-feet)	-	20,000	FAHCE-Plus Modified: Begin pulse if storage >= emergency supplies (20,000) and flow is connected to San Francisco Bay. FAHCE-Plus Modified: If Attraction or Safeguard Pulse initiates, the Security Pulse will not trigger
Security Pulse	Number of Events	-	1	
Security Pulse	Approximate Water Volume per Event (acre-feet)	-	417	Volume calculated using the same method used for other pulses. Valley Water may use up to 800 AF of storage to satisfy this pulse.
Security Pulse	Approximate Water Volume Total (acre-feet)	-	417	
Outmigration Pulse	Magnitude (cfs)	-	60	
Outmigration Pulse	Duration (days)	-	3	
Outmigration Pulse	Calendar Window	-	04/01 - 05/31	
Outmigration Pulse	Storage Threshold (combined Anderson + Coyote Reservoirs)	-	45,000	FAHCE-Plus Modified: Begin pulse if storage >= 45,000 and streamflow station 5058 flow >= 10 cfs for at least two consecutive days FAHCE-Plus Modified: If 10 cfs trigger is not met by May 15 and combined

Pulse Type	**Pulse Details**	**FAHCE**	**FAHCE-Plus Modified**	**Notes**
				storage >= 45,000, then make pulse release of 60 cfs for 7 days FAHCE-Plus Modified: Outmigration pulse triggers regardless of attraction, safeguard, or security pulses already released.
Outmigration Pulse	Number of Events	-	Up to 2 total	
Outmigration Pulse	Approximate Water Volume per Event (acre-feet)	-	119	
Outmigration Pulse	Approximate Water Volume Total (acre-feet)	-	238	

The Project and FAHCE Adaptive Management Program would be implemented under this alternative, with the FAHCE-plus Modified rule curves adaptively managed together with the Project's Conservation Measures. For the FAHCE-Plus Modified Alternative, Appendix D summarizes the adaptive management goals, measurable objectives, monitoring types, methods and frequency, triggers for potential management actions, and potential management actions to be considered for implementation by Valley Water in coordination with the regulatory agencies of the FAHCE AMT (Project AMT). Valley Water would also collaborate with the National Oceanic and Atmospheric Administration (NOAA) Fisheries Southwest Fisheries Science Center regarding sampling methodologies to ensure that fisheries population status and trends can be established over time.

Because the FAHCE-Plus Modified Alternative includes the same non-rule curve elements as the Project, and is a feasible alternative, it would meet the first Project objective, to seismically retrofit and maintain the dam so that Valley Water can continue to operate it at capacity. In addition, this alternative would meet the objectives to improve cost efficiency of dam operations and avoid and minimize impacts. This alternative would not reduce any significant impacts of the Project, it was selected for detailed consideration because it would improve outcomes for anadromous fish.

5.5.4 Modification of Ogier Ponds Lands West of Pond 1 and Pond 2 to Protect Ponds and to Avoid Trucking (Ogier Ponds Alternative)

The Ogier Ponds Alternative[6] would retain all components of the Project; however, the Ogier Ponds CM would be modified (Valley Water 2024 ~~2023~~). The Ogier Ponds Alternative includes excavating a new channel for Coyote Creek with associated floodplain, habitat area, and separation berm, in the agricultural field west of Pond 1 and reestablishing the Coyote Creek alignment that was originally constructed by SCCPRD at the close of gravel mining activities. This alternative would avoid the filling of Ponds ~~Pond~~ 1 and 5 and partial filling of Pond 2, as would be done under the Ogier Ponds CM. Under both the Ogier Ponds CM and this alternative, Pond 4 ~~Ponds 2 and 5~~ would be partially filled.

The benefits of this alternative include: (1) avoiding impacts to open water areas at Ogier Ponds; (2) retaining substantial open water areas in Pond 2, Pond 3, ~~and~~ Pond 4, and Pond 5 for open water habitat and recreational use; and (3) generating a surplus of earth ~~reducing generated soil~~ material, which would reduce trucking impacts, and provide material for reuse for pond ~~reusing the soil to create habitat~~ enhancements. About half of the work for this alternative would be done on County Parks property; however, approximately 36 ~~18~~ acres of private property along the west side of the new channel would be affected, including 18 acres in agricultural use and on Prime Farmland. ~~would be affected~~. The affected property includes the cherry orchard to the west of Pond 1 and the agricultural buildings just north of Barnhart Avenue. As such, real estate acquisition of some portion of these private properties would be necessary. This alternative includes all components of the Project with a revised configuration of the Ogier Ponds CM, is feasible to implement, would meet the Project objective to seismically retrofit and maintain the dam so that Valley Water can continue to operate it at capacity, as well as the objectives to

[6] Although this alternative addresses options for only one Project component, it was nevertheless retained for detailed consideration.

improve cost efficiency of dam operations and avoid and minimize impacts. This alternative would reduce impacts on terrestrial resources, riparian habitat, and wetlands. Construction of this alternative would generate about 210,000 cy of potentially reusable soil; however, because the Project area was previously mined for over five decades, the potential exists for unknown subsurface mining wastes or soil and/or groundwater contaminated at levels of regulatory significance in the Project area. As such, there is a risk of additional Project costs for remediation of contaminated materials, similar to under the Project.

Implementation of this alternative would require Valley Water to acquire property rights from up to nine ~~six~~ private property owners. The timeline for acquisition of these property rights is uncertain and could result in schedule delays. However, this effort would not affect the schedule for implementation of the seismic retrofit components. Accordingly, it would not result in increased risks to public health and safety related to seismic vulnerabilities of the dam and the schedule uncertainties would not affect the feasibility of this alternative.

5.6 Methodology for Evaluating Alternatives

Each of the four alternatives identified above is evaluated using the same general methods described in Chapter 3, *Regulatory and Environmental Setting and Impact Analysis*, for the Project. The impacts of these alternatives are evaluated using the existing conditions baseline, Pre-FERC Order Conditions Baseline, and future conditions baseline, as applicable. These impacts are then compared to those of the Project for each resource. For model-dependent water-related resource evaluations (e.g., fisheries resources) relating to changed rule curves for the FAHCE-Plus Modified Alternative, the impact analysis generally considers comparison against both the Pre-FERC Order and the future conditions baselines. BMPs and VHP implementation are considered part of each alternative's impact analysis, consistent with the Project analysis in Chapter 3. Descriptions of the BMPs and VHP conditions are provided in Appendix A. When impacts are found to be significant, feasible mitigation measures are described, and a post-mitigation significance conclusion is provided. Impacts and mitigation measures follow the same naming and numbering structure as in Chapter 3.

The analysis then compares the determination and magnitude of the impacts under each alternative to those of the Project. The analysis focuses on those impacts that are significant before mitigation and for which the determination or magnitude of the impact differs between the Project and alternative are discussed.

5.7 Organization for Alternatives Impact Analysis

The alternatives analysis is organized first by alternative—No Project Alternative, Increased Dredge Alternative, FAHCE-Plus Modified Alternative, and Ogier Ponds Alternative—and then followed by resource.

Under each alternative, each resource topic area follows the same order as the Project analysis in Chapter 3, *Environmental Setting and Impact Analysis*.

Section 5.8 provides a textual analysis under each alternative regarding those impacts whose determination or magnitude differs from the determination or magnitude under the Project.

5.8 Comparative Summary of Alternatives

Table 5-8 summarizes impacts of the alternatives and compares Project impacts with the impacts of each of the alternatives evaluated in the EIR. Project impacts fall into the following categories:

- No impact (NI)
- Less than significant impact (LTS)
- Less than significant impact with mitigation (LTSM)
- Significant and unavoidable impact (SU); no feasible mitigation measures are available to reduce impacts to a less than significant level

Table 5-8 also compares the magnitude of impacts of the alternatives to those of the Proposed Project, with a "+" indicating that the alternative would have a greater adverse impact than the Proposed Project; a "-" indicating that the alternative would have a less adverse impact than the Proposed Project; or an "=" indicating that the alternative would have the same level of impact as the Project.

1 **Table 5-8. Summary of Impact Determinations for the Project and Alternatives**

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus <u>Modified</u> ~~Enhanced~~	Ogier Ponds
Aesthetics					
Impact AES-1: Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact AES-2: Substantial degradation of the existing visual character or quality of public views of the site and its surroundings	SU	SU (+)	SU (+)	SU (=)	SU (=)
Impact AES-3: Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (=)
Agricultural and Forestry Resources					
Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use	LTS	NI (-)	LTS (=)	LTS (=)	SU (+)
Impact AG-2: Conflict with existing zoning for agricultural use or a Williamson Act contract	LTS	NI (-)	LTS (=)	LTS (=)	LTS (+)
Air Quality					
Impact <u>AQ-1</u> ~~AIR-1~~: Conflict with or obstruct implementation of the applicable air quality plan	SU	NI (-)	SU (+)	SU (=)	SU (-)
Impact <u>AQ-2</u> ~~AIR-2~~: 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	SU	NI (-)	SU (+)	SU (=)	SU (-)
Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations	SU	NI (-)	SU (+)	SU (=)	SU (-)
Impact AQ-4: Other emissions adversely affecting a substantial number of people	LTS	NI (-)	LTS (+)	LTS (=)	LTS (-)
Biological Resources – Fisheries Resources					
Impact FR-1: Have a substantial adverse effect, either directly, through habitat modifications, or through substantial interference with movement on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, NMFS, or USFWS in the fisheries resources study area					

Impact	Level of Impacts with Mitigation				
	Project	**No Project**	**Increased Dredge**	**FAHCE-Plus Modified ~~Enhanced~~**	**Ogier Ponds**
FR-1a: Central California Coast Steelhead	LTS	SU (+)	LTS (+)	LTS (=)	LTS (=)
FR-1b: Chinook Salmon	LTS	SU (+)	LTS (+)	LTS (=)	LTS (=)
FR-1c: Pacific Lamprey	LTS	SU (+)	LTS (+)	LTS (=)	LTS (=)
FR-1d: Sacramento Hitch	LTS	SU (+)	LTS (+)	LTS (=)	LTS (=)
FR-1e: Southern Coastal Roach	LTS	SU (+)	LTS (+)	LTS (=)	LTS (=)
FR-1f: Longfin Smelt	LTS	NI (-)	LTS (+)	LTS (=)	LTS (=)
FR-1g: White Sturgeon	LTS	NI (-)	LTS (+)	LTS (=)	LTS (=)
FR-1h: Green Sturgeon	NI	NI (=)	NI (=)	NI (=)	NI (=)
FR-1i: Riffle Sculpin	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Biological Resources – Wildlife and Terrestrial Resources					
Impact TERR-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS					
TERR-1a: Special-Status Plants	LTSM	LTS (-)	LTSM (+)	LTSM (=)	LTSM (-)
TERR-1b: Bay Checkerspot Butterfly, Monarch Butterfly, and Crotch's Bumble Bee	LTS	NI (-)	LTS (=)	LTS (=)	LTS (-)
TERR-1c: California Tiger Salamander, California Red-legged Frog, and Foothill Yellow-legged Frog	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (-)
TERR-1d: Northwestern ~~Western~~ Pond Turtle	LTS	SU (+)	LTS (=)	LTS (=)	LTS (-)
TERR-1e: Bald Eagle and Golden Eagle	LTSM	LTS (-)	LTSM (+)	LTSM (=)	LTSM (=)
TERR-1f: Tricolored Blackbird, Yellow Warbler, White-tailed Kite, Northern Harrier, and Other Breeding Birds	LTS	NI (-)	LTS (=)	LTS (=)	LTS (-)
TERR-1g: Nonbreeding special-status birds	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (-)
TERR-1h: Pallid Bat	SU	NI (-)	SU (=)	SU (=)	SU (=)
TERR-1i: Other special-status mammals	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
TERR-1j: San Francisco Bay special-status species	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus Modified ~~Enhanced~~	Ogier Ponds
Impact TERR-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (-)
Impact TERR-3: Have a substantial adverse effect on State or federally protected wetlands through direct removal, filling, hydrological interruption, or other means	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (-)
Impact TERR-4: Interfere substantially with the movement of any native resident or migratory species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	SU	SU (+)	SU (=)	SU (=)	SU (=)
Impact TERR-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	NI	NI (-)	NI (=)	NI (=)	NI (=)
Impact TERR-6: Conflict with the provisions of an adopted Habitat Conservation Plan/Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Cultural Resources					
Impact CR-1: Cause a substantial adverse change in the significance of a built environment historical resource	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact CR-2: Cause a substantial adverse change in the significance of an archaeological resource	LSTM	LTS (-)	LTSM (+)	LTSM (=)	LTSM (+)
Impact CR-3: Disturb Human Remains	LTSM	LTS ()	LTSM (+)	LTSM (=)	LTSM (+)
Energy					
Impact ENR-1: Result in a significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (-)
Impact ENR-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (-)
Geology and Soils					
Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus Modified ~~Enhanced~~	Ogier Ponds
Impact GEO-2: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact GEO-3: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact GEO-4: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)
Impact GEO-5: Result in substantial soil erosion or the loss of topsoil	LTS	NI (-)	LTS (+)	LTS (=)	LTS (=)
Impact GEO-6: 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	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact GEO-7: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (+)
Greenhouse Gas Emissions					
Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (-)
Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (-)
Hazards and Hazardous Materials					
Impact HAZ-1: Create a significant hazard to the public or the environment from the routine transport, use, or disposal of hazardous materials	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)
Impact HAZ-3: Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus <u>Modified</u> ~~Enhanced~~	Ogier Ponds
Impact HAZ-4: 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 create a significant hazard to the public or the environment	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (+)
Impact HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (=)
Impact HAZ-6: Create a significant hazard to construction workers or the public through exposure to Valley Fever during Construction Activities	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)
Hydrology					
Impact HYD-1i: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site	SU	SU (+)	SU (-)	SU (=)	SU (=)
Impact HYD-1ii: 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 <u>manner</u> ~~matter~~ which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact HYD-1iii: 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 <u>manner</u> ~~matter~~ which would 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	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact HYD-1iv: 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 <u>manner</u> ~~matter~~ which would impede or redirect flood flows	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact HYD-2: Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of dam failure	LTS	SU (+)	LTS (=)	LTS (=)	LTS (=)

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus Modified ~~Enhanced~~	Ogier Ponds
Impact HYD 3: In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Groundwater Resources					
Impact GW-1: Substantially decrease groundwater supplies or interfere substantially with ground-water recharge such that the project may impede sustainable groundwater management of the basin	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (=)
Impact GW-2: Violate groundwater water quality standards or substantially degrade groundwater quality	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)
Impact GW-3: Conflict with or obstruct implementation of the San Francisco Bay Basin Plan groundwater provisions or the District's GWMP	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (=)
Water Supply					
Impact WS-1: Substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources based on reasonably foreseeable future development during normal, dry, and multiple dry years	LTS	SU (+)	LTS (=)	LTS (=)	LTS (=)
Impact WS-2 ~~GW-2~~: Require or result in the relocation or construction of new or expanded water facilities, the construction of which could cause significant environmental effects	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (=)
Water Quality					
Impact WQ-1: Impair beneficial uses of surface waters OR violate any applicable surface water quality standards or waste discharge requirements or otherwise substantially degrade surface water quality OR conflict or obstruct implementation of a water quality control plan	SU	SU (+)	SU (-)	SU (=)	SU (=)
Land Use and Planning					
Impact LU-1: 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	LTS	NI (-)	LTS (=)	LTS (=)	LTS (+)

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus Modified ~~Enhanced~~	Ogier Ponds
Noise and Vibration					
Impact NOI-1: Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, or generation of substantial incremental increase in noise levels	SU	NI (-)	SU (+)	SU (=)	SU (=)
Impact NOI-2: Generate excessive groundborne vibration or groundborne noise levels	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)
Public Services					
Impact PS-1: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (=)
Impact PS-2: Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or result in need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (=)
Recreation					
Impact REC-1a: Temporary increased use of neighboring recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (=)
Impact REC-1b: Permanent loss of recreational facilities resulting in substantial physical deterioration, or the acceleration of physical deterioration, of neighboring facilities	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact REC-2: Construction or expansion of recreational facilities which might have an adverse physical effect on the environment	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Transportation					
Impact TR-1: Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities	LTSM	SU (+)	LTSM (=)	LTSM (=)	LTSM (=)

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus Modified ~~Enhanced~~	Ogier Ponds
Impact TR-2: Conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)	LTS	NI (-)	LTS (=)	LTS (=)	LTS (-)
Impact TR-3: Substantially increase hazards due to a geometric design feature or incompatible use	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact TR-4: Inadequate emergency access	LTSM	NI (-)	LTSM (+)	LTSM (=)	LTSM (=)
Tribal Cultural Resources					
Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource listed or eligible for listing in the California Register of Historical Resources or determined by Valley Water to be significant	LTSM	LTS (-)	LTSM (+)	LTSM (=)	LTSM (=)
Utilities and Service Systems					
Impact UTL-1: Require or result in the replacement, relocation, or construction of new or expanded stormwater drainage, telecommunication, or electric power facilities, the construction or relocation of which could cause significant environmental effects	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact UTL-2: Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, otherwise impair the attainment of solid waste reduction goals, or fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste	LTS	NI (-)	LTS (=)	LTS (=)	LTS (+)
Wildfire					
Impact WF-1: Exacerbate wildfire risks and expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact WF-2: Require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)
Impact WF-3: 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	LTS	NI (-)	LTS (=)	LTS (=)	LTS (=)

Impact	Level of Impacts with Mitigation				
	Project	No Project	Increased Dredge	FAHCE-Plus Modified ~~Enhanced~~	Ogier Ponds
Impact WF-4: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires	LTSM	NI (-)	LTSM (=)	LTSM (=)	LTSM (=)

5.9 Alternatives Impact Analysis

5.9.1 No Project Alternative

5.9.1.1 Aesthetics

The No Project Alternative would perpetuate views of barren banks and low water storage conditions and degrade views of the reservoir from trails around the reservoir indefinitely which would be a significant impact. However, the No Project Alternative would not involve Project-related construction and would avoid specific Project-related aesthetic impacts. This alternative would not require the removal of more than 650 mature trees for construction of the Seismic Retrofit component and approximately 70 trees for construction of the Conservation Measures. Therefore, public views of the BHBA and Coyote Creek would not be disturbed under the No Project Alternative. The aesthetic impact of the No Project Alternative on visual quality and the quality of public views would be **significant and unavoidable**. There is no mitigation available to reduce the public views of barren bank until the banks would have an opportunity to revegetate. This impact would be greater than the Project given its wider area of impact.

In addition, the No Project Alternative would not create a new source of light or glare. Construction lighting, a source of nighttime light and glare which could adversely affect nighttime public views, would not be required under the No Project Alternative. There would be **no impact**. This impact would be less than the Project.

Regarding cumulative aesthetics impacts, the No Project Alternative would have **cumulatively considerable impacts.** No Project Alternative cumulative impacts would be greater than the Project's cumulative impacts.

5.9.1.2 Agriculture and Forestry Resources

The No Project Alternative would not affect Important Farmland. Because the No Project Alternative would not construct the Ogier Ponds CM, the only Project feature that would affect agricultural lands, this alternative would not require temporary use or permanent conversion of Important Farmland. There would be **no impact**. This impact would be less than the Project.

In addition, this alternative would not affect land under Williamson Act contract or zoned for agricultural use. Because the No Project Alternative would not construct the Ogier Ponds CM, the only Project feature that would affect agricultural lands, this alternative would not affect these types of agricultural land. There would be **no impact**. This impact would be less than the Project.

Regarding cumulative agricultural resource impacts, the No Project Alternative would have **no cumulative impacts.** No Project Alternative cumulative impacts would be less than the Project's cumulative impacts.

5.9.1.3 Air Quality

The No Project Alternative does not involve operation of construction vehicles or create new sources of dust generation, this alternative would avoid all construction impacts related to the

Project. As such, the No Project Alternative would not result in impacts related to conflicts with applicable air quality plans, cumulatively considerable net increase on criteria pollutants for which the Project region is in non-attainment, or exposure of sensitive receptors to substantial pollutant concentrations. There would be **no impact**. This impact would be less than the Project.

Regarding cumulative air quality impacts, the No Project Alternative would have **no cumulative impacts.** No Project Alternative cumulative impacts would be less than the Project's cumulative impacts.

5.9.1.4 Biological Resources—Fisheries Resources

The No Project Alternative would continue to pass flows through the reservoir at deadpool to Coyote Creek downstream of the dam. In the winter, flows downstream would be closer to an unimpeded hydrograph from upstream tributaries and the reservoir would not attenuate storm-induced flows downstream of the dam as the outlet capacity would be increased to 2,500 cfs from a maximum of 500 cfs in the Pre-FERC Order Baseline. Less attenuation of precipitation-induced pulse flows compared to the Project would promote steelhead and Pacific lamprey migration in and out of Coyote Creek relative to Pre-FERC Order Baseline. However, during the summer, the reservoir would not have a cold-water pool to provide cool flows that are important for rearing steelhead, pre-spawning holding Pacific lamprey, and rearing larval Pacific lamprey. Steelhead and Pacific lamprey rearing habitat downstream of the dam would be more reliant on imported water discharged by Valley Water to Coyote Creek for managed groundwater recharge through the dry season. Imported water releases would not be run through chillers to help lower temperatures in the CWMZ. Therefore, flows downstream of the dam would warm greatly in the summer and early fall months relative to Pre-FERC Order Baseline. Warmer water in the summer would decrease the quality of habitat for steelhead and lampreys. This could lead to more competition within and between species for habitat for cooler areas in the creek and would also promote more predation by concentrating fish into less habitat that is warmer than under Pre-FERC Order Baseline.

Natural winter flows would enhance in and out-migration which would be a benefit if considered in isolation but when combined with a decrease in quality of summer habitat it would result in a situation where steelhead and lamprey are attracted into the system but with less likelihood of surviving through the dry season. This would have **significant and unavoidable** impacts to the steelhead, Chinook, and Pacific lamprey populations with no feasible mitigation identified that would avoid or minimize impacts.

Changes in steelhead habitat are used as a surrogate to understand how the alternative would impact southern coastal roach and Sacramento hitch. Longfin smelt, green sturgeon, and white sturgeon occur in the intertidal sloughs of the study area where their habitat is greatly influenced by tidal action and freshwater inputs from tributaries; therefore, any change in flow operations is likely muted and negligible by the time water from the reservoir reaches the intertidal zone. There will be **no impact** on longfin smelt, green sturgeon, and white sturgeon.

The No Project Alternative would adversely impact steelhead, Pacific lamprey, Chinook, southern coastal roach and Sacramento hitch more than the Project. Longfin smelt, green sturgeon, and white sturgeon would have the same impact as the Project.

Regarding cumulative fisheries resource impacts, the No Project Alternative's impact on special-status species in south San Francisco Bay would not be cumulatively considerable; however, impacts to species in Coyote Creek downstream of Anderson Reservoir (steelhead, Pacific lamprey, Chinook, southern coastal roach and Sacramento hitch) would be **cumulatively considerable,** and greater over the long-term than Project cumulative impacts.

5.9.1.5 Biological Resources—Wildlife and Terrestrial Resources

The No Project Alternative would not involve construction of the Seismic Retrofit or any Conservation Measures, so there would be **no impact** short-term on wildlife and terrestrial biological resources from construction and construction monitoring, which is less than with the Project.

Over the long-term, the No Project Alternative could have different effects on special-status plants, bald eagles, special-status species, and jurisdictional resources than the Project. Because Anderson Reservoir would be maintained at the deadpool elevation and would not be refilled under the No Project Alternative, the No Project Alternative would not impact special-status plants, such as San Francisco collinsia and Coyote ceanothus, that have colonized the rim of the lowered reservoir, as would occur under the Project during refilling. Thus, the No Project Alternative would have less impact on these plants than the Project.

Conversely, the lowered reservoir under the No Project Alternative would support less foraging habitat for bald eagles than the refilled reservoir, and it is likely that the number of pairs of bald eagles that the reservoir could support would be lower under the No Project Alternative than with the Project. The No Project Alternative would not affect bald eagles relative to the existing conditions baseline in which the reservoir is maintained at the deadpool elevation, but the No Project Alternative would not result in the benefits to bald eagles as the Project would.

Over the long-term, the lowered reservoir under the No Project Alternative would also result in warmer releases throughout Coyote Creek as the cold pool would not exist within the reservoir. During the dry season, areas of Coyote Creek downstream of the dam would also be void of water when imported water resources are not available to supplement creek flows. The increased temperatures of the waters, and overall reduction in flows, would negatively impact jurisdictional resources (e.g., wetlands and riparian habitat) that support species-status species (western pond turtle, California red-legged frog) within and along the Coyote Creek corridor. The reduction in overall habitat for special-status species may result in a reduction in breeding, foraging, and aestivation habitat, and would also reduce movement corridors for these species between areas of suitable habitat. This reduction in habitat would limit overall jurisdictional habitats along the creek, and would reduce habitat to support special-status species beyond the Project. The No Project Alternative also would not result in the benefits to jurisdictional habitats and special-status species that the Project would.

With no construction and no guarantee of imported water sources, the No Project would have a significant unavoidable impact on other sensitive species (Impact TERR-1); riparian habitat or other sensitive natural communities (Impact TERR-2); wetlands (Impact TERR-3); and wildlife movement or nurseries (Impact TERR-4). The No Project would not conflict with tree ordinances (Impact TERR-5); or Conflict with an HCP/NCCP (Impact TERR-6).

With a reduction in imported water releases, and no change in reservoir operations under the No Project Alternative, the warmer, reduced flows within Coyote Creek would differ substantially from the existing conditions baseline, and therefore impacts of the No Project Alternative on terrestrial biological resources related to long-term operations would be significant and unavoidable. The overall impact of the No Project Alternative would be **significant and unavoidable** relative to the existing conditions baseline. The long-term impact would be greater under the No Project Alternative than under the Project.

Regarding cumulative wildlife and terrestrial resource impacts, the No Project Alternative's impacts would be **cumulatively considerable.** No Project Alternative cumulative impacts would be less than the Project's cumulative impacts over the short-term, but greater than the Project's cumulative impacts over the long-term.

5.9.1.6 Cultural Resources

The No Project Alternative would not cause a substantial adverse change in the significance of a build environment historical resources. This alternative would not involve construction, so it would not involve construction-related impacts on the Rhoades Ranch Historic District. There would be **no impact** from construction, which is less than the Project.

Because there would be no ground disturbance, this alternative would not directly affect known or unknown subsurface archaeological resources. However, like the Project, the No Project Alternative could cause an adverse change in the significance of archaeological resources. The lowered reservoir would have fluctuating reservoir levels. As water levels rise and fall, wave action would cause erosion of the soil and for artifacts within the soil matrix of archaeological sites to move. However, because some known cultural sites would be above the lowered maximum water level for this alternative, the potential for wave action to affect them would be less than under the Project. In addition, because boating would not return to the reservoir, waves generated from boats would not affect archaeological sites. The impact on subsurface cultural resources from operation would be **less than significant**. The magnitude of the impact would be less under the No Project Alternative than under the Project.

Regarding cumulative cultural resource impacts, the No Project Alternative's impact on archaeological resources would not be cumulatively considerable. No Project Alternative cumulative impacts would be less than the Project's cumulative impacts.

5.9.1.7 Energy

The No Project Alternative would avoid all Project impacts related to energy consumption. No construction vehicles would be operated, and no new demands on other energy sources such as electricity would result. Therefore, this alternative would not result in impacts related to wasteful, inefficient, or unnecessary consumption of energy resources or conflicts with a state or local plan for renewable energy or energy efficiency. There would be **no impact to energy resources**, which is less than under the Project.

Regarding cumulative energy impacts, the No Project Alternative would have **no cumulative impacts.** No Project Alternative cumulative impacts would be less than the Project's cumulative impacts.

5.9.1.8 Geology and Soils

The No Project Alternative would not exacerbate risk of loss, injury, or death involving liquefaction or unstable soil conditions. This alternative would not involve construction of the

Project or Conservation Measures, including construction of new channels through liquefiable soil that could be subject to lateral spreading in case of earthquake. Therefore, there would be **no impact**. The risk of exacerbating liquefaction, lateral spreading, or other unstable soil conditions would be less under the No Project Alternative than under the Project.

Regarding exacerbation of landslide risks, the fluctuating water levels of the reservoir during the wet and dry season could increase risk of landslide activation, as discussed in Section 3.8, *Geology and Soils*. Fluctuation of water levels would be less under this alternative than under the Project, but the same as under the existing conditions baseline, because as water enters the reservoir, it would be released as quickly as possible through the existing outlet works and the ADTP constructed as part of FOCP. Accordingly, the risk of landslide would be the same under the No Project Alternative and there would be **no impact**.

The No Project Alternative would avoid all construction impacts and have **no impact** related to soil erosion and loss topsoil.

The No Project Alternative would not directly or indirectly destroy a unique paleontological resource or site. This alternative does not involve excavation of sediments at the two borrow areas for the Seismic Retrofit component and at the Conservation Measure sites to create the new creek channels. Accordingly, this alternative would involve no excavation into sediments that could contain fossils, that is, sediments with high paleontological sensitivity or sediments that are adjacent to sediments with high paleontological sensitivity and that therefore can be assumed to overlie sediments with high paleontological sensitive at unknown but suspected shallow depth. Therefore, there would be **no impact**. The likelihood of damaging or destroying a unique paleontological resource would be less under the No Project Alternative than the Project.

Regarding cumulative geology and soil impacts, the No Project Alternative would have **no cumulative impacts.** No Project Alternative cumulative impacts would be less than the Project's cumulative impacts.

5.9.1.9 Greenhouse Gas Emissions

The No Project Alternative would avoid all construction impacts related to the Project. No construction vehicles would be operated, and no new demands on other energy sources, such as electricity would result. Therefore, the No Project Alternative would not generate GHG emissions during construction or cause conflicts with applicable plans, policies, or regulations adopted to reduce GHG emissions. The No Project Alternative would be **no impact**, which is less than under the Project.

Regarding cumulative GHG emission impacts, the No Project Alternative would have **no cumulative impacts.** No Project Alternative cumulative impacts would be less than the Project's cumulative impacts.

5.9.1.10 Hazards and Hazardous Materials

The No Project Alternative would not create a hazard to the public or environment from the transport, use, or disposal of hazardous materials or through accident conditions involving the release of hazardous materials. In addition, this alternative would not emit hazardous materials within 0.25 miles of a school. Because the No Project Alternative does not involve ground disturbance during construction, it does not incur a risk of disturbing unknown hazardous waste materials in the soil or groundwater or NOA and would further not endanger sensitive receptors within 0.25 miles of the Project through exposure to such materials through release into the environment. Therefore, there would be **no impact** from the release of hazardous materials, which is less than under the Project.

The No Project Alternative would not impair implementation of or interfere with an adopted emergency response plan or emergency evacuation plan. The No Project Alternative does not involve construction-related disruptions to traffic or temporary or permanent changes to traffic flow. Therefore, there would be **no impact** to emergency plans, which is less than under the Project.

With no ground-disturbing activities, there would be **no impact** from Valley Fever.

Regarding cumulative hazards and hazardous material impacts, the No Project Alternative would have **no cumulative impacts.** No Project Alternative cumulative impacts would be less than the Project's cumulative impacts.

5.9.1.11 Hydrology

The No Project Alternative would result in impacts related to increased erosion and sediment transport and increase the risk of flooding downstream of Anderson Dam on Coyote Creek; ~~, and~~ however, the No Project Alternative would not increase exposure of people or structures to risk of loss, injury, or death as a result of dam failure compared to existing conditions.

As described in Section 3.11, *Hydrology*, runoff water would flow over and through deposited sediment on the reservoir bed that were previously submerged. During Project construction flows that erode and entrain sediment would carry the sediment downstream. This would generally apply to finer sediments that are carried in suspension versus larger and coarser grained sediment which would be transported along the bed of the lake as bedload. Under the No Project Alternative, by maintaining a higher deadpool that could capture sediment coming into the reservoir, there would be less erosion of exposed lakebed sediment and less transport of this eroded material downstream compared to the construction period of the Project when reservoir sediment capture would be greatly reduced.

While erosion and sediment transport conditions would be lower under the No Project Alternative than compared to the Project during the construction period; over the longer-term, erosion and sediment transport conditions under the No Project Alternative would be substantially greater compared to the Project. Under the Project, following the construction period, the reservoir would be refilled, restoring reservoir water levels to higher elevations than under the No Project Alternative or as found under the existing conditions baseline. As reservoir levels return to higher elevations under the Project, the ability for the reservoir to trap eroding sediments from the upstream watershed and the lakebed itself would return and the potential to send sediment downstream would decline. In contrast, in the longer-term under the No Project Alternative, the reservoir would not refill, flows and sediment from the upper watershed and lake bed would be captured by the deadpool as described above, but the ability for the deadpool to continue trapping flows and sediment would reduce over time compared to the Project, and the trap efficiency of the deadpool under the No Project Alternative would never be as great as under a restored and refilled reservoir as would exist under the Project. In conclusion, impacts of the No Project Alternative would be similar to the existing conditions baseline in the near-term and during the Project's construction period. However, over the longer-term following Project construction, the No Project Alternative would have higher erosion and sediment transport effects when compared to the Project under which higher lake levels would be restored. The impact would be **significant and unavoidable**. The magnitude of the impact related to erosion and sedimentation would be greater under the No Project Alternative than under the Project.

~~The No Project Alternative would decrease the risk of flooding downstream of Anderson Dam on Coyote Creek during the Project construction period compared to the Pre-FERC Order Conditions Baseline, but flooding risk~~ Flooding risk under the No Project Alternative would be similar compared to the existing conditions baseline. The No Project Alternative would provide additional flood risk reduction as the reservoir would remain empty and provide a large amount of storage for storm flows. Accordingly, areas along Coyote Creek would be inundated less frequently under the No Project Alternative compared to under the operating Project. ~~The construction period impact would be smaller under the No Project Alternative than under the Project.~~

~~The No Project Alternative has the~~ The potential to expose people or structures to risk of loss, injury, or death as a result of dam failure under the No Project Alternative would be the same as existing conditions. This alternative would not implement Seismic Retrofit components to lower risk of dam failure due to seismically induced dam deformation from either liquefaction or surface fault rupture when the reservoir is full. ~~The~~ Therefore, reservoir storage would be limited ~~would store water~~ up to the FERC-restricted level (deadpool). A restriction has also been in place for Coyote Reservoir since 1992, limiting storage in this reservoir to 52.5 percent of total capacity. DSOD determined that such a restriction was necessary based on fault rupture concerns at Coyote Dam. The downstream effects would be reduced by the presence of Anderson Reservoir in the event Coyote Dam failed ~~could fail~~ during a seismic event along the Calaveras Fault. ~~Though low in likelihood, if such a failure of Coyote Dam occurred during the wet season concurrently with a high flow event, then there would be a tremendous amount of flow and sediment that could significantly increase the risk for additional downstream flooding. In contrast, the Project during the operations period would retain this increased flow in the restored reservoir.~~ Though the likelihood of such a situation is very low, the impact relating ~~would relate~~ to increased downstream flood risk from dam failure would be less than significant. Overall, the impacts on hydrology under the No Project Alternative would be **significant and unavoidable**. The magnitude would be greater under the No Project Alternative than under the Project. ~~No mitigation is available to reduce the impact. Therefore, this impact is **significant and unavoidable**. The magnitude of the impact would be greater under the No Project Alternative than under the Project when a restored Anderson dam and reservoir could provide additional buffer to such flooding risks~~.

Regarding cumulative hydrology impacts, the No Project Alternative's impact on sedimentation in Coyote Creek and risk from dam failure would be **cumulatively considerable**. No Project Alternative cumulative impacts would be greater than the Project's cumulative impacts.

5.9.1.12 Groundwater Resources

The No Project Alternative would have potential to affect and reduce potential groundwater recharge along Coyote Creek. While under the No Project Alternative, Valley Water would release imported water to support groundwater recharge along Coyote Creek downstream of the dam, the ability to release local watershed water from the reservoir water would not exist. In dry years when imported supplies may not be as available it could be possible that inadequate water is available for recharge in Coyote Creek. This could be a significant impact to Coyote Valley groundwater. If imported water was not available over the long-term, it would be a **significant and unavoidable** impact to groundwater supplies.

Additionally, this alternative could affect the productivity and water quality of groundwater wells located close to the reservoir rim. As described in Section 3.14, *Groundwater*, given that Anderson Reservoir was constructed in 1950, all or most of these wells were likely constructed after the reservoir. Thus, the groundwater conditions under which the wells were completed may have been influenced by the presence of the reservoir. Generally, reservoirs raise the groundwater level in the surrounding area, as some of the water stored in the reservoir seeps through the fractures in the surrounding bedrock, potentially affecting water levels in nearby wells that are also screened in the bedrock. If groundwater levels in the fractured bedrock were to decline at the location of the nearby wells, principally as a result of the dewatered state of the reservoir during the Project construction period, this could adversely affect the productivity of these wells, potentially causing the wells to go dry. The No Project Alternative, like the Project, would maintain Anderson Reservoir at deadpool, and could cause these wells to go dry. However, under the No Project Alternative, a dewatered reservoir would continue over the long-term, not just for the 7-year construction period of the Project. The near-term and longer-term impact to groundwater resources of the No Project Alternative is **significant**. Because the dewatering condition of the reservoir under No Project Alternative would occur in perpetuity, the duration of the impact is unlimited and greater under this alternative than during the 7-year construction period of the Project.

The No Project Alternative would not require construction activities including blasting at the BHBA, therefore there would be **no impact** associated with the use of perchlorates or other nitrogen-based chemicals that could degrade groundwater.

The possibility that there would be inadequate supplies to support groundwater recharge in Coyote Valley would be a significant impact in complying with the Basin Plan and the GWMP. This impact would be **significant and unavoidable**.

Regarding cumulative groundwater resource impacts, the No Project Alternative's impact on groundwater resources and compliance with groundwater plans would be **cumulatively considerable**. No Project Alternative cumulative impacts would be greater than the Project's cumulative impacts.

5.9.1.13 Water Supply

The No Project Alternative would restrict and constrain Valley Water's available water supply portfolio and could require construction or expansion of other water facilities. The 2020 UWMP assumes that Anderson Dam would be back online in between 2030 and 2035. Starting with the 2035 projection, the UWMP analysis assumes that Anderson Dam would be operational. Under the No Project Alternative, Anderson Dam would not be operated at capacity. The UWMP's assumption that water from the reservoir operated at capacity from 2035 on would no longer be correct. This impact is **significant and unavoidable**. Valley Water would need to take action to ensure adequate long-term water supplies which would likely involve expanded water conservation efforts, future water transfers, construction of water recycling or desalination facilities, or construction of water storage facilities. These types of facilities would have their own environmental impacts that would need to be analyzed in project specific environmental review.

In addition, as described in Groundwater Resources above, the No Project alternative would have potential to affect the productivity of groundwater wells located close to the reservoir rim by the prolonged dewatering of the reservoir. An indefinitely dewatered reservoir could cause small private well owners to drill new wells or deepen existing wells to address the reduced productivity of their existing wells. This impact is **significant and unavoidable**.

Regarding cumulative water supply impacts, the No Project Alternative's impact on water supply would be **cumulatively considerable,** and greater than the Project's cumulative impacts.

5.9.1.14 Water Quality

The No Project Alternative would not require construction activities including blasting at the BHBA, therefore there would be **no impact** associated with the use of perchlorates or other nitrogen-based chemicals that could degrade water quality. However, the short-term in-reservoir degraded water quality impacts caused by maintaining the reservoir at deadpool would continue indefinitely, creating a greater impact than the Project.

The No Project Alternative maintains the existing deadpool water elevation, whereby erosion and sediment transport opportunities would remain consistent with the existing conditions baseline indefinitely. During the increased drawdown of the Project construction period, the Project would have a higher potential for increased erosion and sediment transport than would the No Project Alternative because the opportunity for more direct runoff from the watershed above the reservoir to flow across the exposed and erosive lakebed and downstream through the outlet works would be greater. Following construction of the Project, the operational reservoir would once again have lower levels of erosion and downstream sediment transport compared to the reservoir maintained at deadpool indefinitely under the No Project Alternative. In addition, water temperatures of water released through the dam downstream to Coyote Creek would be higher under the No Project Alternative than under the Project. Chillers would be employed under the Project to lower temperatures during the Project construction period, but chillers would not be implemented for this alternative. When the Project is in operation, the reservoir would generally have a volume of water that allows lower layers to remain colder. Discharges from the reservoir to Coyote Creek would come from this colder layer. Under the No Project Alternative future discharges from the reservoir would be passed through the outlet from upstream flows at the ambient temperature of those upstream sources, or from imported water sources that would be at the temperature from San Luis Reservoir. Given these circumstances, water temperatures downstream of Anderson Dam on Coyote Creek would be higher under the No Project Alternative than under the Project. This impact is significant. The No Project would not have a significant impact on DO as water released through the Anderson Dam outlets would become oxygenated.

Because no mitigation is available to decrease the impacts to temperature and turbidity, the impact to water quality would be **significant and unavoidable**. The magnitude of this impact under the No Project Alternative would be greater than under the Project.

Regarding cumulative water supply impacts, the No Project Alternative's impact on water quality would be **cumulatively considerable**. Cumulative impacts would be greater than Project cumulative impacts.

5.9.1.15 Land Use

The No Project Alternative would not conflict with any land use plan, policy, or regulation adopted to avoid or mitigate an environmental effect. Because the No Project Alternative would not involve construction, it would not change land uses, whether recreational, residential, agricultural, open space, or utility. There would be **no impact**, which is less than under the Project.

Regarding cumulative land use impacts, the No Project Alternative would have **no cumulative impacts.** Cumulative impacts would be the same as Project cumulative impacts.

5.9.1.16 Noise and Vibration

The No Project Alternative would not involve construction activity, so it would not generate either noise or vibration through construction. In addition, operation of the No Project Alternative would not involve any activities that would change the existing noise and vibration environment. Thus, the No Project Alternative would not generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project ~~project~~ in excess of standards or generate a substantial incremental increase in noise levels. Similarly, this alternative would not generate excessive groundborne vibration or groundborne noise levels. There would be **no impact**, which is less than under the Project.

Regarding cumulative noise and vibration impacts, the No Project Alternative would have **no cumulative impacts.** Cumulative impacts would be less than Project cumulative impacts.

5.9.1.17 Public Services

The No Project Alternative would not result in substantial adverse physical impacts associated for the provision of new or altered governmental facilities. This alternative would not involve construction activity, so construction would not increase the need for police or fire protection and operation would not involve any activities that would increase the need for police or fire protection. The No Project Alternative does not include any features that would affect enrollment at schools or contribute to any change in population or other land use modification that would affect the local school district or increase demand on recreational facilities. There would be **no impact**, which is less than under the Project.

Regarding cumulative impacts to public services, the No Project Alternative would have **no cumulative impacts.** Cumulative impacts would be less than Project impacts.

5.9.1.18 Recreation

The No Project Alternative would not require closure of Anderson Lake County Park, Coyote Creek Parkway, Ogier Ponds, and the Coyote Percolation Pond, and would allow those parks that are currently closed for the FOCP to re-open sooner. The No Project Alternative would continue modified flows greater than 500 cfs to Coyote Creek and portions of the Coyote Creek Trail and Hellyer Park may be inundated during heavy storms, causing recreators to concentrate within the portions of the facility that remain open. The concentrated use of the open areas, in combination with high water conditions, could result in impacts to SCCDPR facilities, which would be **significant and unavoidable.** As this impact would continue indefinitely, they would be of greater magnitude than the Project.

The No Project would not require removal of unmarked trails from the BHBA, access by private vehicles along a portion of Coyote Road, parking along the dam crest, trees at Live Oak Picnic Area, or alter the Ogier Ponds complex. The No Project would have no impact on permanent recreational facilities. The No Project Alternative does not include construction or expansion of recreational resources. Accordingly, there would be no impact on the environment resulting from construction of expansion of such resources. This impact would be less under this alternative than under the Project.

Regarding cumulative recreation impacts, the No Project Alternative's impact on SCCDPR facilities from high water conditions would be **cumulatively considerable**. Cumulative impacts would be greater than Project cumulative impacts.

5.9.1.19 Transportation

The No Project Alternative would not involve construction, so all construction-related impacts on Transportation would be avoided. The No Project would not conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities; increase VMT; increase hazards due to geometric design feature or other incompatible use; or cause inadequate emergency access. In addition, operations under the No Project Alternative would not change transportation patterns or safety.

As discussed in the recreation impact analysis, the No Project Alternative would continue modified flows greater than 500 cfs to Coyote Creek, and portions of the Coyote Creek Trail and Hellyer Park may be inundated during heavy storms, causing recreators to concentrate within the portions of the facility that remain open. The concentrated use of the open areas, in combination with high water conditions, could result in impacts to SCCDPR pedestrian facilities, which would be **significant and unavoidable.** As this impact would continue indefinitely, it would be of greater magnitude than the Project.

Regarding cumulative transportation impacts, the No Project Alternative's impact on pedestrian facilities would be **cumulatively considerable.** Cumulative impacts would be greater than Project cumulative impacts.

5.9.1.20 Tribal Cultural Resources

The No Project Alternative could result in a substantial adverse change in the significance of a tribal cultural resource. The No Project Alternative would not involve construction-related ground-moving activities and would therefore not directly affect subsurface Tribal cultural resources. However, like the Project, the No Project Alternative would have fluctuating reservoir levels. As water levels rise and fall, wave action would cause erosion of the soil and for artifacts within the soil matrix of archaeological sites to move. However, because some of the sites are above the lowered maximum water level, the potential for wave action to affect them would be less than under the Project. In addition, because boating would not return to the reservoir, waves generated from boats would not affect archaeological sites. The impact on Tribal cultural resources from operation of the No Project Alternative would be **less than significant**. The magnitude of the impact would be less under the No Project Alternative than under the Project.

Regarding cumulative tribal cultural resource impacts, the No Project Alternative would have **no cumulative impacts.** Cumulative impacts would be less than Project cumulative impacts.

5.9.1.21 Utilities and Service Systems

The No Project Alternative would not require or result in the replacement, relocation, or construction of new or expanded stormwater drainage, telecommunication, or electric power facilities, the construction or relocation of which could cause significant environmental effects. Impacts to water supply are addressed separately. There would be **no impact**, which is less than the Project.

In addition, this alternative would not generate solid waste because no construction is involved. There would be **no impact**, which is less than the Project.

Regarding cumulative impacts to utilities and service systems, the No Project Alternative would have **no cumulative impacts**. Cumulative impacts would be less than Project cumulative impacts.

5.9.1.22 Wildfire

The No Project Alternative would not exacerbate wildfire risks and expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. The No Project Alternative would not involve use of construction equipment in and around vegetated areas that could generate sparks or extreme heat and would not increase exposure of people or structures to significant loss, injury, or death involving wildland fires. There would be **no impact**, which is less than the Project.

Regarding cumulative wildfire impacts, the No Project Alternative would have **no cumulative impacts.** Cumulative impacts would be less than Project cumulative impacts.

5.9.2 Increased Dredge Alternative

5.9.2.1 Aesthetics

The Increased Dredge Alternative would extend the period of construction in the reservoir an additional 2 years and the extended dredging operations would include nighttime lighting on the reservoir. Impacts to aesthetics would be like those discussed in Section 3.1, *Aesthetics*.

Visual Character

The Increased Dredge Alternative would cause the same Project-related impacts including the removal of more than 650 mature trees for construction of the Seismic Retrofit component and approximately 70 trees for construction of the Conservation Measures resulting in degradation of the existing visual character or quality of public views. Therefore, public views of the BHBA and Coyote Creek would similarly be disturbed under the Increased Dredge Alternative. Mitigation measures to replace trees along Coyote Creek (**Mitigation Measure AES-1**) and screen construction staging areas (**Mitigation Measure AES-2**) will reduce construction related impacts, but not to a level of less than significant. The alternative would result in **significant unavoidable** impacts with no additional feasible mitigation measures available to fully mitigate the impacts. The impact to visual character would be greater than as the Project from the extended construction period at the reservoir.

Nighttime Lighting

The Increased Dredge Alternative would create the same source of light and glare as the Project in addition to work from a barge on the reservoir for 2 additional years for the increased dredging that would add an additional source of nighttime lighting. A mitigation measure to minimize the impact from construction lightning (**Mitigation Measure AES-3**) will be implemented to reduce this impact to a less than significant level. The Increased Dredge Alternative would have a **less than significant impact with mitigation** on nighttime views. This impact would be greater than the Project with 2 additional years of work that involves nighttime lighting.

Mitigation Measures

AES-1 Replacement Tree on Santa Clara County Parkland

AES-2 Visual Screening of Construction Staging Areas

AES-3 Construction Lighting

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **cumulatively considerable** impacts on visual character, but **not cumulatively considerable** impacts on nighttime lighting. Cumulative impacts would be greater than Project cumulative impacts.

5.9.2.2 Agriculture and Forestry Resources

The Increased Dredge Alternative would have no changes in impacts to Farmland as they are discussed in Section 3.2, *Agriculture and Forestry Resources*.

Farmlands are located outside the Project construction area; however, 3.8 acres of Farmland of Local Potential southwest of the Ogier Ponds would be temporarily used for materials and equipment staging during the construction of the Ogier Ponds CM, which would impact locally important farmland.

Farmland

The staging area would be restored to agricultural use after 3 years, and implementation of BMPs AQ-1 (dust control), BI-11 (minimize predator-attraction), WQ-4 (limit impacts from staging and stockpiling), WQ-11 (maintain clean work sites), and TR-1 (public safety measures) would help prevent impact to surrounding Farmland of Local Potential at this site. Post-construction operations associated with the retrofitted dam could result in minor flooding in some Farmland areas but would not rise to the level of conversion. Adaptive management actions, if required, would not take place in Farmland. Thus, the Alternative would not permanently convert areas of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural uses. The alternative would result in a **less than significant impact** to Important Farmland. This impact would be the same as the Project.

Williamson Act Lands and Lands Zoned Agriculture

No lands under a Williamson Act contract are present within the study area; therefore, there would be no impacts to Williamson Act lands during construction or operation of the Project. Temporary construction activities within the Seismic Retrofit Project Area would not conflict with existing agricultural zoning. Lands zoned for agricultural use would be temporarily used for materials and equipment staging during the construction of the Ogier Ponds CM, but implementation of BMPs would minimize the potential for temporary impacts to conflict with existing zoning. Adaptive management actions, if required, would take place in agricultural areas. Ogier Ponds is in area zoned as agricultural land uses and would be adaptively managed. However, the Project would not conflict with existing agricultural zoning or Williamson Act contracts, this impact would therefore be **less than significant**. This impact would be the same as the Project.

Regarding cumulative impacts, like the Project, the Increased Dredge Alternative would have **not cumulatively considerable** impacts on agricultural resources. Cumulative impacts would be the same as Project cumulative impacts.

5.9.2.3 Air Quality

The Increased Dredge Alternative would involve an additional ten months of construction over 2 years including as additional 1,500 truck trips for the increased dredging of sediments from the reservoir bottom using heavy equipment, as outlined in **Table 5-3.** Dried sediments would be transported from the staging areas to the ultimate reuse placement sites at Ogier Ponds and San Francisco Bay, as described in **Table 5-6**. Other impacts would be like those discussed in Section 3.3, *Air Quality*.

Air Quality Plans

The criteria air pollutant emissions from construction of the Seismic Retrofit component and the Ogier Ponds CM, ~~and the Sediment Augmentation Program~~ would exceed BAAQMD thresholds. The emissions from the additional 2 years of construction were not modeled but would be in addition to the already significant emissions. Implementation of **Mitigation Measure AQ-1** will require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. However, even with implementation of **Mitigation Measure AQ-1**, construction of the Increased Dredge Alternative will exceed BAAQMD thresholds for NOx. As such, Project construction would conflict with the BAAQMD 2017 Clean Air Plan goal to attain established air quality standards while Project operation would not exceed any BAAQMD thresholds for the various criteria air pollutants. The Project overall would conflict with or obstruct the implementation of an applicable air quality plan, and impacts would be **significant and unavoidable**. The Increased Dredge Alternative would have greater impacts in regard to conflicting with the 2017 Clean Air Plan than the Project.

Criteria Pollutants

As with the Project construction as discussed in Section 3.3 Impact 2, the Increased Dredging Alternative would exceed the BAAQMD average daily thresholds for criteria air pollutants, while operational impacts related to criteria air pollutants would be less than significant. The Seismic Retrofit construction emissions would exceed the BAAQMD average daily thresholds for ROG in Year 1 through Year 6 and for NOx in Year 1 ~~2~~ through Year 7. Ogier Ponds CM construction emissions would exceed the BAAQMD average daily threshold for NO_X in ~~Year~~ Years 6 through ~~and~~ Year 8 ~~7~~. Sediment Augmentation Program construction emissions would not exceed the BAAQMD average daily thresholds for criteria air pollutants ~~thresholds for NO_X during every year of construction from Year 2 through Year 15~~. Maintenance ~~Construction~~ of the North Channel Reach ~~Extension~~ and Phase 2 Coyote Percolation Dam CM would not exceed the BAAQMD average daily thresholds for criteria air pollutants.

An additional 2 years of dredging and hauling would be added in Year 1 and Year 2. These emissions were not calculated but would be in addition to Project emissions. Even with implementation of **Mitigation Measure AQ-1**, Seismic Retrofit construction emissions will exceed the BAAQMD average daily thresholds for ROG in Year 1 and for NOx in Year 2 through Year 6 ~~7~~. Mitigated Ogier Ponds CM construction emissions would exceed the BAAQMD average daily thresholds for NO_X in Year 6 and Year 7. Mitigated Sediment Augmentation Program construction emissions would not exceed the BAAQMD average daily thresholds for criteria air pollutants ~~NO_X during every year of construction from Year 2 through Year 10, and overall~~. Overall mitigated Project construction emissions would exceed the BAAQMD average daily threshold for ROG during Year 6 and for NO_X during Year 2 through Year 7 ~~15~~. Since criteria air pollutant exhaust emissions will remain above the BAAQMD significance threshold even with implementation of **Mitigation Measure AQ-1**, the impact related to regional air quality will be **significant and unavoidable**. The Increased Dredge Alternative would have greater impacts in regard to increases in criteria pollutants than the Project.

Dust

Fugitive dust impacts from blasting emissions will be less than significant with implementation of **Mitigation Measure AQ-2**. **Mitigation Measure AQ-2** will require the installation of wind screens during blasting activities to reduce fugitive dust emissions. Construction-related fugitive dust impacts would be significant even with implementation of BAAQMD basic BMPs (BMP AQ-1) and advanced BMPs in **Mitigation Measure AQ-3. Mitigation Measure AQ-3** will implement BAAQMD's Enhanced Construction BMPs, which includes limiting the occurrence of simultaneous construction activities, installing erosion control measures, planting vegetative ground cover, minimizing the amount of excavated material, and hydroseeding. These measures will apply the Project components as discussed in Section 3.3 in addition to the dredging, sediment drying, and hauling elements of the Increased Dredging Alternative. The Increased Dredge Alternative would have a **significant impact** from fugitive dust which is greater than the Project given the 2 extra years of ground disturbing activities.

Health Risks

As with the Project as discussed in Section 3.3 Impact 3, the Increased Dredge Alternative construction activities would exceed BAAQMD's significance thresholds for excess lifetime cancer risk, acute HI, and $PM_{2.5}$ concentration. The alternative would add 2 years of dredging and hauling in addition to the analysis is Section 3.3. Operational impacts related to TAC emissions would be less than significant. Implementation of **Mitigation Measure AQ-1** will be required, but even with this measure the overall Project construction risks would exceed the BAAQMD thresholds for excess lifetime cancer risk, acute HI, and $PM_{2.5}$ concentration. Therefore, the Project overall would expose receptors to substantial pollutant concentrations, and impacts would be **significant and unavoidable**. The Increased Dredge Alternative would have greater impacts from pollutant concentrations to sensitive receptors than the Project given the 2 extra years of construction activities.

Odors

Construction equipment used in the alternative would emit diesel exhaust odors, and the disturbance of soils, dewatered channels, drained reservoir, and drying sediments in the first two years of construction could emit organic matter odors. These odors would be temporary and intermittent. Implementation of BMP AQ-2 will require construction avoid stockpiling of odorous material near sensitive receptors. Currently, there have been no reported odor complaints to BAAQMD. Construction odors are not anticipated to be notably different for the Project compared to the existing baseline conditions at the time of the EIR preparation modified by the FOCP implementation. Odors associated with operations and maintenance are not expected. Thus, based on the odor complaint history, implementation of BMP AQ-2, and the temporary nature of construction activities, the overall alternative impact related to exposure to odors will be **less than significant**. The Increased Dredge Alternative would have greater impact from odors than the Project given the two extra years of sediment drying and additional truck trips.

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

AQ-2 Implement Construction Blasting Fugitive Dust Emissions Reduction Measure

AQ-3 Implement BAAQMD Enhanced Construction BMPs

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **cumulatively considerable** impacts on attaining air quality plans, criteria pollutants, and health risk, but **not cumulatively considerable** impacts on odors. Cumulative impacts would be greater than Project cumulative impacts.

5.9.2.4 Biological Resources—Fisheries Resources

The Increased Dredge Alternative would not change the impacts to fisheries in Coyote Creek as discussed in Section 3.4, *Biological Resources – Fisheries Resources*.

Overall, any adverse impacts on CCC steelhead, Chinook, Pacific lamprey, Sacramento hitch, and southern coastal roach would be periodic and temporary, and less than significant during the construction phase. The alternative would benefit these species in the long term through increased and enhanced habitat supporting a larger and more resilient fisheries populations and the overall impact is **less than significant**.

The alternative could impact longfin smelt and white sturgeon and their habitat with increased sediment transport to the intertidal reaches of Coyote Creek during Seismic Retrofit construction, and this impact would be **less than significant**. Increased sediment transport may benefit longfin smelt in both the short-term and long-term.

The Increased Dredge Alternative would have a greater impact to fisheries than the Project as it would require 2 additional years of construction that can send sediment laden water down Coyote Creek during large storms.

Regarding cumulative impacts, like the Project, the Increased Dredge Alternative would have **no** ~~**not**~~ **cumulatively considerable** impacts on fisheries resources. Cumulative impacts would be greater than Project cumulative impacts.

5.9.2.5 Biological Resources—Wildlife and Terrestrial Resources

The Increased Dredge Alternative would result in differences in how the Project affects riparian habitats along Coyote Creek downstream from Anderson Dam and San Francisco Bay baylands habitats and species, and differences in impacts of nitrogen emissions on sensitive serpentine plant communities and the special-status plants and invertebrates supported by those communities.

Under the Increased Dredge Alternative, less sediment would be washed out of Anderson Reservoir during Seismic Retrofit construction than under the Project. As a result, less sediment would be mobilized into Coyote Creek downstream from Anderson Dam, and then downstream into San Francisco Bay. Sediment mobilized into Coyote Creek under the Project could have adverse effects on wetland and riparian vegetation through scour and deposition but also provide sediment necessary for colonization by riparian plant species. Under the Increased Dredge Alternative, there would likely be less loss of riparian vegetation but also less regeneration, so that the uneven-aged stands that provide high habitat and wildlife diversity would be less prevalent under the Increased Dredge Alternative than with the Project. The Increased Dredge Alternative would also mobilize less sediment into tidal areas within South San Francisco Bay. Such sediment is important to raise the elevations of former salt ponds that have been restored to tidal action, and to raise the elevations of existing tidal marshes, so that those areas can maintain vegetated marsh in the face of sea level rise. However, trucking the dredged sediment to South San Francisco Bay salt ponds would occur under the Increased Dredge Alternative, providing this sediment to ponds prior to tidal restoration providing sediment directly to future tidal restoration sites, elevating those areas so that they could more easily achieve elevations conducive to colonization by tidal marsh. Thus, the Increased Dredge Alternative may reduce the potential for sediment mobilized by the Seismic Retrofit construction to elevate existing marshes but increase the benefits of such sediment for future tidal restoration efforts. In both cases, the sediment would benefit tidal marshes and the species that depend on them. Thus, the impacts on terrestrial biological resources of the Increased Dredge Alternative resulting from the different mechanisms by which sediment would exit the reservoir, and the different locations to which sediment would be mobilized, would not differ substantially from the Project and would be **less than significant**.

Trucking the dredged material would result in increased nitrogen emissions from vehicles and equipment, thus increasing the amount of nitrogen deposited on serpentine grasslands (especially on Coyote Ridge to the east) and the effects of nitrogen deposition on serpentine-associated, special-status plants and animals. Valley Water would pay nitrogen impact fees in compliance with the VHP to help offset this impact, so although nitrogen deposition impacts would be greater under the Increased Dredge Alternative than with the Project, these impacts would be **less than significant** with payment of VHP impact fees.

Other impacts from the Increased Dredge Alternative would be like those discussed in Section 3.4 *Biological Resources—Wildlife and Terrestrial Resources*.

Special-Status Plants

Construction activities could impact special-status plants through direct destruction, the spread of invasive plant propagules and pathogens, refilling of the reservoir where populations have colonized areas within the rim of the reservoir, and indirectly through dust that could coat plants interfering with normal gas exchange, photosynthesis, or pollination. Dust may also infect plants with *Phytophthora* within dust particles. Nitrogen emitted by construction vehicles and equipment may impact serpentine-associated special-status plants by fertilizing the soils and allowing nonnative grasses and forbs that would not otherwise be able to colonize.

Nine of the 12 special-status plants that could be impacted are VHP-covered species. General and serpentine impact fees would be used by the SCVHA to offset adverse impacts to the nine VHP-covered plant species. The potential for *Phytophthora* to be spread will be reduced via a Project-specific *Phytophthora* Pathogen Management and Monitoring Plan. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1a(1)** will manage invasive plants at ~~Valley Water's~~ Coyote Ridge population of Tiburon paintbrush by preventing the Project's nitrogen emissions from benefitting populations of invasive plants that would compete with Tiburon paintbrush. **Mitigation Measure TERR-1a(2)** will reduce the potential for spread of *Phytophthora*. **Mitigation Measures TERR-1a(3)** and **TERR-1a(4)** will survey for San Francisco collinsia in the previously unsurveyed portions of the Seismic Retrofit Area (to help quantify impacts on the species) and establishing a mitigation population commensurate with the population size. With implementation of BMPs, compliance with VHP conditions and AMMs, and **Mitigation Measures TERR-1a(1), TERR-1a(2), TERR-1a(3),** and **TERR-1a(4)** (all as fully described in Section 3.3 *Biological Resources—Wildlife and Terrestrial Resources*) Project impacts on special-status plants will be **less than significant with mitigation**. The Increased Dredge Alternative would have a greater impact to special-status plants than the Project from additional nitrogen emissions.

Bay Checkerspot Butterfly, Monarch Butterfly, and Crotch's Bumble Bee

Construction activities would impact 2.6 acres of designated critical habitat for the Bay checkerspot butterfly, contribute to the cumulative effects of nitrogen deposition on serpentine grasslands, remove milkweed needed by monarch butterflies, destroy subterranean Crotch's bumble bee nests, clear vegetation that serves as pollen and nectar sources, and affect pollen and nectar sources through dust mobilization or changes in drainage patterns.

Special-status invertebrates would benefit from Valley Water's payment of VHP impact fees. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Implementation BMPs and compliance with VHP conditions would reduce impacts on the Bay checkerspot butterfly, monarch butterfly, and Crotch's bumble bee to a less-than-significant level. The Increased Dredge Alternative would have the same impact to Bay Checkerspot Butterfly, Monarch Butterfly, and Crotch's Bumble Bee as the Project.

California tiger salamander, California red-legged frog, and foothill yellow-legged frog

Construction activities could result in direct take of special status amphibians, loss of habitat, increased predation from nighttime lighting, hazardous material spills, and spread of pathogens. Project impacts on the foothill yellow-legged frog are unlikely to occur therefore the Project would have a less-than-significant impact on this species.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1c(1)** provides additional avoidance and minimization during activities in the dewatered reservoir. **Mitigation Measure TERR-1c(2)** compensates for any impacts of fish locations to Upper Penitencia Creek by removing nonnative species that could affect special-status amphibians from Valley Water-owned properties in the Upper Penitencia Creek watershed. Implementation of VHP mitigation payments, BMPs, compliance with applicable VHP conditions, and **Mitigation Measures TERR-1c(1)** and **TERR-1c(2)** will reduce Project impacts on the California tiger salamander and California red-legged frog and reduce any adverse effects on the foothill yellow-legged frog that could occur to less than significant with mitigation. The Increased Dredge Alternative would have the same impact to California tiger salamander, California red-legged frog, and foothill yellow-legged frog as the Project.

Western Pond Turtle

Construction activities could impact western pond turtle habitat and nests. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. The western pond turtle is covered by the VHP, and most of the activities that could impact this species (including post-construction operations under FAHCE rule curves) are explicitly VHP-covered. With implementation of BMPs, DMP measures, and compliance with the VHP, Project impacts on the western pond turtle would be less than significant. The Increased Dredge Alternative would have the same impact to western pond turtle as the Project.

Bald Eagle and Golden Eagle

Up to two pairs of bald eagles have nested near Anderson Reservoir in recent years and at least two golden eagle territories overlap the reservoir with recently occupied nests located 0.34 and 0.83 miles from the edge of the reservoir. Construction would impact foraging habitat and disturb nests. Following completion of construction, foraging habitat for the bald eagle would be enhanced as the reservoir is allowed to refill. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Valley Water would obtain a BGEPA permit from the USFWS to obtain authorization for the loss of any eagle productivity and would comply with permit conditions. **Mitigation Measure TERR-1e** implements additional AMMs to minimize impacts on nesting eagles. With implementation of BMPs, DMP measures, compliance with the VHP and BGEPA permit conditions, and **Mitigation Measure TERR-1e**, Project impacts on bald eagle and golden eagle will be **less than significant with mitigation**. The Increased Dredge

Alternative would have a greater impact to bald eagle and golden eagle than the Project from a longer construction period.

Tricolored Blackbird, Yellow Warbler, White-Tailed Kite, Northern Harrier, and Other Breeding Birds

A variety of bird species protected by the MBTA and Fish and Game Code breed, forage, and roost in the Project Area. Construction activities could result in the physical disturbance or destruction of active nests and affect the behavior of birds. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. With creek flow augmentation, groundwater monitoring, and dryback monitoring (with additional flow augmentation, and payment of VHP impact fees for impacted wetland and riparian habitat, as necessary), implementation of BMPs, DMP measures, and compliance with VHP conditions impacts on nesting special-status and nonspecial-status birds would be **less than significant**. The Increased Dredge Alternative would have the same impact to protected breeding birds as the Project.

Nonbreeding Special-Status Birds

Several special-status bird species including the Swainson's hawk, burrowing owl, and peregrine falcon, are not known or expected to breed in any areas where they could be impacted by Project activities, but they could occur there as nonbreeding foragers, particularly during migration and in winter. Construction could disturb foraging individuals, burrowing owls could be injured or killed if they are present in burrows when grading occurs, and construction activities could disturb roosting owls to the point of abandonment of their burrows. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1g** will identifies locations of burrowing owls prior to initiation of Project activities to avoid injury or mortality. With implementation of BMPs, DMP measures, compliance with the VHP conditions, and **Mitigation Measure TERR-1g**, Project impacts on nonbreeding special-status birds will be **less than significant with mitigation**. The Increased Dredge Alternative would have the same impact to nonbreeding special-status birds as the Project.

Pallid Bat

A maternity colony of the pallid bat has been located just outside of the Seismic Retrofit Area, in the Cochrane Road barn. This colony likely represents the largest and most stable colony of the species known in Santa Clara County. Construction would not result in direct impacts on the Cochrane Road barn; however, given the intensity of construction activities, which would include some nighttime work, and the extent to which foraging habitat on Anderson Dam would be disturbed during construction, it is possible that pallid bats may abandon the roost within the barn while construction is ongoing. If pallid bats abandon the roost during construction, they may return once construction has been completed. However, unless high-quality alternative roost sites are present in the vicinity, the population may decline before the bats can re-occupy the barn. When trees, structures, or rock outcrops containing roosting colonies or individual bats are removed or modified, individual bats could also be physically injured, killed, or subjected to physiological stress resulting from being disturbed during torpor. Construction activities would result in the short-term loss of foraging habitat as well as a temporary impact on foraging individuals through the alteration of foraging patterns.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1h(1)** will minimize construction activities near the barn. If buffers in **TERR-1h(1)** are not feasible, **Mitigation Measure TERR-1h(2)** will develop an eviction plan for pallid bats to be implemented if deemed necessary. **Mitigation Measure TERR-1h(3)** will minimize the potential for males and nonbreeding females outside the barn to be injured or killed during Project activities. **Mitigation Measure TERR-1h(4)** will provide temporary roosting sites near the Project during construction and additional permanent roosting sites if the roost population is not restored to at least 75 percent by three years following construction. With implementation of BMPs, DMP measures, compliance with the VHP conditions, and **Mitigation Measure TERR-1h(1)**, **TERR-1h(2)**, **TERR-1h(3)**, and **TERR-1h(4)**, Project impacts on pallid bats will be reduced. The Project could cause the number of females at this site to drop below 75 percent of existing numbers, and a substantial proportion of the regional population would have been affected. No other mitigation would be feasible to reduce this impact therefore the impact is **significant and unavoidable**. The Increased Dredge Alternative would have the same impact to pallid bat as the Project.

Other Special-Status Mammals

This impact analysis addresses San Francisco dusky-footed woodrat, mountain lion, ringtail, American badger, Townsend's big-eared bat, and western red bat. San Francisco dusky-footed woodrat has been detected around Basalt Hill and likely resides in crevices there. Seismic retrofit construction would result in the loss of 43.2 acres of suitable habitat for the species. In addition, construction could result in the injury or mortality of individual woodrats and disturbance or destruction of nests and young. Construction and monitoring could disrupt the habitat of these species and their foraging. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. With implementation of BMPs, DMP measures, and compliance with the VHP conditions, Project impacts on special-status mammals would be **less than significant.** The Increased Dredge Alternative would have the same impact to California special-status mammals as the Project.

San Francisco Bay Special-Status Species

Valley Water modeled potential effects of construction-period flows on tidal habitats along lower Coyote Creek and Coyote Slough. This modeling assumed that higher flows would be coupled with tide height equaling mean higher-high water (MHHW) to represent the conditions that would occur if higher flows down Coyote Creek coincided with high tides. Modeling suggests that reservoir releases could result in increased frequency, depth, and/or duration of inundation of tidal marsh habitats far downstream from the dam. Such increased inundation would reduce the vegetative cover available to special-status species associated with San Francisco Bay tidal marshes, increasing predation of special-status tidal marsh animals that have to seek out more limited patches of vegetation that is not inundated. Such impacts would be infrequent and would occur only during the construction period but would be significant. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation**

Measure TERR-1j requires contributing to predator management activities in the South Bay and high tide refugia enhancement, thereby offsetting increases in predation resulting from the Project for each year flows exceed 2,500 cfs. With implementation of BMPs, compliance with the VHP conditions, and **Mitigation Measure TERR-1j**, Project impacts on San Francisco Bay special-status species will be **less than significant with mitigation**. The Increased Dredge Alternative would have the same impact to San Francisco Bay special-status species as the Project.

Riparian Habitat and Other Sensitive Natural Communities

The Project will result in permanent impacts on a total of 20.79 ~~25.77~~acres of mixed riparian woodland and forest and willow riparian forest and scrub, including 1.29 ~~4.14~~ acres from Seismic Retrofit construction and 19.50 ~~21.63~~acres from Conservation Measures construction. However, approximately 39.5 acres of riparian habitat will be restored as part of the Ogier Ponds CM. Therefore, the Project will result in a net increase in the acreage of riparian woodland, forest, and scrub habitat. This net increase will help to compensate for the temporal loss of riparian functions and services.

The Project will permanently impact a total of 15 acres of coast live oak woodland and forest, 11.2 acres of foothill pine-oak woodland, and 2.5 acres of mixed serpentine chaparral, mostly from Seismic Retrofit construction. VHP fees to be paid by Valley Water for the Project include specialty fees for mixed riparian woodland and forest, willow riparian forest and scrub, and mixed serpentine chaparral, in addition to general land cover fees. The Project's impact fees would contribute directly to the conservation of sensitive natural communities, including not only these riparian and serpentine communities, but also the coast live oak woodland and forest, and foothill pine-oak woodland, land cover types that will be impacted by the Project.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Existing BMPs, DMP measures, and AMMs do not address the risk of introduction or spread of *Phytophthora*. **Mitigation Measure TERR-1a(2)** includes procedures to reduce the risk of *Phytophthora*. With implementation of BMPs, DMP measures, compliance with the VHP conditions, and **Mitigation Measure TERR-1a(2)**, Project impacts on riparian habitat and other natural communities will be less than significant with mitigation. The Increased Dredge Alternative would have the same impact to riparian habitat as the Project.

Wetlands

Construction activities would result in the placement of fill, and related hydrological interruption, alteration of bed and bank, degradation of water quality, and other direct impacts on the acreages and linear footage of wetlands (coastal and valley freshwater marsh), non-wetland other waters (perennial stream, intermittent stream, pond, and reservoir), and mixed riparian woodland and forest as indicated in **Table 3.5-13**. The Project will result in permanent impacts to 4.16 ~~4.2~~ acres of freshwater marsh, but in addition to paying VHP permanent wetlands impacts fees in accordance with VHP procedures, the Ogier Ponds CM will create 4.5 acres of emergent freshwater marsh. The Project will result in ~~permanent~~ impacts to 374.8 ~~5.99~~ acres of the reservoir land cover type, but all ~~All~~ impacted reservoir acres will be restored or will recover to reservoir after construction with the exception of 3 acres that will be lost due to expansion of the Anderson Dam footprint and 15 acres that will be converted to other habitats (resulting in a net improvement in ecological functions and services) by the Ogier Ponds CM. Valley Water predicts that approximately 12.5 acres of riverine aquatic habitat below the OHWM would be restored as part of the Ogier Ponds CM~~, with additional acres of riverine aquatic habitat from the North Channel Extension CM~~.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Valley Water will pay VHP impact fees for wetlands, other waters, and riparian habitats, which include specialty fees for these important land cover types. The Interagency Review Team, including USACE, CDFW, and the RWQCB, have approved the VHP as an In Lieu Fee Program for impacts to water of the united state and waters of the state. the implementation of the Conservation Measures more than offsets and compensates for the Project's net impacts on jurisdictional waters and wetlands.

Existing BMPs, DMP measures, and AMMs do not address the risk of introduction or spread of *Phytophthora.* **Mitigation Measure TERR-1a(2)** includes procedures to reduce the risk of *Phytophthora.* With implementation of BMPs, DMP measures, compliance with the VHP conditions, and **Mitigation Measure TERR-1a(2)**, Project impacts on wetlands will be **less than significant with mitigation**. The Increased Dredge Alternative would have the same impact to wetlands as the Project.

Wildlife Corridors

Seismic retrofit construction would have both adverse and beneficial effects, all temporary, on wildlife movement. Construction activities, especially nighttime activities, could disrupt wildlife movement. Although Project activities may temporarily affect wildlife movement during construction, animals would still be able to move through the Project Area during construction, and the drained reservoir improves wildlife movement in the area around the reservoir. No long-term impacts on wildlife movement would result from the Project. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. With implementation of BMPs, DMP measures, and compliance with the VHP conditions, Project impacts on wildlife movement would be **less than significant.** However, considering the impacts to pallid bats discussed about, the Project would have a **significant and unavoidable** impact to wildlife nursery sites. The Increased Dredge Alternative would have the same impact to wildlife nurseries as the Project.

Tree Ordinance

Seismic Retrofit construction would result in the removal of approximately 270 ordinance-sized trees. The Ogier Ponds CM and Coyote Percolation Dam CMs~~, and the North Channel Extension improvements~~ would result in the removal of 40 trees protected by County tree removal regulations. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Valley Water is exempt from compliance with the County tree ordinance under either Government Code sections 53091(d) and (e) (which state that County or City building and zoning ordinances do not apply to the construction of facilities for water storage or transmission) meaning there would be **no impact**. Nevertheless, recognizing the importance of protected trees to the County and the terms of the County ordinance, Valley Water will implement **Mitigation Measure AES-1**, calling for the planting of replacement trees removed on

County Park land. The Increased Dredge Alternative would have the same impact to tree ordinances as the Project.

Conflict with Habitat Conservation Plan/Natural Community Conservation Plan

Valley Water is a signatory on one conservation plan: the VHP, which is an HCP and NCCP for terrestrial species and related habitats. As described in *Project Description*, the VHP explicitly included the Project in its list of covered activities, and most impacts of the Project were included in the VHP's analysis of the effects of covered activities. Valley Water would apply for VHP coverage for the Project and adhere to all applicable VHP Conditions during Project implementation. Therefore, the Project would not conflict with the VHP. The impact is **less than significant**. The Increased Dredge Alternative would have the same impact to HCP/NCCP compliance as the Project.

Mitigation Measures

TERR-1a(1) *Invasive Plant Management at Coyote Ridge ~~Valley Water's~~ Tiburon Paintbrush Populations ~~Population~~*

TERR-1a(2) *Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of Phytophthora*

TERR-1a(3) *Special-Status Plant Survey in the Previously Unsurveyed Portions of the Seismic Retrofit Are*

TERR-1a(4) *~~Seed Collection and Creation of a New Population of~~ San Francisco Collinsia Conservation Measures*

TERR-1c(1) *Special-Status Species Avoidance and Minimization Measures During Year 6 Reservoir Dewatering*

TERR-1c(2) *Nonnative Species Management in Upper Penitencia Creek Watershed*

TERR-1e *Nesting Eagle Avoidance and Minimization Measures*

TERR-1g *Burrowing Owl Impact Avoidance*

TERR-1h(1) *Avoid Disturbance of the Cochrane Road Barn Roost*

TERR-1h(2) *Evict Pallid Bats prior to Initiating Maternity-Season Disturbance near the Cochrane Road Barn Roost*

TERR-1h(3) *Minimize Impacts on Pallid Bats Roosting Outside the Cochrane Road Barn*

TERR-1h(4) *Provide Alternative Pallid Bat Maternity Roost Structures*

TERR-1j Contribution to Baylands Predator Management and High Tide Refugia Enhancement

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **cumulatively considerable** impacts on pallid bats and the pallid bat nursery site, but **not cumulatively considerable** impacts on other wildlife species and habitats. Overall cumulative impacts would be greater than Project cumulative impacts.

5.9.2.6 Cultural Resources

The Increased Dredge Alternative would have greater impacts to cultural resources than the Project as were discussed in Section 3.6, *Cultural Resources*.

Historic Resources

The Rhoades Ranch Historic District is near the Seismic Retrofit area, but there would be no direct impact on the historical resource. Dust and noise from construction would cause minor impacts; however, they would be temporary and would not alter the elements that contribute to the significance of the resource. The Coyote Percolation Dam, which is a contributing element to the Santa Clara Valley Water District Dams Historic District, is in the construction limits of the Phase 2 Coyote Percolation Dam CM. However, implementation of this Conservation Measure would have no impact on the dam because, prior to Project implementation, the resource will have been demolished and replaced by an inflatable bladder dam as part of FOCP. Therefore, the Increased Dredge Alternative will have a **less-than-significant impact** to the built environment historical resources. The alternative would have the same impact as the Project.

Archeological Resources

Archaeological resources that have been determined to be eligible for listing for the NRHP/CRHR through formal evaluation, or that have not been formally evaluated but are assumed eligible for the purpose of this analysis, are in the Seismic Retrofit Project Area, and within the boundaries of the Ogier Ponds CM and the Phase 2 Coyote Percolation Dam CM. Ground disturbance during construction at archaeological resources in both the Seismic Retrofit construction area and the Ogier Ponds CM areas could have significantly impact elements of sites that contribute to their NRHP/CRHR-eligibility. In addition, erosion and recreational power boating within Anderson Reservoir related to the operation of the Seismic Retrofit component of the Project could create wave action along the exposed shoreline of the reservoir as the reservoir is refilled after Project completion, during the regular rise and fall of the reservoir due to Project operation and the resumption of recreational boating. These actions may erode archaeological historical resources and displace the artifacts within them.

BMP-CUL-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) will require that work will cease in areas where archaeological materials are discovered during construction until the finds can be analyzed and evaluated for NRHP/CRHR-eligibility, and that any eligible resources either be avoided or subject to data recovery studies. **Mitigation Measure CR-1** (Preconstruction Cultural Resources Awareness Training) will provide construction workers with awareness training about the nature of archaeological materials that might be discovered during ground disturbing activities and the protocols to be followed, should they be found. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided) will develop and implement a Data Recovery and Treatment Plan for archaeological resources that cannot be avoided. Lastly, **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will require an archaeological and tribal monitor in areas sensitive for cultural resources during Project construction, the monitoring of sensitive areas during Project operations, and will implement protocols of the Monitoring and Unanticipated Discoveries Plan should archaeological materials be discovered. With implementation of these mitigation measures, substantial adverse changes in the significance of an archaeological resource would not occur, and significant impacts to archaeological historical resources within the Project areas would be reduced to **less than significant through mitigation**. The alternative would have a greater impact on archeological resources than the Project with greater construction activities around Anderson Reservoir.

Human Remains

Two archaeological sites with human remains and one with a high potential to contain as-yet unidentified human remains are known to exist within Anderson Reservoir. All three of these sites in the reservoir could be damaged by erosion from fluctuating water levels during Seismic Retrofit operations and wave action caused by power boating. Therefore, Project impacts on disturbance of human remains would be significant. Compliance with Health and Safety Code section 7050.5 and PRC section 5097.98 would reduce impacts related to disturbance of human remains and **Mitigation Measures CR-1, CR-2,** and **CR-3** will reduce impacts to disturbing human remains to **less than significant with mitigation**. The alternative would have a greater impact to disturbance of human remains than the Project with greater activities around Anderson Reservoir.

Mitigation Measures

CR-1 Preconstruction Cultural Resources Awareness Training

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **cumulatively considerable** impacts on cultural resources. Cumulative impacts would be greater than Project cumulative impacts.

5.9.2.7 Energy

The Increased Dredge Alternative would extend the construction period of the Seismic Retrofit Component 10 more months over 2 years compared to the time period required for the Project, energy consumption due to use of construction equipment and truck traffic would be greater than the Project. Other impacts would be like those discussed for the Project in Section 3.7, *Energy*.

Energy Consumption

Construction of the Seismic Retrofit and Conservation Measures components would consume approximately 17,842,000 ~~21,150 thousand~~ gallons of diesel and 780,000 ~~2,103 thousand~~ gallons of gasoline and result in increased demand on local and regional. However, compared to the northern California region’s annual average production of fuel over the 5-year period of 2018-2022, the total annual average energy demand of the Project be approximately 0.01 ~~0.03~~ percent of the region’s gasoline production throughput and approximately 0.75 ~~0.89~~ percent of the region’s diesel production throughput (CEC 2023). Dredging and hauling of sediment associated with the Increased Dredge Alternative would increase these numbers, but the impacts of Project construction on local and regional fuel supplies would still be temporary and minimal.

Although the energy related impact is less than significant, the Project will implement **Mitigation Measures AQ-1** and **GHG-1** to address air quality and greenhouse gas emission impacts. These measures would further minimize Project energy impacts by increasing the efficiency of energy usage and decreasing the amount of non-renewable energy usage during construction. **Mitigation Measure AQ-1** requires all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer and minimizes construction equipment idling time and requires regular maintenance for all equipment. **Mitigation Measure GHG-1** requires engine electrification and use of renewable fuels as feasible.

Project construction would utilize fuel-efficient equipment consistent with State and federal regulations and would comply with state measures to reduce the inefficient, wasteful, or unnecessary consumption of energy. Per applicable regulatory requirements of CALGreen, Project construction activities would comply with construction waste management practices to divert construction and demolition debris from landfills. These practices would result in efficient use of energy by Project construction. The Increased Dredging Alternative's impact on energy use would be **less-than-significant impact with mitigation**. The alternative would have a greater impact on energy use than the Project.

State and Local Efficiency Plans

Project construction would be consistent with renewable energy and energy efficiency targets, standards, and guidance included in California Green Building Standards Code (CALGreen or Title 24 Part 11), California Building Energy Efficiency Standards (Title 24 Part 6), SB 100, Valley Water CCAP, Santa Clara County General Plan, Santa Clara County Sustainability Master Plan, Morgan Hill 2035 General Plan, and Envision San José 2040 General Plan with implementation of **Mitigation Measures AQ-1** and **GHG-1**. Project operation related to equipment and vehicle energy use would be consistent with these regulations and plans without mitigation. Therefore, Project construction and operation would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and overall impacts would be **less than significant with mitigation**. The alternative would have a greater impact on energy use than the Project.

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **not cumulatively considerable** impacts ~~on~~ due to wasteful, inefficient, or unnecessary consumption of energy. The Increased Dredge Alternative would have **not cumulatively considerable** impacts related to conflict or obstruction of renewable energy and energy efficiency plans. Cumulative impacts would be greater than Project cumulative impacts.

5.9.2.8 Geology and Soils

The Increased Dredging Alternative would have similar impacts on geology and soils as discussed in Section 3.8, *Geology and Soils*. Two (2) additional years of dredging and hauling would increase impacts related to soil erosion and potential to destroy paleontological resources.

Fault Rupture and Shaking

The nearby active Calaveras fault lies just east of Anderson Reservoir and the active Coyote Creek Range fault transects Anderson Dam. However, construction and operation of the Project would not exacerbate the risk of fault rupture. The reservoir is not deep enough to cause RIS, vibrations associated with blasting and tunneling activities would not affect the earth at depths of where the underlying faults are locked (URS 2022), and no Project-related actions would increase the likelihood of seismic activity and associated surface fault rupture. As the Project would not increase the likelihood of an earthquake, exacerbate the likelihood of surface fault rupture, or increase the likelihood of seismic ground shaking in the Project area the Increased Dredge Alternative would have a **less than significant impact** on seismic related hazards. The Increased Dredge Alternative would have the same impact as the Project.

Liquefaction

The Project is in an area susceptible to liquefaction. Placement of dam materials could increase the load on liquefiable soils, which may densify and settle during an earthquake. Placement of structures associated with the Conservation Measures, namely the levee at Ogier Ponds and the fish ramp at the Coyote Percolation Pond on liquefiable soils could exacerbate liquefaction hazards in those areas. The impact from liquefaction would be **less than significant**. The Increased Dredge Alternative would have the same impact as the Project.

Landslides

Anderson Dam is in a mountainous area with steep slopes and unstable ground conditions that are susceptible to landslides due to faults and historic landslides that predate the reservoir. Ground disturbance associated with construction of the seismic retrofit of Anderson Dam, including drawdown of the reservoir, construction of stockpiles near landslides, removal of materials from the BHBA and the PGBS, and refilling of the reservoir could exacerbate likelihood of landslide, lateral spreading, and settlement by destabilizing landslide deposits.~~ Excavation associated with the North Channel Extension conservation measure would occur near slopes that are mapped by CGS (2004) as susceptible to landslide.~~ Excavation and construction of new stream channels associated with the Ogier Ponds CM ~~North Channel Extension, ~~and Phase 2 Coyote Percolation Dam CM into liquefiable soils could increase risk of lateral spreading. All construction activities would be performed in accordance with DSOD, IBC, and CBC standards as applicable. In addition, Valley Water would continue to monitor slope stability and landslide movement through installed survey monuments and satellite reflectors within the reservoir as part of its normal operations. Valley Water implemented the Reservoir Bank and Rim Stability Mitigation and Monitoring Plan, Dewatering and Sediment Management Plan, and Slope Stability Plan. All these measures serve to reduce any landslide risks by taking action to minimize soil instability and monitoring for signs of land movement. The Project will also implement **Mitigation Measure GEO-1** (Repair Landslides Caused by Construction Activities) to reduce the risk of landslide, as such that the Project's landslide risk is less than **significant with mitigation.** The Increased Dredge Alternative would have the same impact as the Project.

Soil Erosion

Excavation and ground-disturbing activities associated with construction of the Project could result in soil erosion or the loss of topsoil. Such activities include clearing and preparing staging and stockpile areas; constructing, using, and maintaining stockpiles; excavating materials at borrow sites and conservation measures sites; placing sediment; and constructing and using unpaved roads. For construction activities outside of the reservoir, the ~~The~~ Project would implement a SWPPP in compliance with the Construction General Permit, and a set of erosion control BMPs (BMPs GEN-20, GEN-21, WQ-4, WQ-5, BI-3, BI-8, WQ-9, AQ-1, BANK-1, and REVEG-1) to minimize erosion around stockpiled soils and staging areas, stabilizing construction entrances and exits, removing any temporary fills, restoring the site to its pre-construction condition, and reducing fugitive dust. With adherence to requirements of the SWPPP and BMPs for out-of-reservoir construction activities, substantial soil erosion or loss of topsoil resulting from the projects would be less than significant. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. The Increased Dredge Alternative would have a greater impact as the Project as it would increase ground disturbing and hauling activities for 2 additional years.

Paleontological Resources

Santa Clara Valley is known for yielding significant fossils from alluvium (Maguire and Holroyd 2016). In addition, other geologic units of Pleistocene age and older in the county are documented to have yielded significant fossils, including vertebrate fossils. One of these is the Santa Clara Formation in the Project area known locally as the Packwood Gravels. Excavation and ground-disturbing activities associated with Seismic Retrofit construction occurring in regions underlain by the Santa Clara Formation could expose paleontological resources. In addition, higher peak flows released from Anderson Dam during Project operation could increase risk of erosion downstream, which could increase risk of erosion uncovering significant paleontological resources and removing them from the original context, thereby potentially reducing their scientific significance. Excavation and ground-disturbing activities associated with the Project could expose paleontological resources. The Project will implement **Mitigation Measure GEO-3** (Paleontological Initial Survey), **Mitigation Measure GEO-4** (Paleontological Detailed Survey and Construction Monitoring), and **Mitigation Measure GEO-5** (Paleontological Discoveries Treatment Plan) that will require a pre-construction survey, construction monitoring, and plan for discovery of resources. The Project's impact on paleontological resources would **be less than significant with mitigation**. The Increased Dredge Alternative would have a greater impact as the Project as the alternative would increase dredging in Anderson Reservoir.

Mitigation Measures

GEO-1 Repair Landslides Caused by Construction Activities

GEO-2 Paleontological Initial Survey

GEO-3 Paleontological Detailed Survey and Construction Monitoring

GEO-4 Paleontological Discoveries Treatment Plan

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **not cumulatively considerable** impacts on geology and soils. Cumulative impacts would be greater than Project cumulative impacts.

5.9.2.9 Greenhouse Gas Emissions

Similar to the Project, the Increased Dredge Alternative would result in emissions of GHG during construction. However, because the construction period of the Seismic Retrofit Component would involve 10 more months of construction and truck traffic over 2 years compared to the time period required for the Project, GHG emissions due to use of construction equipment and truck traffic would be greater than the Project as discussed in Section 3.9, *Greenhouse Gas Emissions*.

Greenhouse Gas Emissions

Project construction would generate approximately 186,966 ~~235,240~~ MT CO2e of GHG emissions, which is a significant impact; and the Increased Dredge Alternative would increase this amount. Project operation would result in negligible generation of GHG emissions. Implementation of **Mitigation Measure GHG-1** will require Valley Water and/or its contractor to implement construction-related GHG emission reduction measures, such as using zero-emission and hybrid-powered equipment, minimizing idling time, using renewable diesel fuel, using USEPA SmartWay certified trucks, requiring proper maintenance of construction equipment, encouraging and providing carpool, transit, and alternative modes of transportation, recycling or salvaging nonhazardous debris, and efficiently using water. Implementation of **Mitigation Measure GHG-2** will require Valley Water to offset GHG emissions ~~purchase carbon offsets~~ before construction activities commence in an amount sufficient to reduce any GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. With implementation of **Mitigation Measures GHG-1** and **GHG-2**, Project construction GHG emissions impacts will be **less than significant with mitigation**. The Increased Dredge Alternative would have a greater impact of GHG emissions than the Project.

GHG Plans

Project construction would be consistent with SB 32, AB 1279, the 2022 Scoping Plan, the Valley Water CCAP, the Morgan Hill CAP, and Climate Smart San José with implementation of **Mitigation Measures GHG-1** and **GHG-2**. Project operation would not conflict with these GHG reduction policies and plans without mitigation. Therefore, the Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions, and overall impacts would be **less than significant with mitigation**. The Increased Dredge Alternative would have the same impact to GHG reduction plans as the Project.

Mitigation Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

GHG-2 ~~Purchase Carbon Offsets~~ Offset GHG Emissions Prior to and During Construction

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **not cumulatively considerable** impacts on GHG emissions. Cumulative impacts would be greater than Project cumulative impacts.

5.9.2.10 Hazards and Hazardous Materials

The Increased Dredging Alternative would have impacts like those discussed in Section 3.10, *Hazards and Hazardous Materials*. The alternative would add 2 years on dredging and hauling activities that would extend the risk from the use of hazardous materials during construction and interfere with emergency response due to the greater number of truck trips.

Use and Accidental Release of Hazardous Material

During the construction of the Seismic Retrofit and Conservation Measures, hazardous materials commonly associated with construction activities (e.g., gasoline, diesel fuel, paints, solvents, hydraulic fluid) would be present and handled onsite, as well as transported to and from the Project Area and would create impacts if accidentally released. These materials would be primarily found within construction equipment but may also be stored onsite at the staging areas, and transported, as necessary, to work areas. NOA is known to be present in the rock types that underlay much of the dam and spillway area. Excavation of serpentinite and other materials containing NOA could expose the public and construction workers to airborne asbestos, which would be a significant impact.

The Project ~~project~~ is required to comply with federal, State, and local laws, regulations, and policies designed to minimize hazardous materials impacts to the public and environment. The Project would implement Valley Water BMPs (~~HM-7~~, HM-8, WQ-6, WQ-17) to minimize the chance of release of hazardous materials. For Seismic Retrofit construction, compliance with BAAQMD's ATCM for Construction, and BMP-AQ-1 and BMP HM-13, would minimize potential impacts from NOA. The implementation of **Mitigation Measure HAZ-1** (Construction and Grading Operations Dust Control Measures), **Mitigation Measure HAZ-2** (Track Out Control Measures for Roads from NOA-Containing Areas), **Mitigation Measure HAZ-3** (Traffic Control Measures within NOA-Containing Construction Areas), **Mitigation Measure HAZ-4** (Dust Control Measures During Earthmoving Activities), **Mitigation Measure HAZ-5** (Dust Control Measures During Tunneling Activities), and **Mitigation Measure HAZ-6** (Separation of Rock Containing NOA) will reduce the Project's impact from hazardous material to **less than significant with mitigation**. The Increased Dredging Alternative would have the same impact as the Project.

Sensitive Receptors

The William F. James Boys Ranch (Boys Ranch) is located within 0.11 miles of Anderson Dam, which is considered a sensitive receptor for hazardous materials. During construction compliance with BAAQMD's ATCM for Construction, and BMP-AQ-1 and BMP HM-13, would minimize potential impacts from NOA. The implementation of MM HAZ-1 through HAZ-6 and **Mitigation Measure HAZ-7** (Soil Testing and Proper Disposal of Potentially Contaminated Soils) will reduce the Project's impact to sensitive receptors **less than significant with mitigation**. The Increased Dredging Alternative would have the same impact as the Project to sensitive receptors.

Discovery of Hazardous Materials

Based on a review of readily available public information for the Project Area, no listed hazardous materials sites or existing hazardous material contamination are present within the Project Area. Nevertheless, there is potential to discover unknown hazardous materials sites during construction activities, which would be a significant impact. Implementation of BMP HM-

9 would include measures for proper handling, storage, and disposal of hazardous materials and **Mitigation Measure HAZ-7** will minimize impacts to the public or environment should unknown contaminants or contaminated soil be encountered during construction activities. The Project's impact on the discovery of hazardous materials is **less than significant with mitigation**. The Increased Dredging Alternative would have the same impact as the Project to hazardous waste sites.

Emergency Response Plan

Construction would involve operation of large construction equipment, transport and storage of construction materials, and worker commute trips to and from the area, which could impede movement and access of emergency response vehicles or interfere with evacuation procedures, which would be a significant impact. Cochrane Road between Coyote Road and Malaguerra Avenue (or portions of this segment) would be closed to through traffic for varying durations throughout the construction period. Implementation of BMP TR-1, PS-AMM-2, **Mitigation Measure PS-1** (Prepare and Implement Traffic Management Plan) which requires the preparation and implementation of a TMP, and **Mitigation Measure WF-1** which requires coordination with local and state emergency response and fire agencies and preparation of a Response and Evacuation Strategy, which will maintain adequate emergency response and identify and maintain evacuation routes, ~~that all emergency response agencies are notified in advance of all lane and road closures and that evacuation routes are passable or alternate routes are available~~ will reduce impacts on emergency response to less-than-significant levels. Impacts related to impairing implementation of or interfering with an adopted emergency response plan or emergency evacuation routes/plans would be **less than significant with mitigation.** The Increased Dredging Alternative would have a greater impact than the Project on emergency response due to the 2 extra years of truck trips to haul sediments.

Valley Fever

As discussed in Section 3.10.1.6, *Valley Fever*, construction activities have the potential to release the soil-dwelling fungus (Coccidioides) that can cause Valley Fever. Such a release could pose a hazard to construction workers and/or the public, which would be a significant impact. BAAQMD's ATCM for Construction, BMP-AQ-1, and **Mitigation Measure HAZ-1** through **HAZ-5** will implement dust control measures to minimize potential impacts from Valley Fever. The risk of Valley Fever is **less than significant with mitigation**. The Increased Dredging Alternative would have the same impact as the Project to Valley Fever.

Mitigation Measures

HAZ-1 Construction and Grading Operations Dust Control Measures

HAZ-2 Track Out Control Measures for Roads from NOA-Containing Areas

HAZ-3 Traffic Control Measures within NOA-Containing Construction Areas

HAZ-4 Dust Control Measures During Earthmoving Activities

HAZ-5 Dust Control Measures During Tunneling Activities

HAZ-6 Separation of Rock Containing NOA

HAZ-7 Soil Testing and Proper Disposal of Potentially Contaminated Soils

PS-1 Prepare and Implement Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) ~~Emergency Action Plan~~

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **not cumulatively considerable** impacts ~~on hazards and hazardous materials~~ related to reasonably foreseeable upset or accident conditions, emission of hazardous materials within one-quarter mile of a school, a site included on a list of hazardous materials sites, and Valley Fever. The Increased Dredge Alternative would have **not cumulatively considerable** impacts related to routine transport, use, or disposal of hazardous materials and impairment or interference with an emergency response or evacuation plan. Cumulative impacts would be greater than Project cumulative impacts.

5.9.2.11 Hydrology

The goal of the Increased Dredge Alternative is to reduce erosion and sedimentation compared to the Project. Like the Project, this alternative would involve reservoir dewatering and dredging of sediments on the reservoir bottom. However, this alternative would remove an additional 1,400,000 cy of sediment from the deadpool compared to the Project. This sediment removal would increase the reservoir's ability to trap and store sediment and prevent sediment from transporting downstream. Although there would be no flow of water through the reservoir during the dredging period, water flow would resume after site demobilization during the wet season.

Erosion

As described in Section 3.11, *Hydrology*, under the Project, runoff water (e.g., generated by precipitation in the watershed upstream of the reservoir during the wet season) would flow over and through deposited sediment in previously inundated areas along the reservoir bed that would now be exposed during the drawdown conditions of the Project construction period. Flows that erode and entrain sediment in the water column would carry the sediment downstream. Under the Increased Dredge Alternative, the additional depth and area created in the deadpool by removal of this sediment would allow for more sediment deposition in the deadpool and less transport downstream. Modeling of reservoir hydrological conditions for the Project during Seismic Retrofit construction showed that substantial volumes of sediment could be mobilized and transported downstream during storms that occur while the reservoir is in a dewatered state (Valley Water 2020). The Increased Dredge Alternative both physically removes 1,400,000 cy of sediment from the lakebed that could be a source for downstream sediment transport and creates an expanded area for sediment settling and deposition in the deadpool upstream of the dam. This alternative would allow for less transport of sediment downstream of Anderson Dam. Despite the reduction in erosion and sediment transport this alternative would provide the Increased Dredge Alternative would not eliminate the potential for high levels of erosion and sediment transport entirely. **Mitigation Measure WQ-1** requires implementation of a WQMPP, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. However, impacts would remain significant even with implementation of **Mitigation Measure WQ-1**. Because additional mitigation is not available to decrease the magnitude of the impact to a less-than-significant level, the impact would be **significant and unavoidable**. While the magnitude of this impact under the Increased Dredge Alternative would still be significant and unavoidable, the erosion and sedimentation impact would be reduced compared to under the Project, as the removal of sediment and increasing the opportunity for sediment deposition upstream of the dam would help to substantially reduce the severity of the impact compared to the Project.

Construction and maintenance associated with the various components have the potential to loosen materials that could be washed downstream, thus contributing to accelerated rates of erosion and sedimentation. For construction activities outside of the reservoir, implementation ~~Implementation~~ of a SWPPP and erosion control BMPs such as: BMP AQ-1 (Use Dust Control Measures), BMP WQ-4 (Limit Impacts From Staging and Stockpiling Materials), BMP WQ-1 (Conduct Work from Top of Bank), BMP WQ-2 (Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms), BMP WQ-5 (Stabilize Construction Entrances and Exits), BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-10 (Prevent Scour Downstream of Sediment Removal), BMP WQ-11 (Maintain Clean Conditions at Work Sites), BMP WQ-16 (Prevent Stormwater Pollution) will reduce erosion and sedimentation. With the SWPPP and BMPs for out-of-reservoir construction activities, the impact of erosion aside from reduced sediment being carried downstream during certain-sized storm events would be **less than significant**. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. The Increased Dredging Alternative would have the same impact as the Project on construction erosion side from reduced sediment being carried downstream.

Runoff

Project construction and maintenance activities would involve denuding areas of vegetation to create access or stable surfaces, which reduce the capacity of these areas to absorb water and slow runoff. Utilization of areas by heavy equipment during construction would compact soils, making the ground surface harder and less conducive to infiltration of water to soil or groundwater. The Seismic Retrofit components of the Project would create relatively minor amounts of new impervious surface (widened/expanded existing roadways). Compliance with the SWPPP and erosion control BMPs for out-of-reservoir construction activities would assure that surface runoff would be **less than significant**. The Increased Dredging Alternative would not add impermeable surfaces and would have the same impact as the Project on sedimentation.

Surface Runoff

Due to the use of hazardous materials (e.g., fuel, oil, lubricants, etc. in construction equipment), there would be potential for discharge of polluted runoff if such materials were handled, stored, or disposed of improperly and/or if any accidental releases of such materials were to occur. The SWPPP, which would be implemented for out-of-reservoir construction, includes good housekeeping measures for: construction materials, waste management, and potential pollutant sources. Additional, BMPs will reduce potential impacts associated with hazardous materials releases: ~~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). These BMPs will include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites and providing training spill cleanup materials for field personnel. The Project would have a **less than significant** impact on polluted runoff. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. The Increased Dredging Alternative would have the same impact as the Project on polluted runoff.

Flooding

During construction of the Seismic Retrofit component, there would be increased potential for flooding (i.e., higher flows could occur in Coyote Creek more frequently during storm events) relative to the existing conditions baseline for flows under the 50-year return period (approximately 4,000 cfs–5,000 cfs); however, this flooding risk would be largely reduced relative to Pre-FERC Order Conditions and would not result in widespread, damaging floods. During the post-construction period, flooding risk associated with operation of the dam would be reduced relative to the Pre-FERC Order Conditions Baseline. The impact from flooding would be **less than significant**. The Increased Dredging Alternative would have the same impact as the Project on flooding.

Dam Inundation

The objective of the Project is to reduce the long-term risk of flooding from dam failure. Construction of the Seismic Retrofit components would not ~~directly increase the risk of flooding due to dam failure and~~ exacerbate the impacts from a failure of Coyote Dam, which is located upstream of Anderson Dam and is also susceptible to seismic risks. A restriction has been in place for Coyote Reservoir since 1992, limiting storage in this reservoir 52.5 percent of total capacity. ~~Risk of flooding from dam failure increases marginally during construction of the Seismic Retrofit but is minimized through winterization measures in the wet season while the crest of the dam is lowered~~. If Coyote Dam were to fail, the downstream effects would be reduced by the presence of Anderson Reservoir, which itself has been under a restriction since 2009. During Seismic Retrofit construction, each interim reservoir at the end of each construction season would have capacity that exceeds the capacity of Coyote reservoir. Additionally, the seismic retrofit of Anderson Dam would not exacerbate the risk of failure of Coyote Dam or increase potential downstream flooding compared to existing conditions. In addition, the storage restriction on Coyote Reservoir limits the potential effects of severe damage to the dam from an earthquake and the possibility of uncontrolled flows. With restricted capacity the possibility of water overtopping damage caused by an earthquake is nearly completed avoided. Given the very low probability of dam failure, which would require a major earthquake in close proximity to Coyote Reservoir following a wet period that fills the reservoir beyond its capacity to release high flow, the Project's impact on risk from dam inundation is **less than significant**. The Increased Dredging Alternative would have the same impact as the Project on flooding from dam inundation.

<u>Mitigation Measures</u>

<u>WQ-1 Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan</u>

Regarding cumulative impacts, like the Project, the Increased Dredge Alternative would have **cumulatively considerable** impacts on erosion and downstream sedimentation, but **not cumulatively considerable** impacts on flooding, polluted runoff, or risk from dam failure. Cumulative impacts would be less than Project cumulative impacts.

5.9.2.12 Groundwater Resources

The Increased Dredge Alternative would have impacts like those described in Section 3.12 *Groundwater Resources*. The alternative would involve 2 extra years of dredging in Anderson Reservoir; however, the reservoir is already at deadpool in the existing conditions baseline, therefore it would not impact groundwater supplies and wells around Anderson Reservoir more that the Project. The alternative would require two more years of heavy equipment use, and that would extend the period that hazardous materials could be released and impact groundwater quality. The alternative would meet the Basin Plan and GWMP in the same manner as the Project with included mitigation.

Groundwater Supply

The loss of storage in Anderson Reservoir would greatly limit the amount of water that could be released from reservoir for the purpose of groundwater recharge along Coyote Creek. Seismic Retrofit construction would not substantially affect groundwater storage and supplies or recharge, as WEAP modeling has shown that groundwater storage in the Coyote Valley would remain above the 5,000 GWMP outcome measure, given implementation of imported water releases in Coyote Creek. Impacts to groundwater recharge would be **less than significant**. The Increased Dredge Alternative would have the same impact as the Project on groundwater recharge.

The dewatering of Anderson Reservoir during the 7-year Seismic Retrofit construction period could impact nearby wells outside of the groundwater basin and managed aquifer; however, this impact will be reduced to less than significant with implementation of **Mitigation Measure GW-1** (Provide Alternative Supplies). As such, the impact to surrounding wells would be **less than significant with mitigation**. The Increased Dredge Alternative would have the same impact as the Project on wells around Anderson.

Groundwater Quality

Construction equipment to be used during construction and maintenance activities would contain hazardous materials, such as fuel, oil, lubricants, etc. that can degrade groundwater quality if spilled or improperly handled. Implementation of a SWPPP <u>for construction activities outside the reservoir</u>, and hazardous materials BMPs including BMPs ~~HM-7,~~ HM-8, HM-9, and HM-10, which will include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites and providing training and spill cleanup materials for field personnel will reduce impacts to groundwater quality to **less than significant.** While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Blasting at the BHBA could release perchlorates and various other water-soluble nitrogen-compounds during the use of explosives. The risk from perchlorates and other water-soluble nitrogen-compounds is primarily in relation to groundwater. Perchlorate salts are highly soluble in water and sorbs poorly to mineral surfaces and organic material; therefore, it is typically very mobile in surface water and groundwater. It is persistent in the environment and at high enough concentrations can affect thyroid gland functions. The risk of groundwater contamination from perchlorates will be minimized by **Mitigation Measure GW-2** (Pollutants from Blasting Activities) which includes a set of BMPs for the proper use and disposal of perchlorate. The impact to groundwater quality is less than significant with mitigation and the Increased Dredge Alternative would have the same impact on groundwater quality as the Project.

The reduction in groundwater levels in the area immediately surrounding Anderson Reservoir could adversely affect groundwater quality in this area; however, these effects would be temporary and the impacts on well owners will be reduced to less-than-significant levels through implementation of **Mitigation Measure GW-1** (Provide Alternative Supplies). The Increased Dredge Alternative would have the same impact as the Project on local well groundwater quality.

Groundwater Plans

As described in Section 3.12.1.2, the San Francisco Bay Basin Plan identifies beneficial uses for groundwater within the San Francisco Bay region and establishes narrative and numerical WQOs to achieve the beneficial uses for those waters. Valley Water's GWMP for the Santa Clara and Llagas Subbasins (Valley Water 2021) describes a comprehensive groundwater management framework, including existing and potential actions to achieve basin sustainability goals and ensure continued sustainable groundwater management. As discussed above the Project would not substantially affect groundwater quantity or quality and with **Mitigation Measure GW-1** will not impact well owners around Anderson Reservoir. As such, Project impacts on groundwater plans would be less than significant with mitigation. The Increased Dredge Alternative would have the same impact as the Project on groundwater plans.

Mitigation Measures

GW-1 Provide Alternative Water Supplies

GW-2 Implement Perchlorate Best Management Practices

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **not cumulatively considerable** impacts on groundwater resources. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.2.13 Water Supply

The Increased Dredge Alternative would have the same impacts as those described in Section 3.13, *Water Supply*. Dredging of the reservoir in the first 2 years of construction would not impact water supplies.

Water Supply

During the Seismic Retrofit component construction, Anderson Reservoir would be almost completely dewatered which would limit supplies available for groundwater recharge and water supply. Modeling results indicate that there may be a reduction in groundwater recharge and storage downstream of the dam during construction, but that simulated groundwater storage would remain above the 5,000 AF outcome measure for Coyote Valley. With increased imported water releases, WEAP modeling has indicated that no significant impacts would occur to water supply conditions during the Seismic Retrofit construction period. Once Project construction has been completed, releases from the dam would be made in accordance with the FAHCE operating rule curves. The Project would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources, and this impact would be **less than significant**. The Increased Dredge Alternative would have the same impact to water supply as the Project.

Water Supply Infrastructure

No new water supplies facilities would be required due to construction and operation of the Project. Restoring the full capacity of Anderson Reservoir would support Valley Water's water supply portfolio. No new or expanded private wells along the rim of the reservoir will be constructed due to water table effects with implementation of **Mitigation Measure GW-1**. Additionally, implementation of **Mitigation Measure GW-2** will avoid any impacts on groundwater quality from blasting activities. Therefore, the water facility impact would be **less than significant with mitigation.** The Increased Dredge Alternative would have the same impacts on water supply facilities as the Project.

Mitigation Measures

GW-1 Provide Alternative Water Supplies

GW-2 Implement Perchlorate Best Management Practices

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **not cumulatively considerable** impacts on water supply. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.2.14 Water Quality

The goal of the Increased Dredge Alternative is to reduce erosion and sedimentation compared to the Project. The Increased Dredge Alternative would remove an additional 1,400,000 cy of sediment from the deadpool compared to the Project. This sediment removal would both remove a large volume of sediment that would be a source for potential erosion and transport downstream, and it would also create a large area of depth to accommodate additional sediment trapping and deposition in the reservoir. The additional volume created in the deadpool by removal of 1,400,000 cy of sediment would allow for the additional deposition eroded sediment in the deadpool.

Effects of Removing Additional Sediment

While the removal of the additional sediment would help reduce the erosion and sediment transport effects, the impact related to violation of the turbidity water quality objective would remain significant. **Mitigation Measure WQ-1** requires implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. However, impacts would remain significant even with implementation of **Mitigation Measure WQ-1**. Because no additional mitigation is available to decrease the impact to less than significant, the impact would be **significant and unavoidable**. The magnitude of this impact under the Increased Dredge Alternative would be substantially less than under the Project as the removal of 1,400,000 cy of sediment would both remove sediment source material and provide additional in-reservoir deposition.

In-Reservoir Water Quality

During construction with Anderson Reservoir at deadpool the limited storage would create higher temperatures and increase turbidity (especially following storms), substantially degraded in-reservoir water quality that would not support designated beneficial uses (COMM, COLD, SPWN, WARM, WILD, REC-1 and REC-2). **Mitigation Measure WQ-1** requires evaluation of the water quality monitoring data collected during construction and implementation of BMPs to address and control sediment and other pollutants associated with in-reservoir construction activities to the extent technically feasible in accordance with the CWA and Porter-Cologne Water Quality Control Act requirements; however, impacts would remain significant even with implementation of **Mitigation Measure WQ-1**. Because no additional mitigation is available to decrease the impact to less than significant, this ~~This~~ impact is **significant and unavoidable**. The Increased Dredging Alternative would have a greater impact than the Project to in-reservoir water quality as it would involve 2 years of dredging in Anderson Reservoir that could further degrade water quality.

Other Water Quality Impacts

The excavation of soils within or near the reservoir and creek, placement of fill within or near the reservoir or creek to construct dam improvements and Conservation Measures, vehicle travel on unpaved access and haul roads, exposed unvegetated work sites and staging areas, uncovered stockpiles, and mining activities could result in erosion of surface soils. Resultant erosion may cause turbidity and sedimentation, and impact water quality. Construction and maintenance activities would also involve the use of hazardous materials and herbicides, which could accidentally be released into the environment, resulting in adverse effects on water quality. Implementation of a SWPPP for out-of-reservoir construction and applicable erosion control BMPs for in-reservoir and out-of-reservoir construction including: BMP AQ-1 (Use Dust Control Measures), BMP WQ-4 (Limit Impacts From Staging and Stockpiling Materials), BMP WQ-1 (Conduct Work from Top of Bank), BMP WQ-2 (Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms), BMP WQ-5 (Stabilize Construction Entrances and Exits), BMP WQ-9

(Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-10 (Prevent Scour Downstream of Sediment Removal), BMP WQ-11 (Maintain Clean Conditions at Work Sites), and BMP WQ-16 (Prevent Stormwater Pollution); hazardous material BMPs: ~~BMPs HM-7 and~~ BMP HM-8 which reduces ~~reduce~~ the risk of vehicle-related pollutants and BMPs HM-9 and HM-10 which proper management of hazardous materials and the implementation of spill prevention measures; and herbicide BMPs: HM-1 (Comply with All Pesticide Application Restrictions and Policies), HM-2 (Minimize Use of Pesticides), HM-4 (Comply with All Pesticide Usage Requirements), HM-5 (Comply with Restrictions on Herbicide Use in Upland Areas), and HM-6 (Comply with Restrictions on Herbicide Use in Aquatic Areas) will help protect water quality. The SWPPP for out-of-reservoir construction activities and implementation of applicable BMPs for in-reservoir and out-of-reservoir construction would ensure water quality impacts are **less than significant** for construction and maintenance related activities. The Increased Dredging Alternative would have a greater impact than the Project from construction water quality due to the 2 additional years of dredging and hauling.

Some construction elements would require the removal of groundwater to keep work areas dry. To avoid water quality impacts this groundwater would be treated by an ATS system. Imported water would be chilled as needed prior to release to Coyote Creek to ensure cold water in the CWMZ, and Valley Water would comply with the Stormwater NPDES Permit as applicable to minimize impacts from new impervious surfaces. Other water quality impacts would **be less than significant**. The Increased Dredging Alternative would have the same impact as the Project to other water quality issues.

Over the long-term, the Project would generate substantial beneficial impacts to water quality and beneficial uses. The new reservoir outlet would allow for greater flexibility in releases that would allow greater use of the reservoir's cold-water pool and reduce the potential for uncontrolled reservoir spills. Live Oak Restoration Project, the ~~The~~ Ogier Ponds CM, Sediment Augment Program, Maintenance of the North Channel Reach ~~Extension~~, and Phase 2 Coyote Percolation CM would all provide water quality benefits and habitat enhancements the support beneficial uses

Mitigation Measures

WQ-1 Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan

GW-2 Implement Perchlorate Best Management Practices

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **cumulatively considerable** impacts on turbidity water quality objectives and in-reservoir water quality, but **not cumulatively considerable** impacts on other water quality objectives or on beneficial uses. Cumulative impacts would be less than the Project's cumulative impacts.

5.9.2.15 Land Use

The Increased Dredge Alternative would have the same impacts as those discussed in Section 3.15, *Land Use*. Increased dredging and hauling of sediments would not conflict with land use plans, polices, and regulations.

Conflict with Land Use Plans, Policies, and Regulations

The majority of the land that would be affected by the Project is designated as recreational. Portions of Anderson Lake County Park, Coyote Creek Parkway, Ogier Ponds, and the Coyote Percolation Pond would be closed during construction of the Seismic Retrofit improvements and Conservation Measure components, affecting recreational land uses in the area. These effects would be temporary in nature. Implementation of BMP AQ-1, BMP AQ-2 BMP TR-1, BMPs GEN-36, GEN-37, and GEN-39 will minimize the level of disruption and impairment of onsite land uses during the Project construction period. Operation of the Project would minimize the risk of reservoir spill and downstream flooding and provide in-stream environmental flows consistent with land use policies and regulations. The Project would seismically upgrade a critical facility consistent with local goals and policies, and construction and operation would not result in significant environmental impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be **less than significant**. The Increased Dredge Alternative would have the same impact as the Project.

Regarding cumulative impacts, like the Project, the Increased Dredge Alternative would have **not cumulatively considerable** impacts on land use. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.2.16 Noise and Vibration

The Increased Dredge Alternative would result in increased noise during construction as discussed in Section 3.16, *Noise and Vibration*. The construction period would involve 10 more months of construction and truck traffic over 2 years compared to the time period required for the Project; thus noise impacts would persist for a longer time than the Project.

Noise

Construction of the Seismic Retrofit Component, Ogier Ponds CM, and the Sediment Augmentation Program would exceed applicable construction noise thresholds of significance, while Project operational noise impacts would be less than significant. Seismic Retrofit construction noise levels would exceed the 10 dBA increase above ambient threshold at key receptors as discussed in Section 3.16, *Noise*. Seismic Retrofit nighttime construction noise levels would exceed the nighttime construction noise threshold of 50 dBA L_{eq}.

Mitigation Measure NOI-1 will require Valley Water to implement a Construction Management Plan and **Mitigation Measure NOI-2** is specific to Seismic Retrofit construction and would require the installation of a temporary noise barrier, limiting of construction activity at Staging Area 1 ~~and Stockpile Area E~~, provide a noise complaint phone number and construction noise monitoring during nighttime periods of construction, and reduce speeds along haul routes. Implementation of **Mitigation Measure NOI-3** is specific to Ogier Ponds CM construction and would require the installation of a temporary noise barrier and the reduction of truck and vehicle speeds along Cochrane Road. Even with mitigation noise levels would still exceed the thresholds of significance and construction would result in generation of a temporary increase in ambient noise levels in excess of locally adopted standards. Impacts would be **significant and unavoidable**. The Increased Dredging Alternative would have the greater impacts to noise compared to the Project.

Vibration

Construction of the Seismic Retrofit components and the Sediment Augmentation Program would exceed construction vibration thresholds of significance of 72 VdB at sensitive receptors. Blasting activities during Seismic Retrofit construction could exceed applicable blasting thresholds.

Implementation of **Mitigation Measure NOI-4** will require the use of oscillatory or static rollers in lieu of a vibratory roller within 150 feet of residential structures ~~receptors~~. Implementation of **Mitigation Measure NOI-5** will require vibration and air overpressure monitoring be conducted while initial blasting activities occur. Monitoring results would be used to adjust blast loading limits to properly reflect site-specific conditions to ensure vibration impacts from blasting do not exceed the building damage thresholds. Mitigated vibration levels would not exceed the established thresholds. Therefore, Project construction would not generate excessive ground borne vibration or ground borne noise levels and impacts would be **less than significant with mitigation**. The Increased Dredging Alternative would have the same impacts to vibrations as the Project.

Mitigation Measures

NOI-1 Implement Construction Noise Reduction Measures

NOI-2 Implement Seismic Retrofit Construction Noise Reduction Measures

NOI-3 Implement Ogier Ponds CM Construction Noise Reduction Measures

NOI-4 Seismic Retrofit and Sediment Augmentation Program Construction Vibration Reduction ~~Measures~~

NOI-5 Implement Blasting Plan

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **cumulatively considerable** impacts on noise. ~~, but~~ The Increased Dredge Alternative would have **not cumulatively considerable** impacts on vibration. Cumulative impacts would be greater than the Project's cumulative impacts for noise and the same for vibrations.

5.9.2.17 Public Services

The Increased Dredge Alternative would generate an additional increase in vehicle traffic in the Project vicinity. Increased vehicle traffic could increase impacts on emergency service response times compared to those discussed in Section 3.17, *Public Services*.

Fire and Police Services

Temporary impacts on police and fire protection services would include accidental ignition of a wildfire, use of hazardous materials that may require additional fire protection services, and temporary increases and disruptions to vehicle traffic in the Project vicinity, which could impede emergency response timing. Implementation of BMPs HM-12, HM-8, and HM-9 will minimize the risk of accidental ignition. BMP TR-1 will require construction warning signs, safety fencing, and detours which would minimize potential impacts on emergency response times. Although construction traffic levels would increase emergency service response times, it would not disrupt emergency service response to the point that would require the construction or expansion of police or fire protection facilities other than potentially the need for temporary emergency access roads, which might cause significant impacts, which a significant impact. **Mitigation Measure PS-1** requires preparation of a TMP and coordination with fire protection services and first responders, and **Mitigation Measure WF-1**, which requires coordination with local and state emergency response agencies and preparation of a Response and Evacuation Strategy which will maintain adequate emergency response and identify and maintain evacuation routes, will reduce potential impacts associated with impeding emergency response times to a less-than-significant level. Impacts to police and fire services would be **less than significant with mitigation.** The Increased Dredge Alternative would have a greater impact than the Project as it would extend construction impacts, specifically up to 750 truck trips a day, over an additional 2 years.

Mitigation Measures

PS-1 Prepared and Implement Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) ~~Emergency Action Plan~~

Regarding cumulative impacts, like the Project, ~~after mitigation~~ the Increased Dredge Alternative would have **not cumulatively considerable** impacts on public services. Cumulative impacts would be greater than the Project's cumulative impacts.

5.9.2.18 Recreation

The Increased Dredge Alternative would result in a longer temporary interruption to recreational facilities, potentially resulting in physical deterioration or the acceleration of physical deterioration of neighboring facilities. This alternative would extend construction an additional 2 years to accommodate dredging of sediment from the reservoir bed as that described in Section 3.18, *Recreation*.

Recreation Facilities

The Project would require closure of Anderson Lake County Park, Coyote Creek Parkway, Ogier Ponds, and the Coyote Percolation Pond for the duration of construction; however, there are 100 other recreational facilities in the study area (i.e., all parks within 5 miles of the Project area as well as regional parks in the county), many of which include a variety of infrastructure and accommodate a wide range of recreational activities including hiking and fishing (see **Table 3.18-1** and **Figure 3.18-1**). Temporary impacts on recreational facilities resulting from the Seismic Retrofit components would be distributed across many nearby recreational facilities, so this impact is less than significant.

Coyote Creek Trail and portions of Hellyer Park would be periodically inundated by Coyote Creek at several low flow crossings more frequently during construction of the seismic retrofit. Longer recreational facility closures during the wet season could result in physical deterioration of other recreational facilities or the acceleration of the physical deterioration of those facilities. Therefore, this impact would be significant.

Implementation of **Mitigation Measure REC-1** will reduce impacts to **less than significant with mitigation** by requiring Valley Water to provide funding and implementation of the future relocation and/or modification of recreational facilities within the Coyote Creek corridor to mitigate for inundation and other Project impacts on those facilities. ~~compensating SCCPRD for anticipated extra maintenance costs.~~ The Increased Dredge Alternative would have the same impact to recreational facilities as the Project.

Permanent Modification to Recreation Facilities

The Project would result in several permanent modifications to recreational facilities. As described in Section 2.4.5.12, the Live Oak Picnic Area would include an improved walking loop, ~~a bridge over the North Channel and connection to the Serpentine Trail,~~ an interpretive trail along Coyote Creek, relocation of the group picnic area closer to restroom and parking areas, and tree replacement planting. Additionally, the existing boat ramp at Anderson Dam would be improved by constructing a second entrance off Cochrane Road, constructing a dedicated inspection area, and an electric vehicle charging area would be replaced and improved. These facility improvements would be minor and would not have a significant adverse physical effect on the environment. This impact would be **less than significant**. The Increased Dredge Alternative would have the same impacts to permanent facilities as the Project.

Mitigation Measure

REC-1 Funding and Implementation of ~~Maintenance Reimbursement for~~ Park Facility Improvements within the Coyote Creek Corridor ~~Closures During High Flow Events~~

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **not cumulatively considerable** impacts on recreation. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.2.19 Transportation

Emergency Access

The Project would generate additional construction roadway vehicle trips and include road closures that have the potential to impede emergency access. MP TR-1 would reduce this impact, but it would still be significant. With implementation of **Mitigation Measure PS-1** (Prepare and Implement Traffic Management Plan) and **Mitigation Measure WF-1** (Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy ~~Emergency Action Plan~~) impacts on emergency access will be **less than significant with mitigation**. Because the emergency access impacts would last for approximately 10 more months than under the Project, the magnitude is greater under this alternative than under the Project as discussed in Section 3.19, *Transportation*.

Transportation Plans

Project construction and operation would largely be consistent with plans and policies governing the circulation system. Therefore, impacts related to conflicts with programs, plans and policies addressing the circulation system generally would be less than significant. In addition, BMP TR-1 and **Mitigation Measure PS-1** will further reduce the less-than-significant impact regarding conflicts with policies governing roadway facility safety by ensuring safe handling of traffic detours, and trail closures would not conflict with plans and policies due to the temporary nature of closures and availability of alternatives.

However, as with the Project, modified flows expected in Coyote Creek could result in impacts to recreational facilities that are used by pedestrians. This would be a significant impact on pedestrian facilities. **Mitigation Measure REC-1** (Funding and Implementation of ~~Maintenance Reimbursement for~~ Park Facility Improvements within the Coyote Creek Corridor ~~Closures During High Flow Events~~) would reduce impacts on pedestrian facilities and prevent substantial conflicts with trails plans and policies. This impact would therefore be **less than significant with mitigation.**

The Increased Dredge Alternative would have the same impact to transportation plans as the Project.

VMT

The Project's construction-related VMT would be temporary and operation-related VMT would be negligible and would not contribute to a substantial change in long-term VMT. As a large infrastructure project, the Project would have little long-term effect on air quality and greenhouse gas benefits related to long-term reductions in VMT (as discussed under Section 3.19.3, *Methodology*). Because the increase in VMT during construction would be temporary, and there would be a negligible effect on VMT during operations, the Project would not conflict with or be inconsistent with *CEQA Guidelines* section 15064.3(b). Therefore, impacts related to VMT would be **less than significant.** The Increased Dredge Alternative would have the same impact to VMT as the Project.

Hazards

The Project would not include any new roadway or access improvements that would increase hazards due to a geometric design. Rather, the proposed roadway and access modifications would improve roadway conditions and increase public safety. Therefore, impacts regarding increased hazards due to a geometric design feature would be **less than significant.** The Increased Dredge Alternative would have the same impact to traffic hazards as the Project.

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

REC-1 Funding and Implementation of ~~Maintenance Reimbursement for~~ Park Facility Improvements within the Coyote Creek Corridor ~~Closures During High Flow Events~~

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) ~~Emergency Action Plan~~

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **not cumulatively considerable** impacts on transportation. Overall cumulative impacts would be greater than the Project's cumulative impacts.

5.9.2.20 Tribal Cultural Resources

The Increased Dredge Alternative would have greater impacts compared to those described in Section 3.20, *Tribal Cultural Resources*.

Tribal Cultural Resources

Ground disturbance during construction and maintenance around the dam and the Ogier Ponds areas could impact elements of tribal cultural resources. Erosion and recreational power boating within Anderson Reservoir could erode Native American archaeological resources that may qualify as tribal cultural resources buried along the shoreline of the reservoir. In addition, construction activities and future use of reservoir could expose undiscovered Native American archaeological resources that may qualify as tribal cultural resources. MP-CUL-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) will require that work will cease in areas where archaeological materials are discovered. Nevertheless, these impacts are significant.

Mitigation Measures CR-1 (Pre-construction Cultural Resources Awareness Training), **CR-2** (Prepare a Data Recovery and Treatment Plan for Tribal Cultural Resources that Cannot be Avoided), and **CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will require construction crews to receive tribal cultural awareness training, provide guidance on treating resources with respect, require that all tribal cultural resources be included in the treatment plan, and require that work stop in the vicinity of any archaeological materials discovered during Project construction. Implementation of these BMPs and mitigation measures will reduce the Project's impact to tribal cultural resources to a **less than significant level with mitigation**. The Increased Dredge Alternative would have a greater impact on archeological resources than the Project with greater activities around Anderson Reservoir.

Mitigation Measures

CR-1 Pre-construction Cultural Resources Awareness Training

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **not cumulatively considerable** impacts on tribal cultural resources. Cumulative impacts would be greater than the Project's cumulative impacts.

5.9.2.21 Utilities and Service Systems

The Increased Dredge Alternative would have impacts similar to those discussed in Section 3.21, *Utilities and Service Systems*. The alternative would use sediments dredged from the reservoir in other parts of the Project or at the South San Francisco Bay Shoreline Project.

Utility Systems

The Project would not require construction of new stormwater, telecommunications, or electric facilities. Relocation of some power lines would be required as part of the Seismic Retrofit component. The utility infrastructure proposed to be relocated to serve Project would not affect other users. Decommissioning of the hydroelectric facility would not require Valley Water or PG&E to construct replacement electrical facilities. Impacts related to the replacement, relocation, or construction of public utilities would be **less than significant**. The Increased Dredge Alternative would have the same impact on utilities as the Project.

Solid Waste

The Project would comply with the Santa Clara County Integrated Waste Management Plan, the City of San José's Zero Waste Strategic Plan, and State regulations. Solid waste would not be generated in excess of the capacity of local solid waste management facilities. Therefore, the Project's impacts related to solid waste would be **less than significant**. The Increased Dredge Alternative would have the same impact on utilities as the Project.

Regarding cumulative impacts, like the Project, the Increased Dredge Alternative would have **not cumulatively considerable** impacts on utility systems. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.2.22 Wildfire

The Increased Dredge Alternative would not affect wildfire risk beyond the impacts discussed in Section 3.22, *Wildfire*.

Wildfire Risk Exacerbation

Implementation of BMP HM-12 (requires fire suppression equipment and measures, and spark arrestors on equipment) and implementation of California Fire Code provisions and CAL FIRE requirements will reduce the risk of accidental ignition from construction equipment, minimizing the impacts of the Project on exacerbation of wildfire risks. Post-construction operations would not require the use of equipment that could generate sparks or extreme heat; therefore, there would be no impact related to wildfire. Risk of wildfire is **less than significant**. The Increased Dredging Alternative would have the same impact related to increasing wildfire risk as the Project.

Wildfire Risk from Infrastructure

The Project would include the modification, construction, and/or relocation of roads and electrical transmission infrastructure; however, access throughout the Project Area and existing power lines would be relocated and improved through Project implementation, thus providing an improvement over existing conditions. Post-construction operations of the powerlines would also be similar to post-FOCP implementation conditions. Therefore, infrastructure associated with the Project would not exacerbate wildfire risks, and this impact would be **less than significant.** The Increased Dredge Alternative would have the same risk as the Project to wildfire from infrastructure.

Risk from Post-Fire Instability

The Project would not exacerbate or increase wildfire risks in the area, and therefore would not increase the risks of post-fire effects, such as landslides and flooding. The Project would not result in significant risks to people or structures from downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes, and this impact would be **less**

than significant. The Increased Dredge Alternative would have the same impact related to increased risk from post-fire instability as the Project.

Exposure to Wildfire Risk

Construction traffic and road closures would result in impacts on emergency response and evacuations, and expose construction workers to wildfire risks, in the event of a wildland fire. Traffic impacts on emergency response and evacuations would be reduced through implementation of **BMP TR-1** which requires implementation of construction warning signs, safety fencing, and detours; however, a significant impact would still occur. Implementation of **Mitigation Measure PS-1** (Traffic Management Plan)**,** which requires preparation and implementation of a TMP and coordination with State and local agencies and **Mitigation Measure WF-1** (Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy Emergency Action Plan), which requires coordination with local and state emergency response and fire agencies and preparation of a Response and Evacuation Strategy, which will maintain adequate emergency response and identify and maintain evacuation routes to identify an alternative temporary refuge area or access to the Woodchoppers Flat Picnic Area during a wildfire will minimize impacts on emergency response and evacuation procedures. This impact will be **less than significant with mitigation.** The Increased Dredge Alternative would have the same impact to wildfire safety as the Project.

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) Emergency Action Plan

Regarding cumulative impacts, like the Project, after mitigation the Increased Dredge Alternative would have **not cumulatively considerable** impacts on wildfire risks. Cumulative impacts would be the same as the Project’s cumulative impacts.

5.9.3.1 Aesthetics

The FAHCE-Plus Modified Alternative would only change post-construction flow operations, and therefore would cause the same Project construction-related impacts including the removal of more than 650 mature trees for construction of the Seismic Retrofit component and approximately 70 trees for construction of the Conservation Measures resulting in degradation of the existing visual character or quality of public views. Therefore, public views of the BHBA and Coyote Creek would similarly be disturbed under the FAHCE-Plus Modified Alternative. Mitigation measures to replace trees along Coyote Creek (**Mitigation Measure AES-1**) and screen construction staging areas (**Mitigation Measure AES-2**) would reduce construction related impacts, but not to a level of less than significant. The alternative would result in **significant unavoidable impacts** with no additional feasible mitigation measures available to fully mitigate the impacts. This impact would be the same as the Project.

For the same reason, the FAHCE-Plus Modified Alternative would cause the same Project-related impacts from nighttime lighting during construction around the reservoir. A mitigation measure to minimize the impact from construction lightning (**Mitigation Measure AES-3**) will be implemented to reduce this impact to a less than significant level. The FAHCE-Plus Modified Alternative would have a **less than significant impact with mitigation** on nighttime views. This impact would be the same as the Project.

Mitigation Measures

AES-1 Replacement Tree on Santa Clara County Parkland

AES-2 Visual Screening of Construction Staging Areas

AES-3 Construction Lighting

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **cumulatively considerable** impacts on visual character, but **not cumulatively considerable** impacts on nighttime lighting. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.2 Agriculture and Forestry Resources

The FAHCE-Plus Modified Alternative would only change post-construction flow operations, the FAHCE-Plus Modified Alternative would have not change Project construction-related impacts to farmland as discussed in Section 3.2, *Agriculture and Forestry Resources*.

Farmlands are located outside the Project construction area; however, 3.8 acres of Farmland of Local Potential southwest of the Ogier Ponds would continue to be used under this alternative for materials and equipment staging during the construction of the Ogier Ponds CM, which would impact locally important farmland.

Farmland

The staging area would be restored to agricultural use after 3 years, and implementation of BMPs AQ-1 (dust control), BI-11 (minimize predator-attraction), WQ-4 (limit impacts from staging and stockpiling), WQ-11 (maintain clean work sites), and TR-1 (public safety measures) will help prevent impact to surrounding Farmland of Local Potential at this site. Post-construction operations of the retrofitted dam under either FAHCE of FAHCE-plus modified rule curves associated with the retrofitted dam could result in minor flooding in some Farmland areas but would not rise to the level of conversion. Adaptive management actions, if required, whether for the Project or for this Alternative would not take place in Farmland. Thus, the Alternative would not permanently convert areas of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural uses. The alternative would result in a **Less than Significant Impact** to Important Farmland. This impact would be the same as the Project.

Williamson Act Lands and Lands Zoned Agriculture

No lands under a Williamson Act contract are present within the study area; therefore, there would be no impacts to Williamson Act lands during construction or operation of the Project. Temporary construction activities within the Seismic Retrofit Project Area would not conflict with existing agricultural zoning. Lands zoned for agricultural use would be temporarily used for materials and equipment staging during the construction of the Ogier Ponds CM, but implementation of BMPs would minimize the potential for temporary impacts to conflict with existing zoning. Adaptive management actions, if required, whether for the Project or for this Alternative would not take place in agricultural areas. Ogier Ponds is in area zoned as agricultural land uses and would be adaptively managed, but the Ogier Ponds CM is consistent with agricultural zoning uses. However, neither the Project nor the Alternative would conflict with existing agricultural zoning or Williamson Act contracts. This impact would therefore be **less than significant**. This impact would be the same as the Project.

Regarding cumulative impacts, like the Project, the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on agricultural resources. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.3 Air Quality

The FAHCE-Plus Modified Alternative would only change post-construction flow operations. Therefore, the FAHCE-Plus Modified Alternative would result in the same impacts as the Project described in Section 3.3, *Air Quality*.

Air Quality Plans

The criteria air pollutant emissions from construction of the Seismic Retrofit component <u>and the</u> Ogier Ponds CM~~, and the Sediment Augmentation Program~~ would exceed BAAQMD thresholds. Implementation of **Mitigation Measure AQ-1** will require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. However, even with implementation of **Mitigation Measure AQ-1**, construction of the FAHCE-Plus Modified Alternative will exceed BAAQMD thresholds for NOx. As such, Project construction would conflict with the BAAQMD 2017 Clean Air Plan goal to attain established air quality standards while Project operation would not exceed any BAAQMD thresholds for the various criteria air pollutants. The Project overall would conflict with or obstruct the implementation of an applicable air quality plan, and impacts would be **significant and unavoidable**. The FAHCE-Plus Modified Alternative would have the same impacts in regard to conflicting with the 2017 Clean Air Plan as the Project.

Criteria Pollutants

As with the Project construction as discussed in Section 3.3 Impact 2, the FAHCE-Plus Modified Alternative would exceed the BAAQMD average daily thresholds for criteria air pollutants, while operational impacts related to criteria air pollutants would be the same as the Project and less than significant. The Seismic Retrofit construction emissions would exceed the BAAQMD average daily thresholds for ROG in Year 1 through Year 6 and for NOx in Year <u>1</u> ~~2~~ through Year 7. Ogier Ponds CM construction emissions would exceed the BAAQMD average daily threshold for NO_X in Year 6 <u>through</u> ~~and~~ Year <u>8</u> ~~7~~. Sediment Augmentation Program construction emissions would not exceed the BAAQMD average daily threshold for <u>criteria air pollutants</u> ~~NO_x during every year of construction from Year 2 through Year 15~~. <u>Maintenance</u> ~~Construction~~ of the North Channel <u>Reach</u> ~~Extension~~ and Phase 2 Coyote Percolation Dam CM would not exceed the

BAAQMD average daily thresholds for criteria air pollutants. An additional 2 years of dredging and hauling would be added in Year 1 and Year 2. These emissions were not calculated but would be in addition to Project emissions. Even with implementation of **Mitigation Measure AQ-1**, Seismic Retrofit construction emissions will exceed the BAAQMD average daily thresholds for ROG in Year 1 and NOx in Year 2 through Year 6 7. Mitigated Ogier Ponds CM construction emissions would exceed the BAAQMD average daily thresholds for NO_X in Year 6 and Year 7. Mitigated Sediment Augmentation Program construction emissions would not exceed the BAAQMD average daily thresholds for criteria air pollutants. NO_X during every year of construction from Year 2 through Year 10, and overall Overall mitigated Project construction emissions would exceed the BAAQMD average daily threshold for ROG during Year 1 6 and for NO_X during Year 2 through Year 7 15. Since criteria air pollutant exhaust emissions would remain above the BAAQMD significance threshold even with implementation of **Mitigation Measures AQ-1**, the impact related to regional air quality will be **significant and unavoidable**. The FAHCE-Plus Modified Alternative would have the same impacts in regard to increases in criteria pollutants as the Project.

Dust

Fugitive dust impacts from blasting emissions would be less than significant with implementation of **Mitigation Measure AQ-2. Mitigation Measure AQ-2** will require the installation of wind screens during blasting activities to reduce fugitive dust emissions. Construction-related fugitive dust impacts will be significant even with implementation of BAAQMD basic BMPs (BMP AQ-1) and advance BMPs in **Mitigation Measure AQ-3**. **Mitigation Measure AQ-3** will implement BAAQMD's Enhanced Construction BMPs, which includes limiting the occurrence of simultaneous construction activities, installing erosion control measures, planting vegetative ground cover, minimizing the amount of excavated material, and hydroseeding. These measures would apply to all Project components as discussed in Section 3.3. The FAHCE-Plus Modified Alternative would have a **significant impact** from fugitive dust which is the same as the Project.

Health Risks

As with the Project as discussed in Section 3.3 Impact 3, the FAHCE-Plus Modified Alternative construction activities would exceed BAAQMD's significance thresholds for excess lifetime cancer risk, acute HI, and $PM_{2.5}$ concentration. Operational impacts related to TAC emissions would be less than significant. Implementation of **Mitigation Measure AQ-1** will be required, but even with this measure, the overall Project construction risks would exceed the BAAQMD thresholds for excess lifetime cancer risk, acute HI, and $PM_{2.5}$ concentration. Therefore, the Project overall would expose receptors to substantial pollutant concentrations, and impacts would be **significant and unavoidable**. The FAHCE-Plus Modified Alternative would have the same impacts from pollutant concentrations to sensitive receptors as the Project.

Odors

Construction equipment used in the alternative would emit diesel exhaust odors, and the disturbance of soils, dewatered channels, and the drained reservoir could emit organic matter odors. These odors would be temporary and intermittent. Implementation of BMP AQ-2 will require construction avoid stockpiling of odorous material near sensitive receptors. Currently, there have been no reported odor complaints to BAAQMD. Construction odors are not anticipated to be notably different for the Project compared to the existing baseline conditions at the time of the EIR preparation modified by the FOCP implementation. Odors associated with operations and maintenance are not expected. Thus, based on the odor complaint history, implementation of BMP AQ-2, and the temporary nature of construction activities, the overall alternative impact related to exposure to odors will be **less than significant**. The FAHCE-Plus Modified Alternative would have the same impacts from odors as the Project.

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

AQ-2 Implement Construction Blasting Fugitive Dust Emissions Reduction Measure

AQ-3 Implement BAAQMD Enhanced Construction BMPs

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **cumulatively considerable** impacts on attaining air quality plans, criteria pollutants, and health risks, but **not cumulatively considerable** impacts on odors. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.4 Biological Resources—Fisheries Resources

The FAHCE-Plus Modified Alternative would not have a substantial adverse effect on species identified as a candidate, sensitive, or special-status fish species, and would benefit listed steelhead as compared to the Pre-FERC Order and future baselines and as compared to FAHCE rule curve operations. The WEAP model predictions of suitable habitat for each of the life stages for steelhead and Chinook salmon attained under FAHCE and FAHCE-Plus operations are compared side by side with Pre-FERC Order and future baselines in Appendix F. The WEAP model outputs for FAHCE-Plus are used proxy for quantitative suitable fisheries habitat estimates expected to result from implementation FAHCE-Plus Modified operations. FAHCE-Plus quantitative predictions of suitable habitat are used as a proxy for FAHCE-Plus Modified estimates of suitable habitat for steelhead life stage because they are the only quantitative, modeled estimates of suitable anticipated to result from post-construction operations at the time of analysis.

The FAHCE-Plus Modified Alternative is expected to provide the same amount of suitable habitat as estimated by the WEAP model for FAHCE-Plus operations, but the migration flows and the timing of suitable migration conditions would persist longer and promote and/or maintain run timing diversity in the steelhead populations. Additionally, qualitative assessment of the FAHCE-Plus Alternative described in Section 5.5.3 and **Table 5-7** supplements the quantitative estimate of suitable habitat for each steelhead life stage provided by WEAP modeling of the FAHCE-Plus rule curve operations. The quantitative estimate of suitable migratory habitat provided by analysis of FAHCE-Plus rule curve operations likely understates the actual suitable habitat for migration that would be provided by implementation of FAHCE-Plus Modified Operations. However, the combined quantitative and qualitative evaluation provides an adequate description of the way in which the FAHCE-Plus Modified Alternative would increase frequency and duration of improve steelhead migratory opportunities and through the OWG would increase temporal variability and diversify migration related pulse flows. The quantitative estimate of suitable rearing, incubation and spawning habitat for steelhead provided by analysis of FAHCE-Plus rule curve operations likely approximates the suitable habitat for those life stages provided by FAHCE-Plus Modified operations, with little change to other habitat types.

For steelhead, the FAHCE-Plus Modified Alternative is expected to have slightly less spawning/incubation habitat overall than the Project because it provides more migration pulse flows, but more of that habitat would be provided in the CWMZ (**Table 10** in Appendix F). The FAHCE-Plus Modified Alternative is predicted to create more rearing habitat overall for both steelhead fry and juveniles compared to the Project (**Tables 11-16** in Appendix F). For Chinook salmon, the FAHCE-Plus Modified Alternative is predicted to have slightly less spawning/incubation habitat overall than the Project (**Table 17** in Appendix F) but would provide more rearing habitat overall for both fry and juveniles compared to the Project (**Table 10-19** in Appendix F). Pacific lamprey would likely have the same change between the Project and the FAHCE-Plus Modified Alternative.

Table 5-9. Post-Construction Instream Flow Operations – WEAP Model Outputs. Central California Coast Steelhead Incubation-Adjusted Spawning Habitat in Coyote Creek under the Pre-FOCP Baseline, the Future Baseline, the FAHCE Operations (Project), and the FAHCE-plus Alternative.

POI [a]	Pre-FOCP Baseline (square feet)	Future Baseline (square feet)	FAHCE Operations (square feet)	FAHCE-plus Alternative (square feet)
Steelhead Incubation-Adjusted Spawning Habitat [b]				
COYO 3	0	0	0	0
COYO 4	0	0	0	0
COYO 5	14	26	41	40
COYO 6	22	34	60	58
COYO 7	2,200	2,100	2,400	2,300
COYO 8	10,000	8,600	11,300	10,800
COYO 9	10,100	6,600	7,200	7,800
COYO 10	1,000	600	800	1,000
Total COYO 1–8 [c]	12,200	10,800	13,800	13,200
Total COYO 9–10 [c] (FCWMZ)	11,100	7,200	8,000	8,800
Total COYO 1–10 [c]	23,300	18,000	21,800	22,000

Notes:

[a] No FAHCE WEAP model results were available for the POIs not shown.

[b] Habitat is calculated as the FAHCE WEAP modeled average daily habitat availability averaged across the applicable life stage period. Where specified, this definition of habitat applies to the life stage period within a reservoir operation period.

[c] The total average daily habitat availability for the specified points of interest is the sum of the average daily habitat availability model results across all the specified points of interest.

Table 5-10. Post-Construction Instream Flow Operations–WEAP Model Outputs Central Valley Fall-Run Chinook Salmon Incubation-Adjusted Spawning Habitat in Coyote Creek under the Pre-FOCP Baseline, the Future Baseline, the FAHCE Operations (Project), and the FAHCE-plus Alternative

POI [a]	Pre-FOCP Baseline (square feet)	Future Baseline (square feet)	FAHCE Operations (square feet)	FAHCE-plus Alternative (square feet)
Chinook Salmon Incubation-Adjusted Spawning Habitat [b]				
COYO 3	0	0	0	0
COYO 4	0	0	0	0
COYO 5	32	200	200	200
COYO 6	400	500	600	600
COYO 7	1,600	2,200	2,700	2,700
COYO 8	25,100	22,200	29,500	26,000
COYO 9	11,800	9,400	10,100	9,800
COYO 10	1,700	1,600	1,400	1,300
Total COYO 1–8 [c]	27,100	25,100	33,000	29,500
Total COYO 9–10 [c] (FCWMZ)	13,500	11,000	11,500	11,100
Total COYO 1–10 [c]	40,600	36,100	44,500	40,600

Notes:

[a] *No FAHCE WEAP model results were available for the POIs not shown.*

[b] *Habitat is calculated as the FAHCE WEAP modeled average daily habitat availability averaged across the applicable life stage period. Where specified, this definition of habitat applies to the life stage period within a reservoir operation period.*

[c] *The total average daily habitat availability for the specified points of interest is the sum of the average daily habitat availability model results across all the specified points of interest.*

At almost all POIs within Coyote Creek, adult steelhead passage days would be higher on average and/or would have a higher minimum number of passage days under FAHCE-Plus Modified Alternative relative to FAHCE (**Figures 66-68** in Appendix F). The security pulse further increases the number of years in which pulse flows can be released. The only locations for which this alternative does not have predicted increases relative to FAHCE few exceptions would be the downstream POIs (COYO 1, COYO 2, and COYO 3) which have a substantial amount of passage days under all scenarios (**Figure 66-68** in Appendix F) which is understandable given these POIs are lower in the watershed, historically perennial, and receive flows from tributaries as well as Coyote Creek. In almost all cases, adult Chinook salmon passage days would be nearly identical under FAHCE-Plus Modified Alternative relative to FAHCE (**Figures 75-77** in Appendix F).

The FAHCE-Plus Modified Alternative would also have more average and/or minimum passage days for juvenile steelhead downstream migration most of the time compared to the Project (**Figures 69-74** in Appendix F). One exception is the one dry year in the model (**Figure 69** in Appendix F) that shows more passage days under the Project for that one dry year. A single model output is not enough data from which to draw conclusions with certainty.

FAHCE-Plus Modified Alternative also performs best (higher average and minimum) in March and April when most steelhead smolts outmigrate, although the Project and FAHCE-Plus Modified Alternative perform similarly in February and May (**Figure 70** in Appendix F) except for in wet water years where FAHCE-Plus Modified Alternative performs better in March and equally in February, April, and May FAHCE-Plus Modified also has more average and minimum passage days for juvenile Chinook downstream migration most of the time as compared to the Project (**Figures 78-79** in Appendix F). Pacific lamprey have similar migration timing so FAHCE-Plus Modified is expected to benefit Lamprey in the same manner as for steelhead, relative to the Project.

Overall, the FAHCE-Plus Modified Alternative is expected to have **less than significant** impacts on steelhead, Chinook, and Pacific lamprey with beneficial effects for steelhead, Chinook, and Pacific lamprey rearing habitat and conditions for migration than the Project.

The WEAP model did not analyze conditions specifically for southern coastal roach or Sacramento hitch. Changes in steelhead habitat under FAHCE-Plus Modified Alternative were used as a surrogate to understand how operations under the Alternative would impact these species. Any changes associated with steelhead spawning and rearing habitat attributed to the Alternative would be similar for these species as they require similar conditions, but would also be a more conservative estimate of suitable habitat provided by the Alternative for Sacramento hitch and southern coastal roach because those species are a more tolerant and do not require the same water depths for spawning and rearing as steelhead. The amount of spawning and incubation habitat for these species under the Project may shift slightly downstream as compared to the Pre-FERC Order and future conditions baselines as these species prefer warmer conditions for spawning, but habitat would still be maintained. If Sacramento hitch are present in Anderson Reservoir post construction operations would not influence access to spawning habitat. Changes associated with the FAHCE-Plus Modified Alternative are expected to have **less-than-significant impacts** to Sacramento hitch and southern coastal roach.

The FAHCE-Plus operations would not result in any changes associated with any life stage of riffle sculpin, white sturgeon, green sturgeon, or longfin smelt. Riffle sculpin are not found in Coyote Creek downstream of Anderson Dam, so operational changes will have no impact. Longfin smelt, green sturgeon, and white sturgeon occur in the intertidal sloughs of the study area. These tidally influenced areas are over 25 miles from Anderson Dam. These species likely occur too far downstream to be impacted by the Project flow operations, given that ongoing monitoring indicates effects of flow operations are only clearly detectable through the downstream end of the CWMZ. The intertidal species' habitat is greatly influenced by tidal action and freshwater inputs from tributaries; therefore, any change in flow operations is likely muted and negligible by the time water from the reservoir reaches the intertidal zone. The FAHCE-Plus Modified Alternative would have less than significant impacts on longfin smelt, green sturgeon, and white sturgeon.

The FAHCE-Plus Modified Alternative would have a greater beneficial impact to fisheries than the Project.

Regarding cumulative impacts, like the Project, the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on fisheries resources. Cumulative impacts would be the less than the Project's cumulative impacts.

5.9.3.5 Biological Resources—Wildlife and Terrestrial Resources

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, there would be no substantial difference in impacts for wildlife and terrestrial resources between the FAHCE-Plus Modified Alternative and the Project as discussed in Section 3.5 *Biological Resources—Wildlife and Terrestrial Resources*, though minor differences in potential impacts on special-status amphibians, western pond turtles, and riparian habitat may occur and are discussed here.

Differences between the FAHCE-Plus Modified Alternative and the Project (which would implement FAHCE operations) would have very little effect on most terrestrial biological resources, as these differences would only affect terrestrial biological resources within and along the edges of the low-flow channel of Coyote Creek downstream from Anderson Dam.

The FAHCE-Plus Modified Alternative would not change winter base flows or summer releases as compared to the Project, and the winter base flow and cold water release programs would still provide flows of at least 1 cfs at the downstream end of the FCWMZ (the CWMZ after completion of the Ogier Ponds CM), bypass flows at Coyote Perc Pond of at least 7.5 cfs, and flows of at least 2.5 cfs as measured at Station 5058 at Edenvale. In addition, Valley Water modeling indicates that FAHCE-Plus Modified and FAHCE post-construction operations have less-than-significant impacts on groundwater recharge volume. Consequently, FAHCE-Plus modified post-construction base winter flows and summer releases are not expected to differ from Project impacts and are expected to be less than significant with respect to special-status species and sensitive habitats, including those constituting waters of the United States, waters of the State, and groundwater dependent habitats.

The primary difference in the FAHCE-Plus Modified Alternative and the Project entails higher fish attraction pulse flows (90 cfs) than under the Project's FAHCE flows (50 cfs); the pulse would last for a longer duration (10 days instead of 5 days); the pulse could occur December 1 – April 1 instead of February 1 – April 30; and attraction pulse flows could occur up to nine times/year (twice/month) instead of twice/year as under the Project. In addition, the FAHCE-Plus Modified Alternative would involve one or two additional safeguard pulses of 90 cfs between January 15 and March 31 and one or two outmigration pulses of 60 cfs between April 1 and May 31, neither of which would occur under the Project. The FAHCE Plus Modified alternative also includes the addition of a security pulse which may be released at the discretion of the OWG if conditions are met. Thus, flow rates during pulse flows could be higher, and could extend farther up the creek bank, under the FAHCE-Plus Modified Alternative than under the Project during these winter and spring pulses.

FAHCE-Plus Modified Alternative pulse flows would have no substantial impact on special-status amphibians. Very few California red-legged frogs occur in Coyote Creek downstream from Anderson Dam due to the absence of high-quality breeding habitat near this reach of the creek. Flow ramping would occur to manage changes in the rate of water flow in a slow, stepwise fashion, allowing frogs to move to more sheltered refugia as flow rates are increased. Ramping would occur whenever Valley Water-controlled flows would be increased or decreased by 25 percent or more from the existing flow condition. High flows may displace an occasional California red-legged frog along Coyote Creek downstream from Anderson Dam, and such changes in effects could impact a red-legged frog egg mass. However, flows high enough to result in such effects will occur very infrequently, and would occur slightly less frequently under post-construction operations than under pre-FOCP conditions. California tiger salamanders are unlikely to be in burrows so close to the creek that they would be adversely affected by spring pulse flows. Any salamanders subjected to such increases would be able to relocate to higher ground, especially if flow increases were great enough that ramping of flows would occur.

Similarly, FAHCE-Plus Modified Alternative pulse flows would have no substantial impacts on western pond turtles. Increased flow rates during pulse flows may cause turtles to disperse away from areas with higher flow velocities, but such pulse flows would not be very high, and flow ramping would occur to manage changes in the rate of water flow in a slow, stepwise fashion, allowing individuals to move to more sheltered refugia as flow rates are increased. FAHCE operations and other post-construction flows would not impact western pond turtle nests, which would be located above the floodplain.

Special-Status Plants

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impacts as the Project. Construction activities under both the Alternative and the Project could impact special-status plants through direct destruction, the spread of invasive plant propagules and pathogens, refilling of the reservoir where populations have colonized areas within the rim of the reservoir, and indirectly through dust that could coat plants interfering with normal gas exchange, photosynthesis, or pollination. Dust may also infect plants with *Phytophthora* within dust particles. Nitrogen emitted by construction vehicles and equipment may impact serpentine-associated special-status plants by fertilizing the soils and allowing nonnative grasses and forbs that would not otherwise be able to colonize.

Nine of the 12 special-status plants that could be impacted are VHP-covered species. General and serpentine impact fees would be used by the SCVHA to offset adverse impacts to the nine VHP-covered plant species. The potential for Phytophthora to be spread will be reduced via a Project-specific *Phytophthora* Pathogen Management and Monitoring Plan. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1a(1)** will manage invasive plants at ~~Valley Water's~~ Coyote Ridge population of Tiburon paintbrush by preventing the Project's nitrogen emissions from benefitting populations of invasive plants that would compete with Tiburon paintbrush. **Mitigation Measure TERR-1a(2)** will reduce the potential for spread of *Phytophthora*. **Mitigation Measures TERR-1a(3)** and **TERR-1a(4)** will survey for San Francisco collinsia in the previously unsurveyed portions of the Seismic Retrofit Area (to help quantify impacts on the species) and establishing a mitigation population commensurate with the population size. With implementation of BMPs, compliance with VHP conditions and AMMs, and **Mitigation Measures TERR-1a(1), TERR-1a(2), TERR-1a(3),** and **TERR-1a(4)** (all as fully described in Section 3.4, *Biological Resources—Wildlife and Terrestrial Resources*) Project impacts on special-status plants will be **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact to special-status plants as the Project.

Bay Checkerspot Butterfly, Monarch Butterfly, and Crotch's Bumble Bee

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impacts as the Project. Construction activities under both the Alternative and the Project would impact 2.6 acres of designated critical habitat for the Bay checkerspot butterfly, contribute to the cumulative effects of nitrogen deposition on serpentine grasslands, remove milkweed needed by monarch butterflies, destroy subterranean Crotch's bumble bee nests, clear vegetation that serves as pollen and nectar sources, and affect pollen and nectar sources through dust mobilization or changes in drainage patterns.

Special-status invertebrates would benefit from Valley Water's payment of VHP impact fees. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Implementation BMPs and compliance with VHP conditions would reduce impacts on the Bay checkerspot butterfly, monarch butterfly, and Crotch's bumble bee to a less-than-significant level. The FAHCE-Plus Modified Alternative would have the same impact to Bay Checkerspot Butterfly, Monarch Butterfly, and Crotch's Bumble Bee as the Project.

California tiger salamander, California red-legged frog, and foothill yellow-legged frog

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impacts as the Project. Construction activities under both the Alternative and the Project could result in direct take of special status amphibians, loss of habitat, increased predation from nighttime lighting, hazardous material spills, and spread of pathogens. Project impacts on the foothill yellow-legged frog are unlikely to occur therefore the Project would have a less-than-significant impact on this species.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1c(1)** provides additional avoidance and minimization during activities in the dewatered reservoir. **Mitigation Measure TERR-1c(2)** compensates for any impacts of fish locations to Upper Penitencia Creek by removing nonnative species that could affect special-status amphibians from Valley Water-owned properties in the Upper Penitencia Creek watershed. Implementation of VHP mitigation payments, BMPs, compliance with applicable VHP conditions, and **Mitigation Measures TERR-1c(1)** and **TERR-1c(2)** will reduce Project impacts on the California tiger salamander and California red-legged frog and reduce any adverse effects on the foothill yellow-legged frog that could occur to less than significant with mitigation. The FAHCE-Plus Modified Alternative would have the same impact to California tiger salamander, California red-legged frog, and foothill yellow-legged frog as the Project.

Western Pond Turtle

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impacts as the Project. Construction activities under both the Alternative and the Project could impact western pond turtle habitat and nests. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. The western pond turtle is covered by the VHP, and most of the activities that could impact this species (including post-construction operations under FAHCE rule curves) are explicitly VHP-covered. With implementation of BMPs, DMP measures, and compliance with the VHP, Project impacts on the western pond turtle would be less than significant. The FAHCE-Plus Modified Alternative would have the same impact to western pond turtle as the Project.

Bald Eagle and Golden Eagle

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impacts as the Project. Construction activities under both the Alternative and the Project could affect up to two pairs of bald eagles have nested near Anderson Reservoir in recent years and at least two golden eagle territories overlap the reservoir with recently occupied nests located 0.34 and 0.83 miles from the edge of the reservoir. Construction would impact foraging habitat and disturb nests. Following completion of construction, foraging habitat for the bald eagle would be enhanced as the reservoir is allowed to refill. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Valley Water would obtain a BGEPA permit from the USFWS to obtain authorization for the loss of any eagle productivity and would comply with permit conditions. **Mitigation Measure TERR-1e** implements additional AMMs to minimize impacts on nesting eagles. With implementation of BMPs, DMP measures, compliance with the VHP and BGEPA permit conditions, and **Mitigation Measure TERR-1e**, Project impacts on bald eagle and golden eagle will be **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact to bald eagle and golden eagle as the Project.

Tricolored Blackbird, Yellow Warbler, White-tailed Kite, Northern Harrier, and Other Breeding Birds

A variety of bird species protected by the MBTA and Fish and Game Code breed, forage, and roost in the Project Area. Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impacts as the Project. Construction activities under both the Alternative and the Project could result in the physical disturbance or destruction of active nests and affect the behavior of birds. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. With creek flow augmentation, groundwater monitoring, and dryback monitoring (with additional flow augmentation, and payment of VHP impact fees for impacted wetland and riparian habitat, as necessary), implementation of BMPs, DMP measures, and compliance with VHP conditions impacts on nesting special-status and nonspecial-status birds would be **less than significant**. The FAHCE-Plus Modified Alternative would have the same impact to protected breeding birds as the Project.

Nonbreeding special-status birds

Several special-status bird species including the Swainson’s hawk, burrowing owl, and peregrine falcon, are not known or expected to breed in any areas where they could be impacted by Project activities, but they could occur there as nonbreeding foragers, particularly during migration and in winter. Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impacts as the Project. Construction activities under both the Alternative and the Project could disturb foraging individuals, burrowing owls could be injured or killed if they are present in burrows when grading occurs, and construction activities could disturb roosting owls to the point of abandonment of their burrows. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1g** will identifies locations of burrowing owls prior to initiation of Project activities to avoid injury or mortality. With implementation of BMPs, DMP measures, compliance with the VHP conditions, and **Mitigation Measure TERR-1g**, Project impacts on nonbreeding special-status birds will be **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact to nonbreeding special-status birds as the Project.

Pallid Bat

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impacts as the Project. A maternity colony of the pallid bat has been located just outside of the Seismic Retrofit Area, in the Cochrane Road barn. This colony likely represents the largest and most stable colony of the species known in the county. Construction activities under both the Alternative and the Project would not result in direct impacts on the Cochrane Road barn; however, given the intensity of construction activities, which would include some nighttime work, and the extent to which foraging habitat on Anderson Dam would be disturbed during construction, it is possible that pallid bats may abandon the roost within the barn while construction is ongoing. If pallid bats abandon the roost during construction, they may return once construction has been completed. However, unless high-quality alternative roost sites are present in the vicinity, the population may decline before the bats can re-occupy the barn. When trees, structures, or rock outcrops containing roosting colonies or individual bats are removed or modified, individual bats could also be physically injured, killed, or subjected to physiological stress resulting from being disturbed during torpor. Construction activities would result in the short-term loss of foraging habitat as well as a temporary impact on foraging individuals through the alteration of foraging patterns.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1h(1)** will minimize construction activities near the barn. If buffers in **TERR-1h(1)** are not feasible, **Mitigation Measure TERR-1h(2)** will develop an eviction plan for pallid bats to be implemented if deemed necessary. **Mitigation Measure TERR-1h(3)** will minimize the potential for males and nonbreeding females outside the barn to be injured or killed during Project activities. **Mitigation Measure TERR-1h(4)** will provide temporary roosting sites near the Project during construction and additional permanent roosting sites if the roost population is not restored to at least 75 percent by three years following construction. With implementation of BMPs, DMP measures, compliance with the VHP conditions, and **Mitigation Measure TERR-1h(1)**, **TERR-1h(2)**, **TERR-1h(3)**, and **TERR-1h(4)**, Project impacts on pallid bats will be reduced. The Project could cause the number of females at this site to drop below 75 percent of existing numbers, and a substantial proportion of the regional population would have been affected. No other mitigation would be feasible to reduce this impact therefore the impact is **significant and unavoidable**. The FAHCE-Plus Modified Alternative would have the same impact to pallid bat as the Project.

Other special-status mammals

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impacts as the Project. The Project impact analysis addresses San Francisco dusky-footed woodrat, mountain lion, ringtail, American badger, Townsend's big-eared bat, and western red bat. San Francisco dusky-footed woodrat has been detected around Basalt Hill and likely resides in crevices there. Seismic retrofit construction would result in the loss of 43.2 acres of suitable habitat for the species. In addition, construction could result in the injury or mortality of individual woodrats and disturbance or destruction of nests and young. Construction and monitoring could disrupt the habitat of these species and their foraging. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. With implementation of BMPs, DMP measures, and compliance with the VHP conditions, Project impacts on special status mammals would be **less than significant.** The FAHCE-Plus Modified Alternative would have the same impact to California special-status mammals as the Project.

San Francisco Bay special-status species

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction phase operations impacts as the Project. Valley Water modeled potential effects of construction-period flows on tidal habitats along lower Coyote Creek and Coyote Slough. This modeling assumed that higher flows would be coupled with tide height equaling MHHW to represent the conditions that would occur if higher flows down Coyote Creek coincided with high tides. Modeling suggests that reservoir releases could result in increased frequency, depth, and/or duration of inundation of tidal marsh habitats far downstream from the dam. Such increased inundation would reduce the vegetative cover available to special-status species associated with San Francisco Bay tidal marshes, increasing predation of special-status tidal marsh animals that have to seek out more limited patches of vegetation that is not inundated. Such impacts would be infrequent and would occur only during the construction period but would be significant. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1j** requires contributing to predator management activities in the South Bay <u>and high tide refugia enhancement</u>, thereby offsetting increases in predation resulting from the Project for each year flows exceed 2,500 cfs. With implementation of BMPs, compliance with the VHP conditions, and **Mitigation Measure TERR-1j**, Project impacts on San Francisco Bay special-status species will be less than significant with mitigation. The FAHCE-Plus Modified Alternative would have the same impact to San Francisco Bay special-status species as the Project.

Riparian Habitat and Other Sensitive Natural Communities

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impacts to non-wetland other waters (perennial stream, intermittent stream, pond, and reservoir), and mixed riparian woodland and forest as the Project. (See **Table 3.5-15**). The Project will result in permanent impacts on a total of <u>20.79</u> ~~25.77~~ acres of mixed riparian woodland and forest and willow riparian forest and scrub, including <u>1.29</u> ~~4.14~~ acres from Seismic Retrofit construction and <u>19.50</u> ~~21.63~~ acres from Conservation Measures construction. Valley Water will pay VHP permanent impact fees for specialty land cover types to offset this impact. In addition, approximately 39.5 acres of riparian habitat will be restored as part of the Ogier Ponds CM. Therefore, the Project will result in a net increase in the acreage of riparian woodland, forest, and scrub habitat. This net increase will help to compensate for the temporal and permanent loss of riparian habitat acreage, linear footage and ecological functions and services.

Similarly, the Project will permanently impact a total of 15 acres of coast live oak woodland and forest, 11.2 acres of foothill pine-oak woodland, and 2.5 acres of mixed serpentine chaparral, mostly from Seismic Retrofit construction. VHP permanent impact fees to be paid by Valley Water for the Project include specialty fees for mixed riparian woodland and forest, willow riparian forest and scrub, and mixed serpentine chaparral, in addition to general land cover fees. The Project's impact fees would contribute directly to the conservation of sensitive natural communities, including not only these riparian and serpentine communities, but also the coast live oak woodland and forest, and foothill pine-oak woodland, land cover types that will be impacted by the Project.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Existing BMPs, DMP measures, and AMMs do not address the risk of introduction or spread of *Phytophthora*. **Mitigation Measure TERR-1a(2)** includes procedures to reduce the risk of *Phytophthora*. With implementation of BMPs, DMP measures, compliance with the VHP conditions, and **Mitigation Measure TERR-1a(2)**, Project impacts on riparian habitat and other natural communities will be less than significant with mitigation. The FAHCE-Plus Modified Alternative would have the same impact to riparian habitat as the Project.

Wetlands

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impacts to wetlands as the Project. Construction activities would result in the placement of fill, and related hydrological interruption, alteration of bed and bank on the acreages and linear footage of wetlands (coastal and valley freshwater marsh). The Project will result in permanent impacts to 4.2 acres of freshwater marsh, but in addition to paying VHP permanent wetlands impacts fees, the Ogier Ponds CM will create 4.5 acres of emergent freshwater marsh.

The Project will result in permanent impacts to 18 acres of reservoir (3 acres at Anderson Reservoir and 15 acres for the Ogier Ponds CM) and 2.32 acres of pond (.19 at Anderson Reservoir and 2.3 at Ogier Ponds (See **Table 3-15**). Valley Water will pay permanent impact fees for pond land cover type impacts, and loss of reservoir habitat is expected to be less than significant.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Valley Water will pay VHP impact fees for wetlands, other waters, and riparian habitats, which include specialty fees for these important land cover types. The Interagency Review Team, including USACE, CDFW, and the RWQCB, have approved the VHP as an In Lieu Fee Program for impacts to water of the United States and waters of the State. The implementation of these Conservation Measures more than offsets and compensates for the Project's net impacts on jurisdictional waters and wetlands.

Existing BMPs, DMP measures, SMP measures and AMMs do not address the risk of introduction or spread of *Phytophthora.* **Mitigation Measure TERR-1a(2)** includes procedures to reduce the risk of *Phytophthora.* With implementation of BMPs, DMP measures, SMP measures compliance with the VHP conditions, and **Mitigation Measure TERR-1a(2)**, Project impacts on wetlands will be **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact to wetlands as the Project.

Wildlife Corridors

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impact to wildlife corridors as the Project**.** Seismic retrofit construction would have both adverse and beneficial effects, all temporary, on wildlife movement. Construction activities, especially nighttime activities, could disrupt wildlife movement. Although Project activities may temporarily affect wildlife movement during construction, animals would still be able to move through the Project Area during construction, and the drained reservoir improves wildlife movement in the area around the reservoir. No long-term impacts on wildlife movement would result from the Project. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. With implementation of BMPs, DMP measures, and compliance with the VHP conditions, Project impacts on wildlife movement would be **less than significant.** However, considering the impacts to pallid bats discussed about, the Project would have a **significant and unavoidable** impact to wildlife nursery sites. The FAHCE-Plus Modified Alternative would have the same impact to wildlife corridors as the Project.

Tree Ordinance

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same construction impact to trees preserved by ordinance as the Project. Seismic Retrofit construction would result in the removal of approximately 270 ordinance-sized trees. The Ogier Ponds CM and Coyote Percolation Dam CMs, and the North Channel Extension improvements would result in the removal of 40 trees protected by County tree removal regulations. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Valley Water is exempt from compliance with the County tree ordinance under either Government Code sections 53091(d) and (e) (which state that County or City building and zoning ordinances do not apply to the construction of facilities for water storage or transmission) meaning there would be **no impact**. Nevertheless, recognizing the importance of protected trees to the County and the terms of the County ordinance, Valley Water will implement **Mitigation Measure AES-1**, calling for the planting of replacement trees removed on County Park land. The FAHCE-Plus Modified Alternative would have the same impact to tree ordinances as the Project.

Conflict with Habitat Conservation Plan/Natural Community Conservation Plan

Because the FAHCE-Plus Modified Alternative only affects post-construction flow operations, it would result in the same effects on implementation of the VHP as the Project. Valley Water is a signatory on one conservation plan: the VHP, which is an HCP and NCCP for terrestrial species and related habitats. As described in *Project Description*, the VHP explicitly included the Project in its list of covered activities, and most impacts of the Project were included in the VHP's analysis of the effects of covered activities. Valley Water would apply for VHP coverage for the Project and adhere to all applicable VHP Conditions during Project implementation. Therefore, the Project would not conflict with the VHP. The impact is **less than significant**. The FAHCE-Plus Modified Alternative would have the same impact to HCP/NCCP compliance as the Project.

Mitigation Measures

TERR-1a(1) Invasive Plant Management at Coyote Ridge Valley Water's Tiburon Paintbrush Populations Population

TERR-1a(2) Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of Phytophthora

TERR-1a(3) Special-Status Plant Survey in the Previously Unsurveyed Portions of the Seismic Retrofit Are

TERR-1a(4) Seed Collection and Creation of a New Population of San Francisco Collinsia Conservation Measures

TERR-1c(1) Special-Status Species Avoidance and Minimization Measures During Year 6 Reservoir Dewatering

TERR-1c(2) Nonnative Species Management in Upper Penitencia Creek Watershed

TERR-1e Nesting Eagle Avoidance and Minimization Measures

TERR-1g Burrowing Owl Impact Avoidance

TERR-1h(1) Avoid Disturbance of the Cochrane Road Barn Roost

TERR-1h(2) Evict Pallid Bats prior to Initiating Maternity-Season Disturbance near the Cochrane Road Barn Roost

TERR-1h(3) Minimize Impacts on Pallid Bats Roosting Outside the Cochrane Road Barn

TERR-1h(4) Provide Alternative Pallid Bat Maternity Roost Structures

TERR-1j Contribution to Baylands Predator Management and High Tide Refugia Enhancement

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **cumulatively considerable** impacts on pallid bats and the pallid bat nursery site, but **not cumulatively considerable** impacts on other wildlife species and habitats. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.6 Cultural Resources

The FAHCE-Plus Modified Alternative would have the same impacts to cultural resources as described in Section 3.6, *Cultural Resources*.

Historic Resources

The Rhoades Ranch Historic District is near the Seismic Retrofit area, but there would be no direct impact on the historical resource. Dust and noise from construction would cause minor impacts; however, they would be temporary and would not alter the elements that contribute to the significance of the resource. The Coyote Percolation Dam, which is a contributing element to the Santa Clara Valley Water District Dams Historic District, is in the construction limits of the Phase 2 Coyote Percolation Dam CM. However, implementation of this Conservation Measure would have no impact on the dam because, prior to Project implementation, the resource will have been demolished and replaced by an inflatable bladder dam as part of FOCP. Therefore, the FAHCE-Plus Modified Alternative will have a **less-than-significant impact** to the built environment historical resources. The alternative would have the same impact as the Project.

Archeological Resources

Archaeological resources that have been determined to be eligible for listing for the NRHP/CRHR through formal evaluation, or that have not been formally evaluated but are assumed eligible for the purpose of this analysis, are in the Seismic Retrofit Project Area, and within the boundaries of the Ogier Ponds CM and the Phase 2 Coyote Percolation Dam CM. Ground disturbance during construction at archaeological resources in both the Seismic Retrofit construction area and the Ogier Ponds CM areas could have significantly impact elements of sites that contribute to their NRHP/CRHR-eligibility. In addition, erosion and recreational power boating within Anderson Reservoir related to the operation of the Seismic Retrofit component of the Project could create wave action along the exposed shoreline of the reservoir as the reservoir is refilled after Project completion, during the regular rise and fall of the reservoir due to Project operation and the resumption of recreational boating. These actions may erode archaeological historical resources and displace the artifacts within them.

BMP-CUL-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) will require that work will cease in areas where archaeological materials are discovered during construction until the finds can be analyzed and evaluated for NRHP/CRHR-eligibility, and that any eligible resources either be avoided or subject to data recovery studies. **Mitigation Measure CR-1** (Preconstruction Cultural Resources Awareness Training) will provide construction workers with awareness training about the nature of archaeological materials that might be discovered during ground disturbing activities and the protocols to be followed, should they be found. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided) will develop and implement a Data Recovery and Treatment Plan for archaeological resources that cannot be avoided. Lastly, **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will require an archaeological and tribal monitor in areas sensitive for cultural resources during Project construction, the monitoring of sensitive areas during Project operations, and will implement protocols of the Monitoring and Unanticipated Discoveries Plan should archaeological materials be discovered. With implementation of these mitigation measures, substantial adverse changes in the significance of an archaeological resource would not occur, and significant impacts to archaeological historical resources within the Project areas would be reduced to **less than significant through mitigation**. The alternative would have the same impact on archeological resources as the Project.

Human Remains

Two archaeological sites with human remains and one with a high potential to contain as-yet unidentified human remains are known to exist within Anderson Reservoir. All three of these sites in the reservoir could be damaged by erosion from fluctuating water levels during Seismic Retrofit operations and wave action caused by power boating. Therefore, Project impacts on disturbance of human remains would be significant. Compliance with Health and Safety Code section 7050.5 and PRC section 5097.98 would reduce impacts related to disturbance of human remains and **Mitigation Measures CR-1, CR-2, and CR-3** will reduce impacts to disturbing human remains to **less than significant with mitigation**. The alternative would have the same impact to disturbance of human remains as the Project with greater activities around Anderson Reservoir.

Mitigation Measures

CR-1 Preconstruction Cultural Resources Awareness Training

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on cultural resources. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.7 Energy

The FAHCE-Plus Modified Alternative would result in the same energy related impacts as described is Section 3.7, *Energy*.

Energy Consumption

Construction of the Seismic Retrofit and Conservation Measures components would consume approximately 17,842,000 21,150 thousand gallons of diesel and 780,000 2,103 thousand gallons of gasoline and result in increased demand on local and regional infrastructure. However, compared to the northern California region's annual average production of fuel over the 5-year period of 2018-2022, the total annual average energy demand of the Project be approximately 0.01 0.03 percent of the region's gasoline production throughput and approximately 0.75 0.89 percent of the region's diesel production throughput (CEC 2023). The impacts of Project construction on local and regional fuel supplies would be temporary and minimal.

Although the energy related impact is less than significant, the Project will implement **Mitigation Measures AQ-1** and **GHG-1** to address air quality and greenhouse gas emission impacts. These measures will further minimize Project energy impacts by increasing the efficiency of energy usage and decreasing the amount of non-renewable energy usage during construction. **Mitigation Measure AQ-1** requires all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and will require all on-road truck engines and boats to be year-2010 or newer and minimizes construction equipment idling time and requires regular maintenance for all equipment. **Mitigation Measure GHG-1** requires engine electrification and use of renewable fuels as feasible.

Project construction would utilize fuel-efficient equipment consistent with State and federal regulations and would comply with State measures to reduce the inefficient, wasteful, or unnecessary consumption of energy. Per applicable regulatory requirements of CALGreen, Project construction activities would comply with construction waste management practices to divert construction and demolition debris from landfills. These practices would result in efficient use of energy by Project construction. The FAHCE-Plus Modified Alternative's impact on energy use would be **less than significant impact with mitigation**. The alternative would have the same impact on energy use as the Project.

State and Local Efficiency Plans

Project construction would be consistent with renewable energy and energy efficiency targets, standards, and guidance included in California Green Building Standards Code (CALGreen or Title 24 Part 11), California Building Energy Efficiency Standards (Title 24 Part 6), SB 100, Valley Water CCAP, Santa Clara County General Plan, Santa Clara County Sustainability Master Plan, Morgan Hill 2035 General Plan, and Envision San José 2040 General Plan with implementation of **Mitigation Measures AQ-1** and **GHG-1**. Project operation related to equipment and vehicle energy use would be consistent with these regulations and plans without mitigation. Therefore, Project construction and operation would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and overall impacts would be less than significant with mitigation. The FAHCE-Plus Modified Alternative's impact on energy use would be **less than significant impact with mitigation**. The alternative would have the same impact on energy use as the Project.

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on due to wasteful, inefficient, or unnecessary consumption of energy. The FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts related to conflict or obstruction of renewable energy and energy efficiency plans. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.8 Geology and Soils

The FAHCE-Plus Modified Alternative would have the same impacts on geology and soils as described in Section 3.8, *Geology and Soils*.

Fault Rupture and Shaking

The nearby active Calaveras fault lies just east of Anderson Reservoir, and the active Coyote Creek Range fault transects Anderson Dam. However, construction and operation of the Project would not exacerbate the risk of fault rupture. The reservoir is not deep enough to cause RIS, vibrations associated with blasting and tunneling activities would not affect the earth at depths of where the underlying faults are locked (URS 2022), and no Project-related actions would increase the likelihood of seismic activity and associated surface fault rupture. As the Project would not increase the likelihood of an earthquake, exacerbate the likelihood of surface fault rupture, or increase the likelihood of seismic ground shaking in the Project area the FAHCE-Plus Modified Alternative would have **no impact** on seismic related hazards. The FAHCE-Plus Modified Alternative would have the same impact as the Project.

Liquefaction

The Project is in an area susceptible to liquefaction. Placement of dam materials could increase the load on liquefiable soils, which may densify and settle during an earthquake. Placement of structures associated with the Conservation Measures, namely the levee at Ogier Ponds and the fish ramp at the Coyote Percolation Pond on liquefiable soils could exacerbate liquefaction hazards in those areas. The impact from liquefaction would be **less than significant**. The FAHCE-Plus Modified Alternative would have the same impact as the Project.

Landslides

Anderson Dam is in a mountainous area with steep slopes and unstable ground conditions that are susceptible to landslides due to faults and historic landslides that predate the reservoir. Ground disturbance associated with construction of the seismic retrofit of Anderson Dam, including drawdown of the reservoir, construction of stockpiles near landslides, removal of materials from the BHBA and the PGBS, and refilling of the reservoir could exacerbate likelihood of landslide, lateral spreading, and settlement by destabilizing landslide deposits. Excavation associated with the North Channel Extension conservation measure would occur near slopes that are mapped by CGS (2004) as susceptible to landslide. Excavation and construction of new stream channels associated with the Ogier Ponds CM North Channel Extension, and Phase 2 Coyote Percolation Dam CM into liquefiable soils could increase risk of lateral spreading. All construction activities would be performed in accordance with DSOD, IBC, and CBC standards as applicable. In addition, Valley Water would continue to monitor slope stability and landslide movement through installed survey monuments and satellite reflectors within the reservoir as part of its normal operations. Valley Water implemented the Reservoir Bank and Rim Stability Mitigation and Monitoring Plan, Dewatering and Sediment Management Plan, and Slope Stability Plan. All these measures serve to reduce any landslide risks by taking action to minimize soil instability and monitoring for signs of land movement. The Project will also implement **Mitigation Measure GEO-1** (Repair Landslides Caused by Construction Activities) to reduce the risk of landslide, as such the Project's landslide risk is **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact as the Project.

Soil Erosion

Excavation and ground-disturbing activities associated with construction of the Project could result in soil erosion or the loss of topsoil. Such activities include clearing and preparing staging and stockpile areas; constructing, using, and maintaining stockpiles; excavating materials at borrow sites and conservation measures sites; placing sediment; and constructing and using unpaved roads. For construction activities outside of the reservoir, the The Project would implement a SWPPP in compliance with the Construction General Permit, and a set of erosion control BMPs (BMPs GEN-20, GEN-21, WQ-4, WQ-5, BI-3, BI-8, WQ-9, AQ-1, BANK-1, and REVEG-1) to minimize erosion around stockpiled soils and staging areas, stabilizing construction entrances and exits, removing any temporary fills, restoring the site to its pre-construction condition, and reducing fugitive dust. With adherence to requirements of the SWPPP and BMPs for out-of-reservoir construction activities, substantial soil erosion or loss of topsoil resulting from the projects would be **less than significant.** While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and

<u>Project construction, and implementation of BMPs to control sediment associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.</u> The FAHCE-Plus Modified Alternative would have the same impact as the Project.

Paleontological Resources

Santa Clara Valley is known for yielding significant fossils from alluvium (Maguire and Holroyd 2016). In addition, other geologic units of Pleistocene age and older in the county are documented to have yielded significant fossils, including vertebrate fossils. One of these is the Santa Clara Formation in the Project area known locally as the Packwood Gravels. Excavation and ground-disturbing activities associated with Seismic Retrofit construction occurring in regions underlain by the Santa Clara Formation could expose paleontological resources. In addition, higher peak flows released from Anderson Dam during Project operation could increase risk of erosion downstream, which could increase risk of erosion uncovering significant paleontological resources and removing them from the original context, thereby potentially reducing their scientific significance. Excavation and ground-disturbing activities associated with the Project could expose paleontological resources. The Project would implement **Mitigation Measure GEO-3** (Paleontological Initial Survey), **Mitigation Measure GEO-4** (Paleontological Detailed Survey and Construction Monitoring), and **Mitigation Measure GEO-5** (Paleontological Discoveries Treatment Plan) that would require a pre-construction survey, construction monitoring, and plan for discovery of resources. The Project's impact on paleontological resource would **be less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact as the Project.

Mitigation Measures

GEO-1 Prepare a Geotechnical Investigation for Landslide Risk and Implement Recommendations

GEO-2 Prepare a Geotechnical Investigation for Lateral Spreading Risk and Implement Recommendations

GEO-3 Paleontological Initial Survey

GEO-4 Paleontological Detailed Survey and Construction Monitoring

GEO-5 Paleontological Discoveries Treatment Plan

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on geology and soils. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.9 Greenhouse Gas Emissions

The FAHCE-Plus Modified Alternative would have the same impacts on GHG emissions as described in Section 3.9, *Greenhouse Gas Emissions*.

Greenhouse Gas Emissions

Project construction would generate approximately 186,966 235,240 MT CO_2e of GHG emissions, which is a significant impact. Project operation would result in negligible generation of GHG emissions. Implementation of **Mitigation Measure GHG-1** will require Valley Water and/or its contractor to implement construction-related GHG emission reduction measures, such as using zero-emission and hybrid-powered equipment, minimizing idling time, using renewable diesel fuel, using USEPA SmartWay certified trucks, requiring proper maintenance of construction equipment, encouraging and providing carpool, transit, and alternative modes of transportation, recycling or salvaging nonhazardous debris, and efficiently using water. Implementation of **Mitigation Measure GHG-2** will require Valley Water to offset GHG emissions purchase carbon offsets before construction activities commence in an amount sufficient to reduce any GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. With implementation of **Mitigation Measures GHG-1** and **GHG-2**, Project construction GHG emissions impacts will be **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact of greenhouse gas emissions as the Project.

GHG Plans

Project construction will be consistent with SB 32, AB 1279, the 2022 Scoping Plan, the Valley Water CCAP, the Morgan Hill CAP, and Climate Smart San José with implementation of **Mitigation Measures GHG-1** and **GHG-2**. Project operation would not conflict with these GHG reduction policies and plans without mitigation. Therefore, the Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions, and overall impacts would be **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact to GHG reduction plans as the Project.

Mitigation Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

GHG-2 Purchase Carbon Offsets Offset GHG Emissions Prior to and During Construction

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on GHG emissions. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.10 Hazards and Hazardous Materials

The FAHCE-Plus Modified Alternative would have the same impacts to hazardous material as described in Section 3.10, *Hazards and Hazardous Materials*.

Use and Accidental Release of Hazardous Material

During the construction of the Seismic Retrofit and Conservation Measures, hazardous materials commonly associated with construction activities (e.g., gasoline, diesel fuel, paints, solvents, hydraulic fluid) would be present and handled onsite, as well as transported to and from the Project Area and would create impacts if accidentally released. These materials would be primarily found within construction equipment but may also be stored onsite at the staging areas, and transported, as necessary, to work areas. NOA is known to be present in the rock types that underlay much of the dam and spillway area. Excavation of serpentinite and other materials containing NOA could expose the public and construction workers to airborne asbestos, which would be a significant impact.

The Project project is required to comply with federal, State, and local laws, regulations, and policies designed to minimize hazardous materials impacts to the public and environment. The Project would implement Valley Water BMPs (HM-7, HM-8, WQ-6, WQ-17) to minimize the chance of release of hazardous materials. For Seismic Retrofit construction, compliance with BAAQMD's ATCM for Construction, and BMP-AQ-1 and BMP HM-13, would minimize potential impacts from NOA. The implementation of **Mitigation Measure HAZ-1** (Construction and Grading Operations Dust Control Measures), **Mitigation Measure HAZ-2** (Track Out Control Measures for Roads from NOA-Containing Areas), **Mitigation Measure HAZ-3** (Traffic Control Measures within NOA-Containing Construction Areas), **Mitigation Measure HAZ-4** (Dust Control Measures During Earthmoving Activities), **Mitigation Measure HAZ-5** (Dust Control Measures During Tunneling Activities), and **Mitigation Measure HAZ-6** (Separation of Rock Containing NOA) will reduce the Project's impact from hazardous material to **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact as the Project to hazardous material.

Sensitive Receptors

The William F. James Boys Ranch (Boys Ranch) is located within 0.11 miles of Anderson Dam, which is considered a sensitive receptor for hazardous materials. During construction compliance with BAAQMD's ATCM for Construction, and BMP-AQ-1 and BMP HM-13, would minimize potential impacts from NOA. The implementation of **MM HAZ-1 through HAZ-6** and **Mitigation Measure HAZ-7** (Soil Testing and Proper Disposal of Potentially Contaminated Soils) will reduce the Project's impact to sensitive receptors **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact as the Project to sensitive receptors.

Discovery of Hazardous Materials

Based on a review of readily available public information for the Project Area, no listed hazardous materials sites or existing hazardous material contamination are present within the Project Area. Nevertheless, there is potential to discover unknown hazardous materials sites during construction activities, which would be a significant impact. Implementation of BMP HM-9 would include measures for proper handling, storage, and disposal of hazardous materials and **Mitigation Measure HAZ-7** will minimize impacts to the public or environment should unknown contaminants or contaminated soil be encountered during construction activities. The Project's impact on the discovery of hazardous materials is **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact as the Project to hazardous waste sites.

Emergency Response or Evacuation Plan

Construction would involve operation of large construction equipment, transport and storage of construction materials, and worker commute trips to and from the area, which could impede movement and access of emergency response vehicles or interfere with evacuation procedures, which would be a significant impact. Cochrane Road between Coyote Road and Malaguerra Avenue (or portions of this segment) would be closed to through traffic for varying durations throughout the construction period. Implementation of BMP TR-1, PS-AMM-2, **Mitigation Measure PS-1** (Prepare and Implement Traffic Management Plan) which requires the preparation and implementation of a TMP, and **Mitigation Measure WF-1,** which requires coordination with local and state emergency response and fire agencies and preparation of a Response and Evacuation Strategy, which will maintain adequate emergency response and identify and maintain evacuation routes, that all emergency response agencies are notified in advance of all lane and road closures and that evacuation routes are passable or alternate routes are available will reduce impacts on emergency response to less-than-significant levels. Impacts related to impairing implementation of or interfering with an adopted emergency response plan or emergency evacuation routes and plans would be **less than significant with mitigation.** The FAHCE-Plus Modified Alternative would have the same impact as the Project on emergency response.

Valley Fever

As discussed in Section 3.10.1.6, *Valley Fever*, construction activities have the potential to release the soil-dwelling fungus (Coccidioides) that can cause Valley Fever. Such a release could pose a hazard to construction workers and/or the public, which would be a significant impact. BAAQMD’s ATCM for Construction, BMP-AQ-1, and **Mitigation Measures HAZ-1** through **HAZ-5** will implement dust control measures to minimize potential impacts from Valley Fever. The risk of Valley Fever is **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact as the Project related to Valley Fever.

Mitigation Measures

HAZ-1 Construction and Grading Operations Dust Control Measures

HAZ-2 Track Out Control Measures for Roads from NOA-Containing Areas

HAZ-3 Traffic Control Measures within NOA-Containing Construction Areas

HAZ-4 Dust Control Measures During Earthmoving Activities

HAZ-5 Dust Control Measures During Tunneling Activities

HAZ-6 Separation of Rock Containing NOA

HAZ-7 Soil Testing and Proper Disposal of Potentially Contaminated Soils

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on hazards and hazardous materials related to reasonably foreseeable upset or accident conditions, emission of hazardous materials within one-quarter mile of a school, a site included on a list of hazardous materials sites, and Valley Fever. The FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts related to routine transport, use, or disposal of hazardous materials and impairment or interference with an emergency response or evacuation plan. Cumulative impacts would be the same as the Project’s cumulative impacts.

5.9.3.11 Hydrology

The FAHCE-Plus Modified Alternative would have the same impacts on hydrology as described in Section 3.11, *Hydrology*. The FAHCE-Plus Modified Alternative modifies ~~the summer base flows and~~ pulse flows from the FAHCE rule curves as discussed in Section 5.5.3. These modifications affect normal baseflows that do not cause flooding, and pulse flows up to 90 cfs that may inundate some trails adjacent to Coyote Creek (see discussion in Section 3.18, *Recreation*) but are otherwise normal flow parameter of the creek and do not cause substantial downstream flooding.

Erosion

The Project would discharge large volumes of sediment following storms while the reservoir is dewatered given the exposure of sediments previously inundated on the bottom of Anderson Reservoir and the limited capacity to store water behind the coffer dam during construction. Construction and maintenance associated with the various components have the potential to loosen materials that could be washed downstream, thus contributing to accelerated rates of erosion and sedimentation. **Mitigation Measure WQ-1** requires evaluation of the water quality monitoring data collected during construction and implementation of BMPs to address and control sediment associated with in-reservoir construction activities to the extent technically feasible in accordance with the CWA and Porter-Cologne Water Quality Control Act requirements; however, impacts would remain significant even with implementation of **Mitigation Measure WQ-1**. However, because addition mitigation is not available to decrease the magnitude of the impact to a less-than-significant level, erosion to Coyote Creek from sediments on the bottom of Anderson Reservoir is **significant and unavoidable**.

~~Implementation~~ For construction activities outside of the reservoir, implementation of a SWPPP and erosion control BMPs such as: BMP AQ-1 (Use Dust Control Measures), BMP WQ-4 (Limit Impacts From Staging and Stockpiling Materials), BMP WQ-1 (Conduct Work from Top of Bank), BMP WQ-2 (Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms), BMP WQ-5 (Stabilize Construction Entrances and Exits), BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-10 (Prevent Scour Downstream of Sediment Removal), BMP WQ-11 (Maintain Clean Conditions at Work Sites), BMP WQ-16 (Prevent Stormwater Pollution) would reduce erosion and sedimentation. With the SWPPP and BMPs for out-of-reservoir construction activities, the impact of erosion aside from reduced sediment being carried downstream during certain-sized storm events would be **less than significant**. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. ~~However, erosion to Coyote Creek from sediments on the bottom of Anderson Reservoir is **significant and unavoidable**.~~ The FAHCE-Plus Modified Alternative would have the same impact as the Project on sedimentation.

Runoff

Project construction and maintenance activities would involve denuding areas of vegetation to create access or stable surfaces, which reduce the capacity of these areas to absorb water and slow runoff. Utilization of areas by heavy equipment during construction would compact soils, making the ground surface harder and less conducive to infiltration of water to soil or groundwater. The Seismic Retrofit components of the Project would create relatively minor amounts of new impervious surface (widened/expanded existing roadways). Compliance with the SWPPP and erosion control BMPs for out-of-reservoir construction would assure that surface runoff would be **less than significant**. The FAHCE-Plus Modified Alternative would have the same impact as the Project on runoff.

Surface Runoff

Due to the use of hazardous materials (e.g., fuel, oil, lubricants, etc. in construction equipment), there would be potential for discharge of polluted runoff if such materials were handled, stored, or disposed of improperly and/or if any accidental releases of such materials were to occur. The SWPPP, which would be implemented for out-of-reservoir construction, includes good housekeeping measures for: construction materials, waste management, and potential pollutant sources. Additional, BMPs will reduce potential impacts associated with hazardous materials releases: 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). These BMPs will include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites and providing training spill cleanup materials for field personnel. The Project would have a less-than-significant impact on polluted runoff. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. The FAHCE-Plus Modified Alternative would have the same impact as the Project on polluted runoff.

Flooding

During construction of the Seismic Retrofit component, there would be increased potential for flooding (i.e., higher flows could occur in Coyote Creek more frequently during storm events) relative to the existing conditions baseline for flows under the 50-year return period (approximately 4,000 cfs–5,000 cfs); however, this flooding risk would be largely reduced relative to Pre-FERC Order Conditions and would not result in widespread, damaging floods. During the post-construction period, flooding risk associated with operation of the dam would be reduced relative to the Pre-FERC Order Conditions Baseline. The impact from flooding would be **less than significant.** The FAHCE-Plus Modified Alternative would have the same impact as the Project on flooding.

Dam Inundation

The objective of the Project is to reduce the long-term risk of flooding from dam failure. Construction of the Seismic Retrofit components would not directly increase the risk of flooding due to dam failure but could potentially exacerbate the impacts from a failure of Coyote Dam, which is located upstream of Anderson Dam and is also susceptible to seismic risks. Risk of flooding from dam failure increases marginally during construction of the Seismic Retrofit but is minimized through winterization measures in the wet season while the crest of the dam is lowered. A restriction has been in place for Coyote Reservoir since 1992, limiting storage in this reservoir 52.5 percent of total capacity. If Coyote Dam were to fail, the downstream effects would be reduced by the presence of Anderson Reservoir, which itself has been under a restriction since 2009. During Seismic Retrofit construction, each interim reservoir at the end of each construction season would have capacity that exceeds the capacity of Coyote reservoir. Additionally, the seismic retrofit of Anderson Dam would not exacerbate the risk of failure of Coyote Dam or increase potential downstream flooding compared to existing conditions. In addition, the storage restriction on Coyote Reservoir limits the potential effects of severe damage to the dam from an earthquake and the possibility of uncontrolled flows. With restricted capacity the possibility of water overtopping damage caused by an earthquake is nearly completed avoided. Given the very low probability of dam failure, which would require a major earthquake in close proximity to Coyote Reservoir following a wet period that fills the reservoir beyond its capacity to release high flow, the Project's impact on risk from dam inundation is **less than significant**. The FAHCE-Plus Modified Alternative would have the same impact as the Project on flooding from dam inundation.

Mitigation Measures

WQ-1 Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan

Regarding cumulative impacts, like the Project, the FAHCE-plus Modified Alternative would have **cumulatively considerable** impacts on erosion and sedimentation, but **not cumulatively considerable** impacts on flooding, polluted runoff, or risk from dam failure. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.12 Groundwater Resources

The FAHCE-Plus Enhance Alternative would have the same impact on groundwater as described in Section 3.12, *Groundwater Resources*. Flow and pulse changes in the FAHCE-Plus Modified scenario would not alter the ability to provide groundwater recharge or groundwater quality. Extra pulses may use more stored water from the reservoir, but modeling shows that it would not have a substantial impact of Coyote Valley groundwater levels.

Groundwater Supply

The loss of storage in Anderson Reservoir would greatly limit the amount of water that could be released from reservoir for the purpose of groundwater recharge along Coyote Creek. Seismic Retrofit construction would not substantially affect groundwater storage and supplies or recharge, as WEAP modeling has shown that groundwater storage in the Coyote Valley would remain above the 5,000 GWMP outcome measure, given implementation of imported water releases in Coyote Creek. Impacts to groundwater recharge would be **less than significant**. The

FAHCE-Plus Modified Alternative would have a slightly greater impact than the Project on groundwater recharge as more water would be used for pulses that cannot be captured through in-channel recharged.

The dewatering of Anderson Reservoir during the 7-year Seismic Retrofit construction period could impact nearby wells outside of the groundwater basin and managed aquifer; however, this impact will be reduced to less than significant with implementation of **Mitigation Measure GW-1** (Provide Alternative Supplies). As such, the impact to surrounding wells will be **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact as the Project on wells around Anderson.

Groundwater Quality

Construction equipment to be used during construction and maintenance activities would contain hazardous materials, such as fuel, oil, lubricants, etc. that can degrade groundwater quality if spilled or improperly handled. Implementation of a SWPPP for construction activities outside the reservoir, and hazardous materials BMPs including BMPs HM-7, HM-8, HM-9, and HM-10, which will include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites and providing training and spill cleanup materials for field personnel will reduce impacts to groundwater quality to **less than significant**. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Blasting at the BHBA could release perchlorates and various other water-soluble nitrogen-compounds during the use of explosives. The risk from perchlorates and other water-soluble nitrogen-compounds is primarily in relation to groundwater. Perchlorate salts are highly soluble in water and sorbs poorly to mineral surfaces and organic material; therefore, it is typically very mobile in surface water and groundwater. It is persistent in the environment and at high enough concentrations can affect thyroid gland functions. The risk of groundwater contamination from perchlorates will be minimized by **Mitigation Measure GW-2** (Pollutants from Blasting Activities) which includes a set of BMPs for the proper use and disposal of perchlorate. The impact to groundwater quality is less than significant with mitigation and the FAHCE-Plus Modified Alternative would have the same impact as the Project on groundwater quality.

The reduction in groundwater levels in the area immediately surrounding Anderson Reservoir could adversely affect groundwater quality in this area; however, these effects would be temporary and the impacts on well owners will be reduced to less-than-significant levels through implementation of **Mitigation Measure GW-1 (**Provide Alternative Supplies). The FAHCE-Plus Modified Alternative would have the same impact as the Project on local well groundwater quality.

Groundwater Plans

As described in Section 3.12.1.2, the San Francisco Bay Basin Plan identifies beneficial uses for groundwater within the San Francisco Bay region and establishes narrative and numerical WQOs to achieve the beneficial uses for those waters. Valley Water's GWMP for the Santa Clara and Llagas Subbasins (Valley Water 2021) describes a comprehensive groundwater management framework, including existing and potential actions to achieve basin sustainability goals and ensure continued sustainable groundwater management. As discussed above, the Project will not substantially affect groundwater quantity or quality and with **Mitigation Measure GW-1** will not impact well owners around Anderson Reservoir. As such, Project impacts on groundwater plans would be **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact as the Project on groundwater plans.

Mitigation Measures

GW-1 Provide Alternative Supplies

GW-2 Implement Perchlorate Best Management Practices

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts groundwater resources. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.13 Water Supply

The FAHCE-Plus Enhance Alternative would have the similar impacts on water supply as described in Section 3.13, *Water Supply*. Flow and pulse changes in the FAHCE-Plus Modified scenario would use more water from the reservoir than in the FAHCE rules, but modeling indicates this would not have a substantial effect on overall water supplies.

Water Supply

During the Seismic Retrofit component construction, Anderson Reservoir would be almost completely dewatered which would limit supplies available for groundwater recharge and water supply. Modeling results indicate that there may be a reduction in groundwater recharge and storage downstream of the dam during construction, but that simulated groundwater storage would remain above the 5,000 AF outcome measure for Coyote Valley. With increased imported water releases, WEAP modeling has indicated that no significant impacts would occur to water supply conditions during the Seismic Retrofit construction period. Once Project construction has been completed, releases from the dam would be made in accordance with the FAHCE operating rule curves. The Project would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources, and this impact would be **less than significant**. The FAHCE-Plus Modified Alternative would have a similar impact on water supply as the Project.

Water Supply Infrastructure

No new water supplies facilities would be required due to construction and operation of the Project. Restoring the full capacity of Anderson Reservoir would support Valley Water's water supply portfolio. No new or expanded private wells along the rim of the reservoir will be constructed due to water table effects with implementation of **Mitigation Measure GW-1**. Additionally, implementation of **Mitigation Measure GW-2** will avoid any impacts on groundwater quality from blasting activities. Therefore, the water facility impact will be **less**

than significant with mitigation. The FAHCE-Plus Modified Alternative would have the same impacts on water supply facilities as the Project.

Mitigation Measures

GW-1 Provide Alternative Water Supplies

GW-2 Implement Perchlorate Best Management Practices

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on water supply. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.14 Water Quality

The FAHCE-Plus Modified Alternative would have similar impacts to water quality as described in Section 3.14, *Water Quality*. The revised flow and pulse rules would support fisheries in the creek would not directly affect water quality parameters but are designed to better support the beneficial uses of Coyote Creek.

In-Reservoir Water Quality

During construction with Anderson Reservoir at deadpool the limited storage would create higher temperatures and increase turbidity (especially following storms) substantially degraded in-reservoir water quality that would not support designated beneficial uses (COMM, COLD, SPWN, WARM, WILD, REC-1 and REC-2). **Mitigation Measure WQ-1** requires evaluation of the water quality monitoring data collected during construction and implementation of BMPs to address and control sediment and other pollutants associated with in-reservoir construction activities to the extent technically feasible in accordance with the CWA and Porter-Cologne Water Quality Control Act requirements; however, impacts would remain significant even with implementation of **Mitigation Measure WQ-1**. Because no additional mitigation is available to decrease the impact to less than significant, this This impact is **significant and unavoidable**. The FAHCE-Plus Modified Alternative would have the same impact as the Project to in-reservoir water quality.

Other Water Quality Impacts

Reservoir dewatering would result in substantial discharges of sediment as storm runoff travels over previously inundated sediments at the bottom of the reservoir, and there is only limited water storage to settle out sediments from upstream. This temporary increase in turbidity following storms in **significant and unavoidable**. The FAHCE-Plus Modified Alternative would have the same impact as the Project to sedimentation from the reservoir bottom.

The excavation of soils within or near the reservoir and creek, placement of fill within or near the reservoir or creek to construct dam improvements and Conservation Measures, vehicle travel on unpaved access and haul roads, exposed unvegetated work sites and staging areas, uncovered stockpiles, and mining activities could result in erosion of surface soils. Resultant erosion may cause turbidity and sedimentation, and impact water quality. Construction and maintenance activities would also involve the use of hazardous materials and herbicides, which could accidentally be released into the environment, resulting in adverse effects on water quality. Implementation of a SWPPP for out-of-reservoir construction and applicable erosion control BMPs for in-reservoir and out-of-reservoir construction including: BMP AQ-1 (Use Dust Control Measures), BMP WQ-4 (Limit Impacts From Staging and Stockpiling Materials), BMP WQ-1 (Conduct Work from Top of Bank), BMP WQ-2 (Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms), BMP WQ-5 (Stabilize Construction Entrances and Exits), BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-10 (Prevent Scour Downstream of Sediment Removal), BMP WQ-11 (Maintain Clean Conditions at Work Sites), and BMP WQ-16 (Prevent Stormwater Pollution); hazardous material BMPs: BMP HM-7 and HM-8 which reduces reduce the risk of vehicle-related pollutants and BMPs HM-9 and HM-10 which proper management of hazardous materials and the implementation of spill prevention measures; and herbicide BMPs: HM-1 (Comply with All Pesticide Application Restrictions and Policies), HM-2 (Minimize Use of Pesticides), HM-4 (Comply with All Pesticide Usage Requirements), HM-5 (Comply with Restrictions on Herbicide Use in Upland Areas), and HM-6 (Comply with Restrictions on Herbicide Use in Aquatic Areas) will help protect water quality. The SWPPP for out-of-reservoir construction activities and implementation of applicable BMPs for in-reservoir and out-of-reservoir construction would ensure water quality impacts are **less than significant** for construction and maintenance related activities. The FAHCE-Plus Modified Alternative would have the same impact as the Project from construction water quality.

Some construction elements would require the removal of groundwater to keep work areas dry. To avoid water quality impacts, this groundwater would be treated by an ATS system; imported water would be chilled as needed prior to release to Coyote Creek to ensure cold water in the CWMZ; and Valley Water would comply with the Stormwater NPDES Permit as applicable to minimize impacts from new impervious surfaces. Other water quality impacts would **be less than significant**. The FAHCE-Plus Modified Alternative would have the same impact as the Project to other water quality issues.

The FAHCE-Plus-Modified alternative has the same goals associated with temperature as the FAHCE alternative, with a slight deviation associated with cold pool temperature requirements. The FAHCE-Plus-Modified alternative would use the same methodology to calculate the available cold-water pool in Anderson Reservoir and to determine a reservoir flow release to maintain a daily average water temperature not to exceed 18 °C throughout as much of the CWMZ as available cold-water storage will allow during the summer rearing period. The FAHCE-Plus-Modified alternative has the potential to increase the flow in the CWMZ, and thus the extent as it uses a cold pool volume target temperature of 16 °C. This allows for more of the cold-water pool to be used, while still achieving the daily average water temperature not to exceed 18 °C throughout as much of the CWMZ as will allow. The change associated with the 16 °C cold water pool volume will not change conditions downstream of the dam in a way that will cause negative effects to aquatic resources, as it still falls within the range of tolerance of the species and meets the goal of 18 °C throughout the CWMZ. All monitoring actions associated with FAHCE will occur under FAHCE-Plus Modified, and no changes are anticipated associated with the use of imported water. Detailed analysis and modeling of temperature effects as a result of FAHCE implementation during the post-construction period is included in Appendix F, Biological Resources -Fisheries Technical Appendix Report.

No change in dissolved oxygen, turbidity, or conductivity is expected to occur between FAHCE-Plus Modified and FAHCE. Changes associated with operations will not be to a degree that will result in noticeable changes.

Over the long-term, the Project would generate substantial beneficial impacts to water quality and beneficial uses. The FAHCE-Plus Modified Enhanced Alternative would provide no change associated with temperature targets within the CWMZ but would allow for more flexibility in cold water pool management and allow for increase flows to provide additional habitat for fish within the CWMZ and provide conditions that better support the fisheries related beneficial uses designated for Coyote Creek. The new reservoir outlet would allow for greater flexibility in releases that would allow greater use of the reservoir's cold-water pool and reduce the potential for uncontrolled reservoir spills. Live Oak Restoration Project, the The Ogier Ponds CM, Sediment Augment Program, Maintenance of the North Channel Reach Extension, and Phase 2 Coyote Percolation CM would all provide water quality benefits and habitat enhancements that support beneficial uses.

Mitigation Measure

WQ-1 Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan

GW-2 Implement Perchlorate Best Management Practices

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **cumulatively considerable** impacts on turbidity water quality objectives, but **not cumulatively considerable** impacts on other water quality objectives or on beneficial uses. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.15 Land Use

The FAHCE-Plus Modified Alternative would have the same impacts to land use as described in Section 3.15, *Land Use*. Flows would not alter surrounding land uses.

Conflict with Land Use Plans, Policies, and Regulations

The majority of the land that would be affected by the Project is designated as recreational. Portions of Anderson Lake County Park, Coyote Creek Parkway, Ogier Ponds, and the Coyote Percolation Pond would be closed during construction of the Seismic Retrofit improvements and Conservation Measure components, affecting recreational land uses in the area. These effects would be temporary in nature. Implementation of BMP AQ-1, BMP AQ-2 BMP TR-1, BMPs GEN-36, GEN-37, and GEN-39 will minimize the level of disruption and impairment of onsite land uses during the Project construction period. Operation of the Project would minimize the risk of reservoir spill and downstream flooding and provide in-stream environmental flows consistent with land use policies and regulations. The Project would seismically upgrade a critical facility consistent with local goals and policies, and construction and operation would not result in significant environmental impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be **less than significant**. The FAHCE-Plus Modified Alternative would have the same impact as the Project.

Regarding cumulative impacts, like the Project, the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on land use. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.16 Noise and Vibration

The FAHCE-Plus Modified Alternative would not generate any new noises or vibrations. The noise and vibration impacts would be the same as described in Section 3.16, *Noise and Vibration*.

Noise

Construction of the Seismic Retrofit Component, Ogier Ponds CM, and the Sediment Augmentation Program would exceed applicable construction noise thresholds of significance, while Project operational noise impacts would be less than significant. Seismic Retrofit construction noise levels would exceed the 10 dBA increase above ambient threshold at key receptors as discussed in Section 3.16, *Noise*. Seismic Retrofit nighttime construction noise levels would exceed the nighttime construction noise threshold of 50 dBA L_{eq}.

Mitigation Measure NOI-1 will require Valley Water to implement a Construction Management Plan, and **Mitigation Measure NOI-2** is specific to Seismic Retrofit construction and will require the installation of a temporary noise barrier, limiting of construction activity at Staging Area 1 ~~and Stockpile Area E~~, provide a noise complaint phone number and construction noise monitoring during nighttime periods of construction, and reduce speeds along haul routes. Implementation of **Mitigation Measure NOI-3** is specific to Ogier Ponds CM construction and will require the installation of a temporary noise barrier and the reduction of truck and vehicle speeds along Cochrane Road. Even with mitigation, noise levels would still exceed the thresholds of significance and construction would result in generation of a temporary increase in ambient noise levels in excess of locally adopted standards. Impacts would be **significant and unavoidable**. The FAHCE-Plus Modified Alternative would have the same impacts to noise as the Project.

Vibration

Construction of the Seismic Retrofit components and the Sediment Augmentation Program would exceed construction vibration thresholds of significance of 72 VdB at sensitive receptors. Blasting activities during Seismic Retrofit construction could exceed applicable blasting thresholds.

Implementation of **Mitigation Measure NOI-4** will require the use of oscillatory or static rollers in lieu of a vibratory roller within 150 feet of <u>residential structures</u> ~~receptors~~. Implementation of **Mitigation Measure NOI-5** will require vibration and air overpressure monitoring be conducted while initial blasting activities occur. Monitoring results would be used to adjust blast loading limits to properly reflect site-specific conditions to ensure vibration impacts from blasting do not exceed the building damage thresholds. Mitigated vibration levels would not exceed the established thresholds. Therefore, Project construction would not generate excessive ground borne vibration or ground borne noise levels and impacts would be **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impacts to vibrations as the Project.

Mitigation Measures

NOI-1 <u>Implement</u> Construction Noise ~~BMPs~~ <u>Reduction Measures</u>

NOI-2 Implement Seismic Retrofit Construction Noise Reduction Measures

NOI-3 Implement Ogier Ponds CM Construction Noise Reduction Measures

NOI-4 Seismic Retrofit and Sediment Augmentation Program Construction Vibration Reduction Measures

NOI-5 Implement Blasting Plan

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **cumulatively considerable** impacts on noise. , but The FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on vibration. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.17 Public Services

The FAHCE-Plus Modified Alternative would not have increased impacts on emergency response. The impact to public services would be the same as described in Section 3.17, *Public Services*.

Fire and Police Services

Temporary impacts on police and fire protection services would include accidental ignition of a wildfire, use of hazardous materials that may require additional fire protection services, and temporary increases and disruptions to vehicle traffic in the Project vicinity, which could impede emergency response timing. Implementation of BMPs HM-12, HM-8, and HM-9 will minimize the risk of accidental ignition. BMP TR-1 will require construction warning signs, safety fencing, and detours which would minimize potential impacts on emergency response times. Although construction traffic levels would increase emergency service response times, it would not disrupt emergency service response to the point that would require the construction or expansion of police or fire protection facilities other than potentially the need for temporary emergency access roads, which might cause significant impacts, which a significant impact. **Mitigation Measure PS-1** requires preparation of a TMP and coordination with fire protection services and first responders, and **Mitigation Measure WF-1** requires coordination with local and state emergency response agencies and preparation of a Response and Evacuation Strategy, which will maintain adequate emergency response and identify and maintain evacuation routes, will reduce which reduces potential impacts associated with impeding emergency response times to a less-than-significant level. Impacts to police and fire services would be **less than significant with mitigation.** The FAHCE-Plus Modified Alternative would have the same impact than the Project to public services.

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) Emergency Action Plan

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on public services. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.18 Recreation

The FAHCE-Plus Modified Alternative would have the same impacts to recreation as described in Section 3.18, *Recreation*.

Recreation Facilities

The Project would require closure of Anderson Lake County Park, Coyote Creek Parkway, Ogier Ponds, and the Coyote Percolation Pond for the duration of construction; however, there are 100 other recreational facilities in the study area (i.e., all parks within 5 miles of the Project Area, as well as regional parks in the county), many of which include a variety of infrastructure and accommodate a wide range of recreational activities including hiking and fishing (see **Table 3.18-1** and **Figure 3.18-1**). Temporary impacts on recreational facilities resulting from the Seismic Retrofit components would be distributed across many nearby recreational facilities, so this impact is less than significant.

Coyote Creek Trail and portions of Hellyer Park would be periodically inundated by Coyote Creek at several low flow crossings more frequently during construction of the seismic retrofit. Longer recreational facility closures during the wet season could result in physical deterioration of other recreational facilities or the acceleration of the physical deterioration of those facilities. Therefore, this impact would be significant.

Implementation of **Mitigation Measure REC-1** will reduce impacts to **less than significant with mitigation** by requiring Valley Water to provide funding and implementation of the future relocation and/or modification of recreational facilities within the Coyote Creek corridor to mitigate for inundation and other Project impacts on those facilities. compensating SCCPRD for anticipated extra maintenance costs. The FAHCE-Plus Modified Alternative would have the same impact to recreational facilities as the Project.

Permanent Modification to Recreation Facilities

The Project would result in several permanent modifications to recreational facilities. As described in Section 2.4.5.12, the Live Oak Picnic Area would include an improved walking loop, a bridge over the North Channel and connection to the Serpentine Trail, an interpretive trail along Coyote Creek, relocation of the group picnic area closer to restroom and parking areas, and tree replacement planting. Additionally, the existing boat ramp at Anderson Dam would be improved by constructing a second entrance off Cochrane Road, constructing a dedicated inspection area, and an electric vehicle charging area would be replaced and improved. These facility improvements would be minor and would not have a significant adverse physical effect on the environment. This impact would be **less than significant**. The FAHCE-Plus Modified Alternative would have the same impacts to permanent facilities as the Project.

Mitigation Measure

REC-1 Funding and Implementation of Maintenance Reimbursement for Park Facility Improvements within the Coyote Creek Corridor Closures During High Flow Events

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on recreation. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.19 Transportation

The FAHCE-Plus Modified Alternative would not create different traffic impacts and would have the same impacts to traffic as described in Section 3.19, *Transportation*.

Transportation Plans

Project construction and operation would largely be consistent with plans and policies governing the circulation system. However, as with the Project, modified flows expected in Coyote Creek could result in impacts to recreational facilities that are used by pedestrians. This would be a significant impact on pedestrian facilities. **Mitigation Measure REC-1** (Funding and Implementation of Maintenance Reimbursement for Park Facility Improvements within the Coyote Creek Corridor Closures During High Flow Events) would reduce impacts on pedestrian facilities and prevent substantial conflicts with trails plans and policies. This impact would therefore be **less than significant with mitigation**.

The FAHCE-plus Modified Alternative would have the same impact to transportation plans as the Project.

Emergency Access

The Project would generate additional construction roadway vehicle trips and include road closures that have the potential to impede emergency access. BMP TR-1 would reduce this impact, but it would still be significant. With implementation of **Mitigation Measure PS-1** (Prepare and Implement Traffic Management Plan) and **Mitigation Measure WF-1** (Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) Emergency Action Plan), impacts on emergency access will be **less than significant with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact on emergency access as the Project.

VMT

The Project's construction-related VMT would be temporary and operation-related VMT would be negligible and would not contribute to a substantial change in long-term VMT. As a large infrastructure project, the Project would have little long-term effect on air quality and GHG benefits related to long-term reductions in VMT (as discussed under Section 3.19.3, *Methodology*). Because the increase in VMT during construction would be temporary, and there would be a de minimis effect on VMT during operations, the Project would not conflict with or be inconsistent with *CEQA Guidelines* section 15064.3(b). Therefore, impacts related to VMT would be **less than significant. T**he FAHCE-Plus Modified Alternative would have the same impact to VMT as the Project.

Hazards

The Project would not include any new roadway or access improvements that would increase hazards due to a geometric design. Rather, the proposed roadway and access modifications would improve roadway conditions and increase public safety. Therefore, impacts regarding increased hazards due to a geometric design feature would be **less than significant.** The FAHCE-Plus Modified Alternative would have the same impact to traffic hazards as the Project.

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

REC-1 Funding and Implementation of ~~Maintenance Reimbursement for~~ Park Facility Improvements within the Coyote Creek Corridor ~~Closures During High Flow Events~~

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) ~~Emergency Action Plan~~

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on transportation. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.20 Tribal Cultural Resources

The FAHCE-Plus Modified Alternative would not create different impacts to tribal resources from those described in Section 3.20, *Tribal Cultural Resources*.

Ground disturbance during construction and maintenance around the dam and the Ogier Ponds areas could impact elements of tribal cultural resources. Erosion and recreational power boating within Anderson Reservoir could erode Native American archaeological resources that may qualify as tribal cultural resources buried along the shoreline of the reservoir. In addition, construction activities and future use of reservoir could expose undiscovered Native American archaeological resources that may qualify as tribal cultural resources. MP-CUL-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) will require that work will cease in areas where archaeological materials are discovered. Nevertheless, these impacts are significant.

Mitigation Measures CR-1 (Pre-construction Cultural Resources Awareness Training), **CR-2** (Prepare a Data Recovery and Treatment Plan for Tribal Cultural Resources that Cannot be Avoided), and **CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will require construction crews to receive tribal cultural awareness training, provide guidance on treating resources with respect, require that all tribal cultural resources be included in the treatment plan, and require that work stop in the vicinity of any archaeological materials discovered during Project construction. Implementation of these BMPs and mitigation measures would reduce the Project's impact to tribal cultural resources to a **less-than-significant level with mitigation**. The FAHCE-Plus Modified Alternative would have the same impact to tribal resources as the Project.

Mitigation Measures

CR-1 Pre-construction Cultural Resources Awareness Training

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on tribal cultural resources. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.21 Utilities and Service Systems

The FAHCE-Plus Modified Alternative would not affect utilities or generate waste beyond the impacts described in Section 3.21, *Utilities and Service Systems*.

Utility Systems

The Project would not require construction of new stormwater, telecommunications, or electric facilities. Relocation of some power lines would be required as part of the Seismic Retrofit component. The utility infrastructure proposed to be relocated to serve Project would not affect other users. Decommissioning of the hydroelectric facility would not require Valley Water or PG&E to construct replacement electrical facilities. Impacts related to the replacement, relocation, or construction of public utilities would be **less than significant**. The FAHCE-Plus Modified Alternative would have the same impact on utilities as the Project.

Solid Waste

The Project would comply with the Santa Clara County Integrated Waste Management Plan, the City of San José's Zero Waste Strategic Plan, and State regulations. Solid waste would not be generated in excess of the capacity of local solid waste management facilities. Therefore, the Project's impacts related to solid waste would be **less than significant**. The FAHCE-Plus Modified Alternative would have the same impact on utilities as the Project.

Regarding cumulative impacts, like the Project, the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on utility systems. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.3.22 Wildfire

The FAHCE-Plus Modified Alternative would not affect wildfire risk beyond that described in Section 3.22, *Wildfire*.

Wildfire Risk Exacerbation

Implementation of BMP HM-12 (requires fire suppression equipment and measures, and spark arrestors on equipment) and implementation of California Fire Code provisions and CAL FIRE requirements will reduce the risk of accidental ignition from construction equipment, minimizing the impacts of the Project on exacerbation of wildfire risks. Post-construction operations would not require the use of equipment that could generate sparks or extreme heat; therefore, there would be no impact related to wildfire. Risk of wildfire is **less than significant**. The FAHCE-Plus Modified Alternative would have the same impact related to increasing wildfire risk as the Project.

Wildfire Risk from Infrastructure

The Project would include the modification, construction, and/or relocation of roads and electrical transmission infrastructure; however, access throughout the Project Area and existing power lines would be relocated and improved through Project implementation, thus providing an improvement over existing conditions. Post-construction operations of the powerlines would also be similar to post-FOCP implementation conditions. Therefore, infrastructure associated with the Project would not exacerbate wildfire risks, and this impact would be **less than significant.** The FAHCE-Plus Modified Alternative would have the same risk as the Project to wildfire from infrastructure.

Risk from Post-Fire Instability

The Project would not exacerbate or increase wildfire risks in the area, and therefore would not increase the risks of post-fire effects, such as landslides and flooding. The Project would not result in significant risks to people or structures from downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes, and this impact would be **less than significant**. The FAHCE-Plus Modified Alternative would have the same impact related to increasing risk from post-fire instability as the Project.

Exposure to Wildfire Risk

Construction traffic and road closures would result in impacts on emergency response and evacuations, and expose construction workers to wildfire risks, in the event of a wildland fire. Traffic impacts on emergency response and evacuations would be reduced through implementation of **BMP TR-1** which requires implementation of construction warning signs, safety fencing, and detours; however, a significant impact would still occur. Implementation of **Mitigation Measure PS-1** (Prepare and Implement Traffic Management Plan), which requires preparation and implementation of a TMP and coordination with State and local agencies and **Mitigation Measure WF-1 (**Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) Emergency Action Plan), which requires coordination with local and state emergency response and fire agencies and preparation of a Response and Evacuation Strategy, which will maintain adequate emergency response and identify and maintain evacuation routes. to identify an alternative temporary refuge area or access to the Woodchoppers Flat Picnic Area during a wildfire will minimize impacts on emergency response and evacuation procedures. This impact would be **less than significant with mitigation.** The FAHCE-Plus Modified Alternative would have the same impact to wildfire safety as the Project.

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) Emergency Action Plan

Regarding cumulative impacts, like the Project, after mitigation the FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts on wildfire risks. Cumulative impacts would be the same as the Project’s cumulative impacts.

5.9.4.1 Aesthetics

The Ogier Ponds Alternative would cause the same Project-related impacts including the removal of more than 650 mature trees for construction of the Seismic Retrofit component and approximately 70 trees for construction of the Conservation Measures resulting in degradation of the existing visual character or quality of public views. Therefore, public views of the BHBA and Coyote Creek would similarly be disturbed under the Ogier Ponds Alternative. Mitigation measures to replace trees along Coyote Creek (**Mitigation Measure AES-1**) and screen construction staging areas (**Mitigation Measure AES-2**) will reduce construction related impacts, but not to a level of less than significant. The alternative would result in **significant unavoidable impacts** with no additional feasible mitigation measures available to fully mitigate the impacts. This impact would be the same as the Project.

The FAHCE-Plus Modified Alternative would cause the same Project-related impacts from nighttime lighting during construction around the reservoir. A mitigation measure to minimize the impact from construction lightning (**Mitigation Measure AES-3**) will be implemented to reduce this impact to a less-than-significant level. The Ogier Ponds Alternative would have a **less-than-significant impact with mitigation** on nighttime views. This impact would be the same as the Project.

Mitigation Measures

AES-1 Replacement Tree on Santa Clara County Parkland

AES-2 Visual Screening of Construction Staging Areas

AES-3 Construction Lighting

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **cumulatively considerable** impacts on visual character, but **not cumulatively considerable** impacts on nighttime lighting. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.4.2 Agriculture and Forestry Resources

Farmland

The Ogier Ponds Alternative would convert Farmland to non-agricultural use. The Ogier Ponds Alternative would involve temporary use of a larger area of Farmland than the Project for staging and would involve acquisition of 18 acres of land in agricultural use, permanently converting 18 acres of Prime Farmland. The impact would be significant. New **Mitigation Measure OP-AG-1, Fund a Conservation Easement on Prime Farmland** will reduce the impact by requiring Valley Water to purchase conservation easements on an equivalent area of Prime Farmland to ensure their continued use for agriculture. However, even with this mitigation, the impact would be **significant and unavoidable**, because the conservation easement would not replace the Pime Farmland acreage that is converted. This impact is greater than the Project's impact.

Valley Water will still implement BMPs AQ-1 (dust control), BI-11 (minimize predator-attraction), WQ-4 (limit impacts from staging and stockpiling), WQ-11 (maintain clean work sites), and TR-1 (public safety measures) to minimize impacts to surrounding Farmland of Local Potential. Post-construction operations associated with the retrofitted dam could result in minor flooding in some Farmland areas but would not rise to the level of conversion. Adaptive management actions, if required, would not take place in Farmland.

Williamson Act Lands and Lands Zoned Agriculture

In addition, this alternative would conflict with existing zoning for agricultural use. This alternative would require permanent use of approximately 18 acres of land zoned for agricultural use. This changed use would no longer allow for agricultural use on this land, which would represent a conflict with existing zoning. However, Valley Water is not obligated to comply with local zoning regulations. The impact would be **less than significant**. Because of the increased area that would conflict with local zoning regulations, the magnitude of the impact is greater than under the Project.

Mitigation Measure

OP-AG-1 Fund a Conservation Easement on Prime Farmland

Valley Water will coordinate with a qualified farmland conservation organization or agency prior to the construction of the Ogier Ponds CM to make a one-time donation to cover the actual costs of purchasing a conservation easement to compensate for the loss of Prime Farmland. The amount of Valley Water's contribution will provide for the conservation of one acre of agricultural land in the county for each acre of agricultural land converted by the Project, based on the market price for the commensurate agricultural land at the time of Ogier Ponds CM construction.

Regarding cumulative impacts after mitigation the Ogier Ponds Alternative would have **cumulatively considerable** impacts on agricultural lands, but **not cumulatively considerable** impacts on Willianson Act lands. Cumulative impacts would be greater than the Project's cumulative impacts.

5.9.4.3 Air Quality

The Ogier Ponds Alternative would result in similar impacts to air quality as described in Section 3.3, *Air Quality*; however, the magnitude of the impact would be reduced under this alternative compared to the Project because of the decreased area of excavation and reduced earth moving associated with filling Pond 1 as part of the Ogier Ponds CM.

Air Quality Plans

The criteria air pollutant emissions from construction of the Seismic Retrofit component and the Ogier Ponds CM~~, and the Sediment Augmentation Program~~ would exceed BAAQMD thresholds. Implementation of **Mitigation Measure AQ-1** will require all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer. Implementation of **Mitigation Measure AQ-1** will also minimize construction equipment idling time and require regular maintenance for all equipment. However, even with implementation of **Mitigation Measure AQ-1**, construction of the Ogier Ponds Alternative ~~FAHCE-Plus Modified Alternative~~ will exceed BAAQMD thresholds for ROG and NOx. As such, Project construction would conflict with the BAAQMD 2017 Clean Air Plan goal to attain established air quality standards while Project operation would not exceed any BAAQMD thresholds for the various criteria air pollutants. The Project overall would conflict with or obstruct the implementation of an applicable air quality plan, and impacts would be

significant and unavoidable. The Ogier Ponds Alternative would have less impacts in regard to conflicting with the 2017 Clean Air Plan than the Project.

Criteria Pollutants

As with the Project construction as discussed in Section 3.3 Impact 2, the Ogier Ponds Alternative would exceed the BAAQMD average daily thresholds for criteria air pollutants, while operational impacts related to criteria air pollutants would be less than significant. The Seismic Retrofit construction emissions would exceed the BAAQMD average daily thresholds for ROG in Year 1 through Year 6 and for NOx in Year 1 2 through Year 7. Sediment Augmentation Program construction emissions would not exceed the BAAQMD average daily threshold for criteria air pollutants NO_X during every year of construction from Year 2 through Year 15. Maintenance Construction of the North Channel Reach Extension and Phase 2 Coyote Percolation Dam CM would not exceed the BAAQMD average daily thresholds for criteria air pollutants. Even with implementation of **Mitigation Measure AQ-1**, Seismic Retrofit construction emissions will exceed the BAAQMD average daily thresholds for ROG in Year 1 and NOx in Year 2 through Year 6 7. Mitigated Sediment Augmentation Program construction emissions would not exceed the BAAQMD average daily thresholds for criteria air pollutants. NO_X during every year of construction from Year 2 through Year 10, and overall Overall mitigated Project construction emissions would exceed the BAAQMD average daily threshold for ROG during Year 1 6 and for NO_X during Year 2 through Year 7 15. Since criteria air pollutant exhaust emissions would remain above the BAAQMD significance threshold even with implementation of **Mitigation Measures AQ-1**, the impact related to regional air quality will be **significant and unavoidable**. The Ogier Ponds Alternative would have less impacts in regard to increases in criteria pollutants than the Project.

Dust

Fugitive dust impacts from blasting emissions would be less than significant with implementation of **Mitigation Measure AQ-2. Mitigation Measure AQ-2** will require the installation of wind screens during blasting activities to reduce fugitive dust emissions. Construction-related fugitive dust impacts would be significant even with implementation of BAAQMD basic BMPs (BMP AQ-1) and advance BMPs in **Mitigation Measure AQ-3**. **Measure AQ-3** will implement BAAQMD's Enhanced Construction BMPs, which includes limiting the occurrence of simultaneous construction activities, installing erosion control measures, planting vegetative ground cover, minimizing the amount of excavated material, and hydroseeding. These measures would apply to all Project components as discussed in Section 3.3. The Ogier Pond Alternative would have a **significant impact** from fugitive dust which is the same as the Project; the alternative involves a reduction in fill required, but has a larger ground-disturbing footprint.

Health Risks

As with the Project as discussed in Section 3.3 Impact 3, the Ogier Ponds Alternative construction activities would exceed BAAQMD's significance thresholds for excess lifetime cancer risk, acute HI, and $PM_{2.5}$ concentration. Operational impacts related to TAC emissions would be less than significant. Implementation of **Mitigation Measure AQ-1** will be required, but even with this measure the overall Project construction risks would exceed the BAAQMD thresholds for excess lifetime cancer risk, acute HI, and $PM_{2.5}$ concentration. Therefore, the

Project overall would expose receptors to substantial pollutant concentrations, and impacts would be **significant and unavoidable**. The Ogier Ponds Alternative would have less impacts from pollutant concentrations to sensitive receptors than the Project given the reduction in construction activity at Ogier Ponds.

Odors

Construction equipment used in the alternative would emit diesel exhaust odors, and the disturbance of soils, dewatered channels, and the drained reservoir could emit organic matter odors. These odors would be temporary and intermittent. Implementation of BMP AQ-2 would require construction avoid stockpiling of odorous material near sensitive receptors. Currently, there have been no reported odor complaints to BAAQMD. Construction odors are not anticipated to be notably different for the Project compared to the existing baseline conditions at the time of the EIR preparation modified by the FOCP implementation. Odors associated with operations and maintenance are not expected. Thus, based on the odor complaint history, implementation of BMP AQ-2, and the temporary nature of construction activities, the overall alternative impact related to exposure to odors will be **less than significant**. The Ogier Ponds Alternative would have less impacts from odors than the Project given the reduction in construction activity at Ogier Ponds.

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

AQ-2 Implement Construction Blasting Mitigation Fugitive Dust Reduction Measure

AQ-3 Implement BAAQMD Enhanced Construction BMPs

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **cumulatively considerable** impacts on attainment of air quality plans, criteria pollutants, and health risk, but **not cumulatively considerable** impacts on odors. Cumulative impacts would be less than the Project’s cumulative impacts.

5.9.4.4 Biological Resources—Fisheries Resources

The Ogier Ponds Alternative would not change the impacts to fisheries in Coyote Creek as described in Section 3.4, *Biological Resources – Fisheries Resources*.

Overall, any adverse impacts on CCC steelhead, Chinook, Pacific lamprey, Sacramento hitch, and southern coastal roach would be periodic and temporary, and less than significant during the construction phase. The alternative would benefit these species in the long term through increased and enhanced habitat supporting a larger and more resilient fisheries populations and the overall impact is **less than significant**.

The alternative could impact longfin smelt and white sturgeon and their habitat with increased sediment transport to the intertidal reaches of Coyote Creek during Seismic Retrofit construction, and this impact would be **less than significant**. Increased sediment transport may benefit longfin smelt in both the short-term and long-term.

The Ogier Ponds Alternative would have the same impact to fisheries as the Project.

Regarding cumulative impacts, like the Project, the Ogier Ponds Alternative would have **no not cumulatively considerable** impacts on fisheries resources. Cumulative impacts would be the same as Project cumulative impacts.

5.9.4.5 Biological Resources—Wildlife and Terrestrial Resources

Relative to the Project, the Ogier Ponds Alternative would reduce the magnitude of impacts on riparian habitats, federally regulated or State-regulated wetlands or other jurisdictional waters, western pond turtle, breeding special-status birds, special-status mammals, and sensitive serpentine-associated communities and special-status species potentially affected by nitrogen deposition.

The Ogier Ponds Alternative would reduce impacts on terrestrial biological resources, relative to the Project, in three primary ways. First, the Ogier Ponds Alternative would avoid impacts to the vast majority of aquatic, wetland, pond, and riparian land cover types (including federally regulated and State-regulated wetlands and other jurisdictional waters) in Ponds 1, 2, and 5 that would be impacted by the Project, as the majority of construction of the realigned Coyote Creek channel under the Ogier Ponds Alternative would occur in areas that are currently occupied by upland agricultural land or, in downstream areas, would occupy the same alignment as the Project (using the pre-1997 creek channel). The Ogier Ponds Alternative would result in a narrower channel and floodplain along the realigned portion of the creek, thus reducing the amount of creek and riparian habitat that would be restored. However, the net benefits of the Ogier Ponds Alternative to sensitive and regulated aquatic, wetland, pond, and riparian land cover types would be greater than under the Project because extensive riverine and riparian habitats would be created and restored along the realigned creek with minimal impacts on existing sensitive and regulated habitats. Thus, the net increase in the extent of these habitats, and the net benefits to the wildlife that use such habitats, would be greater under the Ogier Ponds Alternative than under the Project.

Second, by minimizing impacts on aquatic, wetland, pond, and riparian land cover types, the Ogier Ponds Alternative would reduce direct impacts on sensitive species associated with those habitats that may occur during construction of the Ogier Ponds CM. Such species include western pond turtle; breeding special-status birds such as tricolored blackbird, yellow warbler, and white-tailed kite; and San Francisco dusky-footed woodrat. These species use habitats at the Ogier Ponds that would be impacted less under the Ogier Ponds Alternative than under the Project.

Third, the Ogier Ponds Alternative would involve less earthwork than the Project. This would reduce the nitrogen emissions from vehicles and equipment involved in the creek realignment, thus reducing the amount of nitrogen deposited on serpentine grasslands (especially on Coyote Ridge to the east) and the effects of nitrogen deposition on serpentine-associated, special-status plants and animals.

Special-Status Plants

Construction activities could impact special-status plants through direct destruction, the spread of invasive plant propagules and pathogens, refilling of the reservoir where populations have colonized areas within the rim of the reservoir, and indirectly through dust that could coat plants interfering with normal gas exchange, photosynthesis, or pollination. Dust may also infect plants with *Phytophthora* within dust particles. Nitrogen emitted by construction vehicles and equipment may impact serpentine-associated special-status plants by fertilizing the soils and allowing nonnative grasses and forbs that would not otherwise be able to colonize.

Nine of the 12 special-status plants that could be impacted are VHP-covered species. General and serpentine impact fees would be used by the SCVHA to offset adverse impacts to the nine VHP-covered plant species. The potential for Phytophthora to be spread will be reduced via a Project-specific *Phytophthora* Pathogen Management and Monitoring Plan. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1a(1)** will manage invasive plants at ~~Valley Water's~~ Coyote Ridge population of Tiburon paintbrush by preventing the Project's nitrogen emissions from benefitting populations of invasive plants that would compete with Tiburon paintbrush. **Mitigation Measure TERR-1a(2)** will reduce the potential for spread of *Phytophthora*. **Mitigation Measures TERR-1a(3)** and **TERR-1a(4)** will survey for San Francisco collinsia in the previously unsurveyed portions of the Seismic Retrofit Area (to help quantify impacts on the species) and establishing a mitigation population commensurate with the population size. With implementation of BMPs, compliance with VHP conditions and AMMs, and **Mitigation Measures TERR-1a(1), TERR-1a(2), TERR-1a(3),** and **TERR-1a(4)** (all as fully described in Section 3.4, *Biological Resources—Wildlife and Terrestrial Resources*) Project impacts on special-status plants will be **less than significant with mitigation**. The Ogier Ponds Alternative would have a smaller impact to special-status plants than the Project from a reduction in nitrogen emissions.

Bay Checkerspot Butterfly, Monarch Butterfly, and Crotch's Bumble Bee

Construction activities would impact 2.6 acres of designated critical habitat for the Bay checkerspot butterfly, contribute to the cumulative effects of nitrogen deposition on serpentine grasslands, remove milkweed needed by monarch butterflies, destroy subterranean Crotch's bumble bee nests, clear vegetation that serves as pollen and nectar sources, and affect pollen and nectar sources through dust mobilization or changes in drainage patterns.

Special-status invertebrates would benefit from Valley Water's payment of VHP impact fees. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Implementation BMPs and compliance with VHP conditions would reduce impacts on the Bay checkerspot butterfly, monarch butterfly, and Crotch's bumble bee to a less than significant level. The Ogier Ponds Alternative would have a smaller impact to Bay checkerspot butterfly, Monarch butterfly, and Crotch's bumble bee than the Project from a reduction in nitrogen emissions.

California tiger salamander, California red-legged frog, and foothill yellow-legged frog

Construction activities could result in direct take of special-status amphibians, loss of habitat, increased predation from nighttime lighting, hazardous material spills, and spread of pathogens. Project impacts on the foothill yellow-legged frog are unlikely to occur therefore the Project would have a less than significant impact on this species.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1c(1)** provides additional avoidance and minimization during activities in the dewatered reservoir. **Mitigation Measure TERR-1c(2)** compensates for any impacts of fish locations to Upper Penitencia Creek by removing nonnative species that could affect special-status amphibians from Valley Water-owned properties in the Upper Penitencia Creek watershed. Implementation of VHP mitigation payments, BMPs, compliance with applicable VHP conditions, and **Mitigation Measures TERR-1c(1)** and **TERR-1c(2)** will reduce Project impacts on the California tiger salamander and California red-legged frog and reduce any adverse effects on the foothill yellow-legged frog that could occur to less than significant with mitigation. The Ogier Ponds Alternative would have a smaller impact to California tiger salamander, California red-legged frog, and foothill yellow-legged frog than the Project by reducing habitat impacts at Ogier Ponds.

Western Pond Turtle

Construction activities could impact western pond turtle habitat and nests. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. The western pond turtle is covered by the VHP, and most of the activities that could impact this species (including post-construction operations under FAHCE rule curves) are explicitly VHP-covered. With implementation of BMPs, DMP measures, and compliance with the VHP, Project impacts on the western pond turtle will be less than significant. The Ogier Ponds Alternative would have a smaller impact to western pond turtle as the Project by reducing habitat impacts at Ogier Ponds.

Bald Eagle and Golden Eagle

Up to two pairs of bald eagles have nested near Anderson Reservoir in recent years and at least two golden eagle territories overlap the reservoir with recently occupied nests located 0.34 and 0.83 miles from the edge of the reservoir. Construction would impact foraging habitat and disturb nests. Following completion of construction, foraging habitat for the bald eagle would be enhanced as the reservoir is allowed to refill. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Valley Water would obtain a BGEPA permit from the USFWS to obtain authorization for the loss of any eagle productivity and would comply with permit conditions. **Mitigation Measure TERR-1e** implements additional AMMs to minimize impacts on nesting eagles. With implementation of BMPs, DMP measures, compliance with the VHP and BGEPA permit conditions, and **Mitigation Measure TERR-1e**, Project impacts on bald eagle and golden eagle will be **less than significant with mitigation**. The Ogier Ponds Alternative would have the same impact to bald eagle and golden eagle as the Project.

Tricolored Blackbird, Yellow Warbler, White-tailed Kite, Northern Harrier, and Other Breeding Birds

A variety of bird species protected by the MBTA and Fish and Game Code breed, forage, and roost in the Project Area. Construction activities could result in the physical disturbance or destruction of active nests and affect the behavior of birds. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. With creek flow augmentation, groundwater monitoring, and dryback monitoring (with additional flow augmentation, and payment of VHP impact fees for impacted wetland and riparian habitat, as necessary), implementation of BMPs, DMP measures, and compliance with VHP conditions impacts on nesting special-status and nonspecial-status birds would be **less than significant**. The Ogier

Ponds Alternative would have a smaller impact to protected breeding birds than the Project by reducing habitat impacts at Ogier Ponds.

Nonbreeding special-status birds

Several special-status bird species including the Swainson's hawk, burrowing owl, and peregrine falcon, are not known or expected to breed in any areas where they could be impacted by Project activities, but they could occur there as nonbreeding foragers, particularly during migration and in winter. Construction could disturb foraging individuals, burrowing owls could be injured or killed if they are present in burrows when grading occurs, and construction activities could disturb roosting owls to the point of abandonment of their burrows. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1g** would identifies locations of burrowing owls prior to initiation of Project activities to avoid injury or mortality. With implementation of BMPs, DMP measures, compliance with the VHP conditions, and **Mitigation Measure TERR-1g**, Project impacts on nonbreeding special-status birds would be **less than significant with mitigation**. The Ogier Ponds Alternative would have a smaller impact to nonbreeding special-status birds as the Project by reducing habitat impacts at Ogier Ponds.

Pallid Bat

A maternity colony of the pallid bat has been located just outside of the Seismic Retrofit Area, in the Cochrane Road barn. This colony likely represents the largest and most stable colony of the species known in the county. Construction would not result in direct impacts on the Cochrane Road barn; however, given the intensity of construction activities, which would include some nighttime work, and the extent to which foraging habitat on Anderson Dam would be disturbed during construction, it is possible that pallid bats may abandon the roost within the barn while construction is ongoing. If pallid bats abandon the roost during construction, they may return once construction has been completed. However, unless high-quality alternative roost sites are present in the vicinity, the population may decline before the bats can re-occupy the barn. When trees, structures, or rock outcrops containing roosting colonies or individual bats are removed or modified, individual bats could also be physically injured, killed, or subjected to physiological stress resulting from being disturbed during torpor. Construction activities would result in the short-term loss of foraging habitat as well as a temporary impact on foraging individuals through the alteration of foraging patterns.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1h(1)** will minimize construction activities near the barn. If buffers in TERR-1h(1) are not feasible, **Mitigation Measure TERR-1h(2)** will develop an eviction plan for pallid bats to be implemented if deemed necessary. **Mitigation Measure TERR-1h(3)** will minimize the potential for males and nonbreeding females outside the barn to be injured or killed during Project activities. **Mitigation Measure TERR-1h(4)** will provide temporary roosting sites near the Project during construction and additional permanent roosting sites if the roost population is not restored to at least 75 percent by three years following construction. With implementation of BMPs, DMP measures, compliance with the VHP conditions, and **Mitigation Measure TERR-1h(1)**, **TERR-1h(2)**, **TERR-1h(3)**, **and TERR-1h(4)**, Project impacts on pallid bats will be reduced. The Project could cause the number of females at this site to drop below 75 percent of existing numbers, and a substantial proportion of the regional population would have been affected. No other mitigation would be feasible to reduce this impact therefore the impact is **significant and unavoidable**. The Ogier Ponds Alternative would have the same impact to pallid bat as the Project.

Other special-status mammals

This impact analysis addresses San Francisco dusky-footed woodrat, mountain lion, ringtail, American badger, Townsend's big-eared bat, and western red bat. San Francisco dusky-footed woodrat has been detected around Basalt Hill and likely resides in crevices there. Seismic retrofit construction would result in the loss of 43.2 acres of suitable habitat for the species. In addition, construction could result in the injury or mortality of individual woodrats and disturbance or destruction of nests and young. Construction and monitoring could disrupt the habitat of these species and their foraging. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. With implementation of BMPs, DMP measures, and compliance with the VHP conditions, Project impacts on special status mammals will be **less than significant.** The Ogier Ponds Alternative would have the same impact to California special-status mammals as the Project.

San Francisco Bay special-status species

Valley Water modeled potential effects of construction-period flows on tidal habitats along lower Coyote Creek and Coyote Slough. This modeling assumed that higher flows would be coupled with tide height equaling MHHW to represent the conditions that would occur if higher flows down Coyote Creek coincided with high tides. Modeling suggests that reservoir releases could result in increased frequency, depth, and/or duration of inundation of tidal marsh habitats far downstream from the dam. Such increased inundation would reduce the vegetative cover available to special-status species associated with San Francisco Bay tidal marshes, increasing predation of special-status tidal marsh animals that have to seek out more limited patches of vegetation that is not inundated. Such impacts would be infrequent and would occur only during the construction period but would be significant. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. **Mitigation Measure TERR-1j** requires contributing to predator management activities in the South Bay and high tide refugia enhancement, thereby offsetting increases in predation resulting from the Project for each year flows exceed 2,500 cfs. With implementation of BMPs, compliance with the VHP conditions, and **Mitigation Measure TERR-1j**, Project impacts on San Francisco Bay special-status species will be less than significant with mitigation. The Ogier Ponds Alternative would have the same impact to San Francisco Bay special-status species as the Project.

Riparian Habitat and Other Sensitive Natural Communities

The Project will result in permanent impacts on a total of 19.3 25.77 acres of mixed riparian woodland and forest and willow riparian forest and scrub, including 1.29 4.14 acres from Seismic Retrofit construction and 18 21.63 acres from Conservation Measures construction. However, approximately 39.5 acres of riparian habitat will be restored as part of the Ogier Ponds CM. Therefore, the Project will result in a net increase in the acreage of riparian woodland, forest, and scrub habitat. This net increase will help to compensate for the temporal loss of riparian functions and services.

The Project will permanently impact a total of 15 acres of coast live oak woodland and forest, 11.2 acres of foothill pine-oak woodland, and 2.5 acres of mixed serpentine chaparral, mostly from Seismic Retrofit construction. VHP fees to be paid by Valley Water for the Project include specialty fees for mixed riparian woodland and forest, willow riparian forest and scrub, and mixed serpentine chaparral, in addition to general land cover fees. The Project's impact fees would contribute directly to the conservation of sensitive natural communities, including not only these riparian and serpentine communities, but also the coast live oak woodland and forest, and foothill pine-oak woodland, land cover types that will be impacted by the Project.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Existing BMPs, DMP measures, and AMMs do not address the risk of introduction or spread of *Phytophthora*. **Mitigation Measure TERR-1a(2)** includes procedures to reduce the risk of *Phytophthora*. With implementation of BMPs, DMP measures, compliance with the VHP conditions, and **Mitigation Measure TERR-1a(2)**, Project impacts on riparian habitat and other natural communities will be less than significant with mitigation. The Ogier Ponds Alternative would have a smaller impact to riparian habitat than the Project by reducing habitat impacts at Ogier Ponds.

Wetlands

Construction activities would result in the placement of fill, and related hydrological interruption, alteration of bed and bank, degradation of water quality, and other direct impacts on the acreages and linear footage of wetlands (coastal and valley freshwater marsh), non-wetland other waters (perennial stream, intermittent stream, pond, and reservoir), and mixed riparian woodland and forest as indicated in **Table 3.5-13**. The Project will result in permanent impacts to 4.2 acres of freshwater marsh, but in addition to paying VHP permanent wetlands impacts fees, the Ogier Ponds CM will create 4.5 acres of emergent freshwater marsh. The Project will result in permanent impacts to 5.99 acres. All impacted reservoir acres will be restored or recovery to reservoir after construction. Valley Water predicts that approximately 12.5 acres of riverine aquatic habitat below the OHWM would be restored as part of the Ogier Ponds CM, ~~with additional acres of riverine aquatic habitat from the North Channel Extension CM~~.

BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Valley Water will pay VHP impact fees for wetlands, other waters, and riparian habitats, which include specialty fees for these important land cover types. The Interagency Review Team, including USACE, CDFW, and the RWQCB, have approved the VHP as an In Lieu Fee Program for impacts to waters of the United States and waters of the State. The implementation of the Conservation Measures more than offsets and compensates for the Project's net impacts on jurisdictional waters and wetlands.

Existing BMPs, DMP measures, and AMMs do not address the risk of introduction or spread of *Phytophthora.* **Mitigation Measure TERR-1a(2)** includes procedures to reduce the risk of *Phytophthora.* With implementation of BMPs, DMP measures, compliance with the VHP conditions, and **Mitigation Measure TERR-1a(2)**, Project impacts on wetlands will be **less than**

significant with mitigation. The Ogier Ponds Alternative would have a smaller impact to wetlands than the Project by reducing habitat impacts at Ogier Ponds.

Wildlife Corridors

Seismic retrofit construction would have both adverse and beneficial effects, all temporary, on wildlife movement. Construction activities, especially nighttime activities, could disrupt wildlife movement. Although Project activities may temporarily affect wildlife movement during construction, animals would still be able to move through the Project Area during construction, and the drained reservoir improves wildlife movement in the area around the reservoir. No long-term impacts on wildlife movement would result from the Project. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. With implementation of BMPs, DMP measures, and compliance with the VHP conditions, Project impacts on wildlife movement would be **less than significant.** However, considering the impacts to pallid bats discussed about, the Project would have a **significant and unavoidable** impact to wildlife nursery sites. The Ogier Ponds Alternative would have the same impact to wildlife corridors as the Project.

Tree Ordinance

Seismic Retrofit construction would result in the removal of approximately 270 ordinance-sized trees. The Ogier Ponds CM and Coyote Percolation Dam CMs, and the North Channel Extension improvements would result in the removal of 40 trees protected by County tree removal regulations. BMPs applicable to this impact are identified in **Table 3.5-6**. VHP conditions applicable to this impact are provided in **Table 3.5-7**, and VHP-related AMMs are provided in **Table 3.5-8**. Valley Water is exempt from compliance with the County tree ordinance under either Government Code sections 53091(d) and (e) (which state that County or City building and zoning ordinances do not apply to the construction of facilities for water storage or transmission) meaning there would be **no impact**. Nevertheless, recognizing the importance of protected trees to the county and the terms of the County ordinance, Valley Water will implement **Mitigation Measure AES-1**, calling for the planting of replacement trees removed on County Park land. The Ogier Ponds Alternative would have the same impact to tree ordinances as the Project.

Conflict with Habitat Conservation Plan/Natural Community Conservation Plan

Valley Water is a signatory on one conservation plan: the VHP, which is an HCP and NCCP for terrestrial species and related habitats. As described in *Project Description*, the VHP explicitly included the Project in its list of covered activities, and most impacts of the Project were included in the VHP's analysis of the effects of covered activities. Valley Water would apply for VHP coverage for the Project and adhere to all applicable VHP Conditions during Project implementation. Therefore, the Project would not conflict with the VHP. The impact is **less than significant**. The Ogier Ponds Alternative would have the same impact to HCP/NCCP compliance as the Project.

Mitigation Measures

TERR-1a(1) Invasive Plant Management at Coyote Ridge Valley Water's Tiburon Paintbrush Populations Population

TERR-1a(2) Implementation of Avoidance and Minimization Measures during Post-Construction Maintenance at Anderson Dam and Conservation Measures Facilities to Reduce the Potential for Introduction or Spread of Phytophthora

TERR-1a(3) Special-Status Plant Survey in the Previously Unsurveyed Portions of the Seismic Retrofit Are

TERR-1a(4) Seed Collection and Creation of a New Population of San Francisco Collinsia Conservation Measures

TERR-1c(1) Special-Status Species Avoidance and Minimization Measures During Year 6 Reservoir Dewatering

TERR-1c(2) Nonnative Species Management in Upper Penitencia Creek Watershed

TERR-1e Nesting Eagle Avoidance and Minimization Measures

TERR-1g Burrowing Owl Impact Avoidance

TERR-1h(1) Avoid Disturbance of the Cochrane Road Barn Roost

TERR-1h(2) Evict Pallid Bats prior to Initiating Maternity-Season Disturbance near the Cochrane Road Barn Roost

TERR-1h(3) Minimize Impacts on Pallid Bats Roosting Outside the Cochrane Road Barn

TERR-1h(4) Provide Alternative Pallid Bat Maternity Roost Structures

TERR-1j Contribution to Baylands Predator Management and High Tide Refugia Enhancement

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **cumulatively considerable** impacts on pallid bats and the pallid bat nursery site, but **not cumulatively considerable** impacts on other wildlife species and habitats. Cumulative impacts would be less than the Project’s cumulative impacts.

5.9.4.6 Cultural Resources

The Increased Ogier Ponds Alternative would have the similar but slightly greater impacts to Cultural Resources as described in Section 3.6, *Cultural Resources*.

Historic Resources

The Rhoades Ranch Historic District is near the Seismic Retrofit area, but there would be no direct impact on the historical resource. Dust and noise from construction would cause minor impacts; however, they would be temporary and would not alter the elements that contribute to the significance of the resource. The Coyote Percolation Dam, which is a contributing element to the Santa Clara Valley Water District Dams Historic District, is in the construction limits of the Phase 2 Coyote Percolation Dam CM. However, implementation of this Conservation Measure would have no impact on the dam because, prior to Project implementation, the resource will have been demolished and replaced by an inflatable bladder dam as part of FOCP. Therefore, the FAHCE-Plus Modified Alternative will have a **less-than-significant impact** to the built environment historical resources. The alternative would have the same impact as the Project.

Archeological Resources

Archaeological resources that have been determined to be eligible for listing for the NRHP/CRHR through formal evaluation, or that have not been formally evaluated but are assumed eligible for the purpose of this analysis, are in the Seismic Retrofit Project Area, and within the boundaries of the Ogier Ponds CM and the Phase 2 Coyote Percolation Dam CM. Ground disturbance during construction at archaeological resources in both the Seismic Retrofit construction area and the Ogier Ponds CM areas could have significantly impact elements of sites that contribute to their NRHP/CRHR-eligibility. In addition, erosion and recreational power boating within Anderson Reservoir related to the operation of the Seismic Retrofit component of the Project could create wave action along the exposed shoreline of the reservoir as the reservoir is refilled after Project completion, during the regular rise and fall of the reservoir due to Project operation and the resumption of recreational boating. These actions may erode archaeological historical resources and displace the artifacts within them.

BMP-CUL-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) will require that work will cease in areas where archaeological materials are discovered during construction until the finds can be analyzed and evaluated for NRHP/CRHR-eligibility, and that any eligible resources either be avoided or subject to data recovery studies. **Mitigation Measure CR-1** (Preconstruction Cultural Resources Awareness Training) will provide construction workers with awareness training about the nature of archaeological materials that might be discovered during ground disturbing activities and the protocols to be followed, should they be found. **Mitigation Measure CR-2** (Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided) will develop and implement a Data Recovery and Treatment Plan for archaeological resources that cannot be avoided. Lastly, **Mitigation Measure CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will require an archaeological and tribal monitor in areas sensitive for cultural resources during Project construction, the monitoring of sensitive areas during Project operations, and will implement protocols of the Monitoring and Unanticipated Discoveries Plan should archaeological materials be discovered. With implementation of these mitigation measures, substantial adverse changes in the significance of an archaeological resource would not occur, and significant impacts to archaeological historical resources within the Project areas would be reduced to **less than significant through mitigation**. The alternative would have a greater impact on archeological resources than the Project with greater activities around Ogier Ponds that could uncover undiscovered resources.

Human Remains

Two archaeological sites with human remains and one with a high potential to contain as-yet unidentified human remains are known to exist within Anderson Reservoir. All three of these sites in the reservoir could be damaged by erosion from fluctuating water levels during Seismic Retrofit operations and wave action caused by power boating. Therefore, Project impacts on disturbance of human remains would be significant. Compliance with Health and Safety Code section 7050.5 and PRC section 5097.98 would reduce impacts related to disturbance of human remains and **Mitigation Measures CR-1, CR-2, and CR-3** will reduce impacts to disturbing human remains to **less than significant with mitigation**. The alternative would have a greater impact to disturbance of human remains than the Project with greater activities around Ogier Ponds that could uncover human remains.

Mitigation Measures

CR-1 Pre-construction Cultural Resources Awareness Training

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on cultural resources. Cumulative impacts would be greater than the Project's cumulative impacts.

5.9.4.7 Energy

The Ogier Ponds Alternative would involve less excavation for the Coyote Creek Channel and less earth moving for filling because Pond 1 would not be filled, energy consumption due to use of construction equipment and truck traffic would be less than the Project. Other impacts are the same as described is Section 3.7, *Energy*.

Energy Consumption

Construction of the Seismic Retrofit and Conservation Measures components would consume approximately 17,842,000 ~~21,150 thousand~~ gallons of diesel and 780,000 ~~2,103 thousand~~ gallons of gasoline and result in increased demand on local and regional infrastructure. However, compared to the northern California region's annual average production of fuel over the 5-year period of 2018-2022, the total annual average energy demand of the Project be approximately 0.01 ~~0.03~~ percent of the region's gasoline production throughput and approximately 0.89 0~~.75~~ percent of the region's diesel production throughput (CEC 2023). The impacts of Project construction on local and regional fuel supplies would be temporary and minimal.

Although the energy related impact is less than significant, the Project will implement **Mitigation Measures AQ-1 and GHG-1** to address air quality and greenhouse gas emission impacts. These measures would further minimize Project energy impacts by increasing the efficiency of energy usage and decreasing the amount of non-renewable energy usage during construction. **Mitigation Measure AQ-1** requires all construction equipment greater than 25 hp and operating for more than 20 hours over the entire duration of construction activities to be equipped with Tier 4 engines and would require all on-road truck engines and boats to be year 2010 or newer and minimizes construction equipment idling time and requires regular maintenance for all equipment. **Mitigation Measure GHG-1** requires engine electrification and use of renewable fuels as feasible.

Project construction would utilize fuel-efficient equipment consistent with State and federal regulations and would comply with State measures to reduce the inefficient, wasteful, or unnecessary consumption of energy. Per applicable regulatory requirements of CALGreen, Project construction activities would comply with construction waste management practices to divert construction and demolition debris from landfills. These practices would result in efficient use of energy by Project construction. The Ogier Ponds Alternative's impact on energy use would be **less than significant impact with mitigation**. The alternative would have less of an impact on energy use than the Project.

State and Local Efficiency Plans

Project construction would be consistent with renewable energy and energy efficiency targets, standards, and guidance included in California Green Building Standards Code (CALGreen or Title 24 Part 11), California Building Energy Efficiency Standards (Title 24 Part 6), SB 100, Valley Water CCAP, Santa Clara County General Plan, Santa Clara County Sustainability Master Plan, Morgan Hill 2035 General Plan, and Envision San José 2040 General Plan with implementation of **Mitigation Measures AQ-1** and **GHG-1**. Project operation related to equipment and vehicle energy use would be consistent with these regulations and plans without mitigation. Therefore, Project construction and operation would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and overall impacts would be **less than significant with mitigation**. The alternative would have less of an impact on energy use than the Project.

Mitigation Measures

AQ-1 Implement Construction Criteria Air Pollutants Reduction Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on due to wasteful, inefficient, or unnecessary consumption of energy. The FAHCE-plus Modified Alternative would have **not cumulatively considerable** impacts related to conflict or obstruction of renewable energy and energy efficiency plans. Cumulative impacts would be less than the Project's cumulative impacts.

5.9.4.8 Geology and Soils

The Ogier Ponds Alternative would have similar impacts to geology and soils as described in Section 3.8, *Geology and Soils*. Less fill would be needed as Pond 1 would not be filled, but the alternative would have a greater extend of ground disturbance as the new channel for Coyote Creek would be excavated to the west of the alignment in the Project.

Fault Rupture and Shaking

The nearby active Calaveras fault lies just east of Anderson Reservoir and the active Coyote Creek Range fault transects Anderson Dam. However, construction and operation of the Project would not exacerbate the risk of fault rupture. The reservoir is not deep enough to cause RIS, vibrations associated with blasting and tunneling activities would not affect the earth at depths of where the underlying faults are locked (URS 2022), and no Project-related actions would increase the likelihood of seismic activity and associated surface fault rupture. As the Project would not increase the likelihood of an earthquake, exacerbate the likelihood of surface fault rupture, or increase the likelihood of seismic ground shaking in the Project area the Ogier Ponds Alternative would have **less-than-significant impact** on seismic related hazards. The Ogier Ponds Alternative would have the same impact as the Project.

Liquefaction

The Project is in an area susceptible to liquefaction. Placement of dam materials could increase the load on liquefiable soils, which may densify and settle during an earthquake. Placement of structures associated with the Conservation Measures, namely the levee at Ogier Ponds and the fish ramp at the Coyote Percolation Pond on liquefiable soils could exacerbate liquefaction hazards in those areas. The impact from liquefaction would be **less than significant**. The Ogier Ponds Alternative would have the same impact as the Project.

Landslides

Anderson Dam is in a mountainous area with steep slopes and unstable ground conditions that are susceptible to landslides due to faults and historic landslides that predate the reservoir. Ground disturbance associated with construction of the seismic retrofit of Anderson Dam, including drawdown of the reservoir, construction of stockpiles near landslides, removal of materials from the BHBA and the PGBS, and refilling of the reservoir could exacerbate likelihood of landslide, lateral spreading, and settlement by destabilizing landslide deposits. Excavation associated with the North Channel Extension conservation measure would occur near slopes that are mapped by CGS (2004) as susceptible to landslide. Excavation and construction of new stream channels associated with the Ogier Ponds CM, North Channel Extension, and Phase 2 Coyote Percolation Dam CM into liquefiable soils could increase risk of lateral spreading. All construction activities would be performed in accordance with DSOD, IBC, and CBC standards as applicable. In addition, Valley Water would continue to monitor slope stability and landslide movement through installed survey monuments and satellite reflectors within the reservoir as part of its normal operations. Valley Water implemented the Reservoir Bank and Rim Stability Mitigation and Monitoring Plan, Dewatering and Sediment Management Plan, and Slope Stability Plan. All these measures serve to reduce any landslide risks by taking action to minimize soil instability and monitoring for signs of land movement. The Project will also implement **Mitigation Measure GEO-1** (Repair Landslides Caused by Construction Activities) to reduce the risk of landslide as such that the Project's landslide risk is **less than significant with mitigation**. The Ogier Ponds Alternative would have the same impact as the Project.

Soil Erosion

Excavation and ground-disturbing activities associated with construction of the Project could result in soil erosion or the loss of topsoil. Such activities include clearing and preparing staging and stockpile areas; constructing, using, and maintaining stockpiles; excavating materials at borrow sites and conservation measures sites; placing sediment; and constructing and using unpaved roads. For construction activities outside of the reservoir, the The Project would implement a SWPPP in compliance with the Construction General Permit, and a set of erosion control BMPs (BMPs GEN-20, GEN-21, WQ-4, WQ-5, BI-3, BI-8, WQ-9, AQ-1, BANK-1, and REVEG-1) to minimize erosion around stockpiled soils and staging areas, stabilizing construction entrances and exits, removing any temporary fills, restoring the site to its pre-construction condition, and reducing fugitive dust. With adherence to requirements of the SWPPP for out-of-reservoir construction activities and BMPs, substantial soil erosion or loss of topsoil resulting from the Projects project would be **less than significant.** While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. The Ogier Ponds Alternative would have the same impact as the Project.

Paleontological Resources

Santa Clara Valley is known for yielding significant fossils from alluvium (Maguire and Holroyd 2016). In addition, other geologic units of Pleistocene age and older in the county are documented to have yielded significant fossils, including vertebrate fossils. One of these is the Santa Clara Formation in the Project area known locally as the Packwood Gravels. Excavation and ground-disturbing activities associated with Seismic Retrofit construction occurring in regions underlain by the Santa Clara Formation could expose paleontological resources. In addition, higher peak flows released from Anderson Dam during Project operation could increase risk of erosion downstream, which could increase risk of erosion uncovering significant paleontological resources and removing them from the original context, thereby potentially reducing their scientific significance. Excavation and ground-disturbing activities associated with the Project could expose paleontological resources. The Project will implement **Mitigation Measure GEO-3** (Paleontological Initial Survey), **Mitigation Measure GEO-4** (Paleontological Detailed Survey and Construction Monitoring), and **Mitigation Measure GEO-5** (Paleontological Discoveries Treatment Plan) that will require a pre-construction survey, construction monitoring, and plan for discovery of resources. The Project's impact on paleontological resource would **be less than significant with mitigation**. The Ogier Ponds Alternative would have a greater impact as the Project as the alternative would increase the extent of ground disturbance for the new Coyote Creek channel.

Mitigation Measures

GEO-1 Repair Landslides Caused by Construction Activities

GEO-2 Prepare a Geotechnical Investigation for Lateral Spreading Risk and Implement Recommendations

GEO-3 Paleontological Initial Survey

GEO-4 Paleontological Detailed Survey and Construction Monitoring

GEO-5 Paleontological Discoveries Treatment Plan

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on geology and soils. Cumulative impacts would be greater than the Project's cumulative impacts.

5.9.4.9 Greenhouse Gas Emissions

The Ogier Ponds Alternative would result in emissions of GHGs during construction. However, because this alternative would involve less excavation for the Coyote Creek Channel and less earth moving for filling because Pond 1 would not be filled, GHG emissions would be less than the Project as described in Section 3.9, *Greenhouse Gas Emissions*.

Greenhouse Gas Emissions

Project construction would generate approximately 235,240 MT CO_2e of GHG emissions, which is a significant impact. The changes at Ogier Ponds would result in a small reduction in this total. Project operation would result in negligible generation of GHG emissions. Implementation of **Mitigation Measure GHG-1** will require Valley Water and/or its contractor to implement construction-related GHG emission reduction measures, such as using zero-emission and hybrid-powered equipment, minimizing idling time, using renewable diesel fuel, using USEPA SmartWay certified trucks, requiring proper maintenance of construction equipment, encouraging and providing carpool, transit, and alternative modes of transportation, recycling or salvaging nonhazardous debris, and efficiently using water. Implementation of **Mitigation Measure GHG-2** will require Valley Water to offset GHG emissions ~~purchase carbon offsets~~ before construction activities commence in an amount sufficient to reduce any GHG emissions remaining after implementation of **Mitigation Measure GHG-1** to less-than-significant levels. With implementation of **Mitigation Measures GHG-1** and **GHG-2**, Project construction GHG emissions impacts will be **less than significant with mitigation**. The Ogier Ponds Alternative would have a smaller impact on greenhouse gas emissions than the Project.

GHG Plans

Project construction would be consistent with SB 32, AB 1279, the 2022 Scoping Plan, the Valley Water CCAP, the Morgan Hill CAP, and Climate Smart San José with implementation of **Mitigation Measures GHG-1** and **GHG-2**. Project operation would not conflict with these GHG reduction policies and plans without mitigation. Therefore, the Project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions, and overall impacts would be **less than significant with mitigation**. The Ogier Ponds Alternative would have the same impact to GHG reduction plans as the Project.

Mitigation Measures

GHG-1 Utilize Electrification and Renewable Fuels During Construction

GHG-2 ~~Purchase Carbon Offsets~~ Offset GHG Emissions Prior to and During Construction

~~GHG-1 Construction GHG Mitigation~~

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on GHG emissions. Cumulative impacts would be less than the Project's cumulative impacts.

5.9.4.10 Hazards and Hazardous Materials

The Ogier Ponds Alternative would have similar impacts to hazards materials are the Project as described in Section 3.10, *Hazards and Hazardous Materials*; however, the alternative may be located on sites that are included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and has the potential to encounter soil or groundwater contamination due to the previous agricultural and mining uses in the alternative Coyote Creek channel.

Use and Accidental Release of Hazardous Material

During the construction of the Seismic Retrofit and Conservation Measures, hazardous materials commonly associated with construction activities (e.g., gasoline, diesel fuel, paints, solvents, hydraulic fluid) would be present and handled onsite, as well as transported to and from the Project Area and would create impacts if accidentally released. These materials would be primarily found within construction equipment but may also be stored onsite at the staging areas, and transported, as necessary, to work areas. NOA is known to be present in the rock types that underlay much of the dam and spillway area. Excavation of serpentinite and other materials containing NOA could expose the public and construction workers to airborne asbestos, which would be a significant impact.

The Project project is required to comply with federal, State, and local laws, regulations, and policies designed to minimize hazardous materials impacts to the public and environment. The Project would implement Valley Water BMPs (HM-8, WQ-6, WQ-17) to minimize the chance of release of hazardous materials. For Seismic Retrofit construction, compliance with BAAQMD's ATCM for Construction, and BMP-AQ-1 and BMP HM-13, would minimize potential impacts from NOA. The implementation of **Mitigation Measure HAZ-1** (Construction and Grading Operations Dust Control Measures), **Mitigation Measure HAZ-2** (Track Out Control Measures for Roads from NOA-Containing Areas), **Mitigation Measure HAZ-3** (Traffic Control Measures within NOA-Containing Construction Areas), **Mitigation Measure HAZ-4** (Dust Control Measures During Earthmoving Activities), **Mitigation Measure HAZ-5** (Dust Control Measures During Tunneling Activities), and **Mitigation Measure HAZ-6** (Separation of Rock Containing NOA) will reduce the Project's impact from hazardous material to **less than significant with mitigation**. The Ogier Ponds Alternative would have the same impact as the Project to hazardous material due.

Sensitive Receptors

The William F. James Boys Ranch (Boys Ranch) is located within 0.11 miles of Anderson Dam, which is considered a sensitive receptor for hazardous materials. During construction compliance with BAAQMD's ATCM for Construction, and BMP-AQ-1 and BMP HM-13, would minimize potential impacts from NOA. The implementation of MM HAZ-1 through HAZ-6 and **Mitigation Measure HAZ-7** (Soil Testing and Proper Disposal of Potentially Contaminated Soils) will reduce the Project's impact to sensitive receptors **less than significant with mitigation**. The Ogier Ponds Alternative would have the same impact as the Project to sensitive receptors.

Discovery of Hazardous Materials

The alternative Coyote Creek channel at Ogier Ponds may be located on sites that are included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and has the potential to encounter soil or groundwater contamination due to the previous agricultural and mining uses. Other project sites that are the same as the Project as listed. There is also potential to discover unknown hazardous materials sites during construction activities, which would be a significant impact. Implementation of BMP HM-9 would include measures for proper handling, storage, and disposal of hazardous materials and **Mitigation Measure HAZ-7** will minimize impacts to the public or environment should unknown contaminants or contaminated soil be encountered during construction activities. For the Ogier Pond Alternative, Valley Water would implement **Mitigation Measure OP-HAZ-1** (Implement Recommendations in the Phase I HSLA) for APNs 725-04-002, 725-05-011, and 725-05-014. The Project's impact on hazardous sites and the discovery of hazardous materials is **less than significant with mitigation**. The Ogier Ponds Alternative would have a greater impact than the Project to hazardous waste sites.

Emergency Response and Evacuation Plan

Construction would involve operation of large construction equipment, transport and storage of construction materials, and worker commute trips to and from the area, which could impede movement and access of emergency response vehicles or interfere with evacuation procedures, which would be a significant impact. Cochrane Road between Coyote Road and Malaguerra Avenue (or portions of this segment) would be closed to through traffic for varying durations throughout the construction period. Implementation of BMP TR-1, PS-AMM-2, **Mitigation Measure PS-1** (Prepare and Implement Traffic Management Plan) which requires the preparation and implementation of a TMP, and **Mitigation Measure WF-1** which requires coordination with local and state emergency response and fire agencies and preparation of a Response and Evacuation Strategy, which will maintain adequate emergency response and identify and maintain evacuation routes, that all emergency response agencies are notified in advance of all lane and road closures and that evacuation routes are passable or alternate routes are available will reduce impacts on emergency response to less-than-significant levels. Impacts related to impairing implementation of or interfering with an adopted emergency response plan or emergency evacuation routes/plans would be **less than significant with mitigation.** The Ogier Ponds Alternative would have the same impact as the Project on emergency response.

Valley Fever

As discussed in Section 3.10.1.6, *Valley Fever*, construction activities have the potential to release the soil-dwelling fungus (Coccidioides) that can cause Valley Fever. Such a release could pose a hazard to construction workers and/or the public, which would be a significant impact. BAAQMD's ATCM for Construction, BMP-AQ-1, and **Mitigation Measures HAZ-1** through **HAZ-5** will implement dust control measures to minimize potential impacts from Valley Fever. The risk of Valley Fever is **less than significant with mitigation**. The Ogier Ponds Alternative would have the same impact as the Project related to Valley Fever.

Mitigation Measures

HAZ-1 Construction and Grading Operations Dust Control Measures

HAZ-2 Track Out Control Measures for Roads from NOA-Containing Areas

HAZ-3 Traffic Control Measures within NOA-Containing Construction Areas

HAZ-4 Dust Control Measures During Earthmoving Activities

HAZ-5 Dust Control Measures During Tunneling Activities

HAZ-6 Separation of Rock Containing NOA

HAZ-7 Soil Testing and Proper Disposal of Potentially Contaminated Soils

OP-HAZ-1 Implement Recommendations in the Phase I HSLA

Valley Water will conduct a Phase I HSLA study on the properties to be acquired for the new Coyote Creek channel around the Ogier Ponds (APNs 725-04-002, 725-05-011, and 725-05-014 or other properties based on final design) and implement any recommendations that come out of the report to protect the surrounding environment and groundwater resources.

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on hazards and hazardous materials related to reasonably foreseeable upset or accident conditions, emission of hazardous materials within one-quarter mile of a school, a site included on a list of hazardous materials sites, and Valley Fever. The Ogier Ponds Alternative would have **not cumulatively considerable** impacts related to routine transport, use, or disposal of hazardous materials and impairment or interference with an emergency response or evacuation plan. Cumulative impacts would be greater than the Project's cumulative impacts.

5.9.4.11 Hydrology

The Ogier Ponds Alternative would have similar impacts to hydrology as the Project as described in Section 3.11, *Hydrology*. The alternative would create a new channel for Coyote Creek around Ogier Ponds, but this would not affect the impact of erosion from sediments on the bottom of Anderson Reservoir. A work area that is greater in extent for the new channel would slightly increase the risk of erosion and release of hazardous materials from construction. The alternative channel would be designed to convey flood flows and would not affect the risk of flooding from dam inundation.

Erosion

The Project would discharge large volumes of sediment following storms while the reservoir is dewatered given the exposure of sediments previously inundated on the bottom of Anderson Reservoir and the limited capacity to store water behind the coffer dam during construction. Construction and maintenance associated with the various components have the potential to loosen materials that could be washed downstream, thus contributing to accelerated rates of erosion and sedimentation. **Mitigation Measure WQ-1** requires implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. However, impacts would remain significant even with implementation of **Mitigation Measure WQ-1**. However, because addition mitigation is not available to decrease the magnitude of the impact to a less-than-significant level, erosion to Coyote Creek from sediments on the bottom of Anderson Reservoir is **significant and unavoidable**.

Implementation For construction activities outside of the reservoir, implementation of a SWPPP and erosion control BMPs such as: BMP AQ-1 (Use Dust Control Measures), BMP WQ-4 (Limit Impacts From Staging and Stockpiling Materials), BMP WQ-1 (Conduct Work from Top of Bank), BMP WQ-2 (Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms), BMP WQ-5 (Stabilize Construction Entrances and Exits), BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-10 (Prevent Scour Downstream of Sediment Removal), BMP WQ-11 (Maintain Clean Conditions at Work Sites), BMP WQ-16 (Prevent Stormwater Pollution) will reduce erosion and sedimentation. However, erosion to Coyote Creek from sediments on the bottom of Anderson Reservoir is **significant and unavoidable**. With the SWPPP and BMPs for out-of-reservoir construction activities, the impact of erosion aside from reduced sediment being carried downstream during certain-sized storm events would be **less than significant**. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. The Ogier Ponds Alternative would have the same impact as the Project on erosion from construction.

Runoff

Project construction and maintenance activities would involve denuding areas of vegetation to create access or stable surfaces, which reduce the capacity of these areas to absorb water and slow runoff. Utilization of areas by heavy equipment during construction would compact soils, making the ground surface harder and less conducive to infiltration of water to soil or groundwater. The Seismic Retrofit components of the Project would create relatively minor amounts of new impervious surface (widened/expanded existing roadways). Compliance with the SWPPP and erosion control BMPs for out-of-reservoir construction activities would assure that surface runoff would be **less than significant**. The Ogier Ponds Alternative would have the same impact as the Project on sedimentation.

Surface Runoff

Due to the use of hazardous materials (e.g., fuel, oil, lubricants, etc. in construction equipment), there would be potential for discharge of polluted runoff if such materials were handled, stored, or disposed of improperly and/or if any accidental releases of such materials were to occur. The SWPPP, which would be implemented for out-of-reservoir construction, includes good housekeeping measures for: construction materials, waste management, and potential pollutant sources. Additional, BMPs would reduce potential impacts associated with hazardous materials releases: 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). These BMPs would include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites and providing training spill cleanup materials for field personnel. The Project would have a **less than significant** impact on polluted runoff. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. The Ogier Ponds Alternative would have the same impact as the Project on polluted runoff.

Flooding

During construction of the Seismic Retrofit component, there would be increased potential for flooding (i.e., higher flows could occur in Coyote Creek more frequently during storm events) relative to the existing conditions baseline for flows under the 50-year return period (approximately 4,000 cfs–5,000 cfs); however, this flooding risk would be largely reduced relative to Pre-FERC Order Conditions and would not result in widespread, damaging floods.

During the post-construction period, flooding risk associated with operation of the dam would be reduced relative to the Pre-FERC Order Conditions Baseline. The impact from flooding would be **less than significant.** The Ogier Ponds Alternative would have the same impact as the Project on flooding.

Dam Inundation

The objective of the Project is to reduce the long-term risk of flooding from dam failure. Construction of the Seismic Retrofit components would not directly increase the risk of flooding due to dam failure and would not but could potentially exacerbate the impacts from a failure of Coyote Dam, which is located upstream of Anderson Dam and is also susceptible to seismic risks. Risk of flooding from dam failure increases marginally during construction of the Seismic Retrofit but is minimized through winterization measures in the wet season while the crest of the dam is lowered. A restriction has been in place for Coyote Reservoir since 1992, limiting storage in this reservoir 52.5 percent of total capacity. If Coyote Dam were to fail, the downstream effects would be reduced by the presence of Anderson Reservoir, which itself has been under a restriction since 2009. During Seismic Retrofit construction, each interim reservoir at the end of each construction season would have capacity that exceeds the capacity of Coyote reservoir. Additionally, the seismic retrofit of Anderson Dam would not exacerbate the risk of failure of Coyote Dam or increase potential downstream flooding compared to existing conditions. In addition, the storage restriction on Coyote Reservoir limits the potential effects of severe damage to the dam from an earthquake and the possibility of uncontrolled flows. With restricted capacity the possibility of water overtopping damage caused by an earthquake is nearly completed avoided. Given the very low probability of dam failure, which would require a major earthquake in close proximity to Coyote Reservoir following a wet period that fills the reservoir beyond its capacity to release high flow, the Project's impact on risk from dam inundation is **less than significant**. The Ogier Ponds Alternative would have the same impact as the Project on flooding from dam inundation.

Mitigation Measures

WQ-1 Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **cumulatively considerable** impacts on erosion and sedimentation, but **not cumulatively considerable** impacts on flooding, polluted runoff, and risk of dam failure. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.4.12 Groundwater Resources

The Ogier Ponds Alternative would have similar impacts to groundwater as the Project as described in Section 3.12, *Groundwater Resources*. The alternative would create a new channel for Coyote Creek around Ogier Ponds; however, the geology around Ogier Ponds does not support groundwater recharge and the revised channel is not expected to affect in-channel recharge rates. Less fill would require less heavy equipment at Ogier Ponds, but the work would be over a greater surface area to construct the new channel, on balance the likelihood of spills of hazardous material that could affect groundwater are about the same as the Project. The alternative would not affect wells around Anderson Reservoir of the ability of the Project to comply with the Basin Plan or GWMP.

Groundwater Supply

The loss of storage in Anderson Reservoir would greatly limit the amount of water that could be released from reservoir for the purpose of groundwater recharge along Coyote Creek. Seismic Retrofit construction would not substantially affect groundwater storage and supplies or recharge, as WEAP modeling has shown that groundwater storage in the Coyote Valley would remain above the 5,000 GWMP outcome measure, given implementation of imported water releases in Coyote Creek. Impacts to groundwater recharge would be **less than significant**. The Ogier Ponds Alternative would have the same impact as the Project on groundwater recharge.

The dewatering of Anderson Reservoir during the 7-year Seismic Retrofit construction period could impact nearby wells outside of the groundwater basin and managed aquifer; however, this impact will be reduced to less than significant with implementation of **Mitigation Measure GW-1** (Provide Alternative Supplies). As such, the impact to surrounding wells would be **less than significant with mitigation**.

Blasting at the BHBA could release perchlorates and various other water-soluble nitrogen-compounds during the use of explosives. The risk from perchlorates and other water-soluble nitrogen-compounds is primarily in relation to groundwater. Perchlorate salts are highly soluble in water and sorbs poorly to mineral surfaces and organic material; therefore, it is typically very mobile in surface water and groundwater. It is persistent in the environment and at high enough concentrations can affect thyroid gland functions. The risk of groundwater contamination from perchlorates will be minimized by **Mitigation Measure GW-2** (Pollutants from Blasting Activities) which includes a set of BMPs for the proper use and disposal of perchlorate. The impact to groundwater quality is less than significant with mitigation and the Ogier Ponds Alternative would have the same impact as the Project on wells around Anderson.

Groundwater Quality

Construction equipment to be used during construction and maintenance activities would contain hazardous materials, such as fuel, oil, lubricants, etc. that can degrade groundwater quality if spilled or improperly handled. Implementation of a SWPPP for construction activities outside the reservoir, and hazardous materials BMPs, including BMPs HM-7, HM-8, HM-9, and HM-10, which will include protocols for providing secondary containment for hazardous materials used in the field or stored at staging areas or at work sites and providing training and spill cleanup materials for field personnel will reduce impacts to groundwater quality to **less than significant**. The Ogier Ponds Alternative would have the same impact as the Project on groundwater quality. While not required to reduce impacts to less than significant, Mitigation Measure WQ-1 would further reduce these impacts by requiring implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control hazardous materials and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements.

Blasting at the BHBA could release perchlorates and various other water-soluble nitrogen-compounds during the use of explosives. The risk from perchlorates and other water-soluble nitrogen-compounds is primarily in relation to groundwater. Perchlorate salts are highly soluble in water and sorbs poorly to mineral surfaces and organic material; therefore, it is typically very mobile in surface water and groundwater. It is persistent in the environment and at high enough concentrations can affect thyroid gland functions. The risk of groundwater contamination from perchlorates will be minimized by **Mitigation Measure GW-2** (Pollutants from Blasting Activities) which includes a set of BMPs for the proper use and disposal of perchlorate. The impact to groundwater quality is less than significant with mitigation and the Ogier Ponds Alternative would have the same impact as the Project on groundwater quality.

The reduction in groundwater levels in the area immediately surrounding Anderson Reservoir could adversely affect groundwater quality in this area; however, these effects would be temporary and the impacts on well owners will be reduced to less-than-significant levels through implementation of **Mitigation Measure GW-1** (Provide Alternative Supplies). The Ogier Ponds Alternative would have the same impact as the Project on local well groundwater quality.

Groundwater Plans

As described in Section 3.12.1.2, the San Francisco Bay Basin Plan identifies beneficial uses for groundwater within the San Francisco Bay region and establishes narrative and numerical WQOs to achieve the beneficial uses for those waters. Valley Water's GWMP for the Santa Clara and Llagas Subbasins (Valley Water 2021) describes a comprehensive groundwater management framework, including existing and potential actions to achieve basin sustainability goals and ensure continued sustainable groundwater management. As discussed above the Project would not substantially affect groundwater quantity or quality and with **Mitigation Measure GW-1** will not impact well owners around Anderson Reservoir. As such, Project impacts on groundwater plans would be **less than significant with mitigation**. The Ogier Ponds Alternative would have the same impact as the Project on groundwater plans.

Mitigation Measures

GW-1 Provide Alternative Supplies

GW-2 Implement Perchlorate Best Management Practices

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on groundwater resources. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.4.13 Water Supply

The Ogier Ponds Alternative would have the same impacts to water supply as the Project as described in Section 3.13, *Water Supply*. The alternate Coyote Creek channel would not affect recharge rates or the overall water supply for the county.

Water Supply

During the Seismic Retrofit component construction, Anderson Reservoir would be almost completely dewatered which would limit supplies available for groundwater recharge and water supply. Modeling results indicate that there may be a reduction in groundwater recharge and storage downstream of the dam during construction, but that simulated groundwater storage would remain above the 5,000 AF outcome measure for Coyote Valley. With increased imported water releases, WEAP modeling has indicated that no significant impacts would occur to water supply conditions during the Seismic Retrofit construction period. Once Project construction has been completed, releases from the dam would be made in accordance with the FAHCE operating rule curves. The Project would not substantially alter or reduce Valley Water's ability to have sufficient water supplies from existing entitlements and resources, and this impact would be **less than significant**. The Ogier Ponds Alternative would have the same impacts to water supply as the Project.

Water Supply Infrastructure

No new water supplies facilities would be required due to construction and operation of the Project. Restoring the full capacity of Anderson Reservoir would support Valley Water's water supply portfolio. No new or expanded private wells along the rim of the reservoir would be constructed due to water table effects with implementation of **Mitigation Measure GW-1**. Additionally, implementation of **Mitigation Measure GW-2** will avoid any impacts on groundwater quality from blasting activities. Therefore, the water facility impact would be **less than significant with mitigation.** The Ogier Ponds Alternative would have the same impacts on water supply facilities as the Project.

Mitigation Measures

GW-1 Provide Alternative Water Supplies

GW-2 Implement Perchlorate Best Management Practices

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on water supply. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.4.14 Water Quality

The Ogier Ponds Alternative would have similar impacts to water quality as the Project as described in Section 3.14, *Water Quality*. The alternate channel alignment would not affect water quality parameters. The wider extent of ground-disturbing activities would slightly increase the risk of construction related erosion and released of hazardous materials.

In-Reservoir Water Quality

During construction with Anderson Reservoir at deadpool the limited storage would create higher temperatures and increase turbidity (especially following storms) substantially degraded in-reservoir water quality that would not support designated beneficial uses (COMM, COLD, SPWN, WARM, WILD, REC-1 and REC-2). **Mitigation Measure WQ-1** requires Mitigation Measure WQ-1 requires implementation of a WQMPP for in-reservoir construction activities, which would include evaluation of the water quality monitoring data collected during FOCP implementation and Project construction, and implementation of BMPs to control sediment and other pollutants associated with in-reservoir construction activities to the extent technically feasible and in accordance with regulatory requirements. However, impacts would remain significant even with implementation of **Mitigation Measure WQ-1**. Because no additional mitigation is available to decrease the impact to less than significant, this This impact is

significant and unavoidable. The Ogier Ponds Alternative would have the same impact as the Project to in-reservoir water quality.

Reservoir dewatering would result in substantial discharges of sediment as storm runoff travels over previously inundated sediments at the bottom of the reservoir, and there is only limited water storage to settle out sediments from upstream. This temporary increase in turbidity following storms is in **significant and unavoidable**. The Ogier Ponds Alternative would have the same impact as the Project to sedimentation from the reservoir bottom.

Other Water Quality Impacts

The excavation of soils within or near the reservoir and creek, placement of fill within or near the reservoir or creek to construct dam improvements and Conservation Measures, vehicle travel on unpaved access and haul roads, exposed unvegetated work sites and staging areas, uncovered stockpiles, and mining activities could result in erosion of surface soils. Resultant erosion may cause turbidity and sedimentation, and impact water quality. Construction and maintenance activities would also involve the use of hazardous materials and herbicides, which could accidentally be released into the environment, resulting in adverse effects on water quality. Implementation of a SWPPP for out-of-reservoir construction and applicable erosion control BMPs for in-reservoir and out-of-reservoir construction including: BMP AQ-1 (Use Dust Control Measures), BMP WQ-4 (Limit Impacts From Staging and Stockpiling Materials), BMP WQ-1 (Conduct Work from Top of Bank), BMP WQ-2 (Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms), BMP WQ-5 (Stabilize Construction Entrances and Exits), BMP WQ-9 (Use Seeding for Erosion Control, Weed Suppression, and Site Improvement), BMP WQ-10 (Prevent Scour Downstream of Sediment Removal), BMP WQ-11 (Maintain Clean Conditions at Work Sites), and BMP WQ-16 (Prevent Stormwater Pollution); hazardous material BMPs: BMP HM-7 and HM-8 which reduces reduce the risk of vehicle-related pollutants and BMPs HM-9 and HM-10 which proper management of hazardous materials and the implementation of spill prevention measures; and herbicide BMPs: HM-1 (Comply with All Pesticide Application Restrictions and Policies), HM-2 (Minimize Use of Pesticides), HM-4 (Comply with All Pesticide Usage Requirements), HM-5 (Comply with Restrictions on Herbicide Use in Upland Areas), and HM-6 (Comply with Restrictions on Herbicide Use in Aquatic Areas) will help protect water quality. The SWPPP for out-of-reservoir construction activities and implementation of applicable BMPs for in-reservoir and out-of-reservoir construction would ensure water quality impacts are **less than significant** for construction and maintenance related activities. The Ogier Ponds Alternative would have the same impact as the Project.

Some construction elements would require the removal of groundwater to keep work areas dry. To avoid water quality impacts this groundwater would be treated by a ATS system; imported water would be chilled as needed prior to release to Coyote Creek to ensure cold water in the CWMZ; and Valley Water would comply with the Stormwater NPDES Permit as applicable to minimize impacts from new impervious surfaces. Other water quality impacts would **be less than significant**. The Ogier Ponds Alternative would have the same impact as the Project to other water quality issues.

Overall, the Project would generate substantial beneficial impacts to water quality and beneficial uses. The new reservoir outlet would allow for greater flexibility in releases that would allow greater use of the reservoir’s cold-water pool and reduce the potential for uncontrolled reservoir spills. Live Oak Restoration Project, the The Ogier Ponds CM, Sediment

Augment Program, Maintenance of the North Channel Reach Extension, and Phase 2 Coyote Percolation CM would all provide water quality benefits and habitat enhancements the support beneficial uses.

Mitigation Measure

WQ-1 Develop and Implement an In-Reservoir Construction Area Water Quality Monitoring and Protection Plan

GW-2 Implement Perchlorate Best Management Practices

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **cumulatively considerable** impacts on turbidity water quality objectives, but **not cumulatively considerable** impacts on other water quality objectives or on beneficial uses, Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.4.15 Land Use

The Ogier Ponds Alternative could conflict with a land use plan, policy, or regulation through the acquisition of 18 acres of land zoned and used for agriculture. This acquisition would remove the agricultural use, which would result in a conflict with local zoning. However, Valley Water is not obligated to comply with local zoning regulations. The impact would be **less than significant**. Because of the increased area that would conflict with local zoning regulations, the magnitude of the impact is greater than under the Project as described in Section 3.15, *Land Use*.

Conflict with Land Use Plans, Policies, and Regulations

The majority of the land that would be affected by the Project is designated as recreational. Portions of Anderson Lake County Park, Coyote Creek Parkway, Ogier Ponds, and the Coyote Percolation Pond would be closed during construction of the Seismic Retrofit improvements and Conservation Measure components, affecting recreational land uses in the area. These effects would be temporary in nature. Implementation of BMP AQ-1, BMP AQ-2 BMP TR-1, BMPs GEN-36, GEN-37, and GEN-39 will minimize the level of disruption and impairment of onsite land uses during the Project construction period. Operation of the Project would minimize the risk of reservoir spill and downstream flooding and provide in-stream environmental flows consistent with land use policies and regulations. The Project would seismically upgrade a critical facility consistent with local goals and policies, and construction and operation would not result in significant environmental impacts related to conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be **less than significant**. The Ogier Ponds Alternative would have a greater impact than the Project as it would convert zoned agricultural land to a creek channel and floodplain.

Regarding cumulative impacts, like the Project, the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on land use. Cumulative impacts would be greater than the Project's cumulative impacts.

5.9.4.16 Noise and Vibration

The Ogier Ponds Alternative would have the same noise impacts for other Project components as the Project as described in Section 3.16, *Noise and Vibration*. The alternative would result in less fill and equipment use as Pond 1 would not be filled but work would occur over a larger area to construct the alternate channel.

Noise

Construction of the Seismic Retrofit Component, Ogier Ponds CM, and the Sediment Augmentation Program would exceed applicable construction noise thresholds of significance, while Project operational noise impacts would be less than significant. Seismic Retrofit construction noise levels would exceed the 10 dBA increase above ambient threshold at key receptors as discussed in Section 3.16, *Noise and Vibration*. Seismic Retrofit nighttime construction noise levels would exceed the nighttime construction noise threshold of 50 dBA L_{eq}.

Mitigation Measure NOI-1 will require Valley Water to implement a Construction Management Plan, and **Mitigation Measure NOI-2** is specific to Seismic Retrofit construction and will require the installation of a temporary noise barrier, limiting of construction activity at Staging Area 1 and Stockpile Area E, provide a noise complaint phone number and construction noise monitoring during nighttime periods of construction, and reduce speeds along haul routes. Implementation of **Mitigation Measure NOI-3** is specific to Ogier Ponds CM construction and will require the installation of a temporary noise barrier and the reduction of truck and vehicle speeds along Cochrane Road. Even with mitigation, noise levels would still exceed the thresholds of significance and construction would result in generation of a temporary increase in ambient noise levels in excess of locally adopted standards. Impacts would be **significant and unavoidable**. The Ogier Ponds Alternative would have the same impacts to noise as the Project. Less equipment would be required at Ogier Ponds, but over a wider area; however, all these changes are at the far end of Ogier Ponds complex where sensitive receptors are not located. Construction activities near the receptors would be the same.

Vibration

Construction of the Seismic Retrofit components and the Sediment Augmentation Program would exceed construction vibration thresholds of significance of 72 VdB at sensitive receptors. Blasting activities during Seismic Retrofit construction could exceed applicable blasting thresholds.

Implementation of **Mitigation Measure NOI-4** will require the use of oscillatory or static rollers in lieu of a vibratory roller within 150 feet of residential structures receptors. Implementation of **Mitigation Measure NOI-5** will require vibration and air overpressure monitoring be conducted while initial blasting activities occur. Monitoring results would be used to adjust blast loading limits to properly reflect site-specific conditions to ensure vibration impacts from blasting do not exceed the building damage thresholds. Mitigated vibration levels would not exceed the established thresholds. Therefore, Project construction would not generate excessive groundborne vibration or groundborne noise levels and impacts would be **less than significant with mitigation**. The Ogier Ponds Alternative would have the same impacts to vibrations as the Project.

Mitigation Measures

NOI-1 Implement Construction Noise BMPs Reduction Measures

NOI-2 Implement Seismic Retrofit Construction Noise Reduction Measures

NOI-3 Implement Ogier Ponds CM Construction Noise Reduction Measures

NOI-4 Seismic Retrofit and Sediment Augmentation Program Construction Vibration Reduction Measures

NOI-5 Implement Blasting Plan

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **cumulatively considerable** impacts on noise*. , but* The Ogier Ponds Alternative would have **not cumulatively considerable** impacts on vibration. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.4.17 Public Services

The Ogier Ponds Alternative would not have increased impacts on police and fire services. The alternative would have the same impacts to public services as the Project as described in Section 3.17, *Public Services*.

Fire and Police Services

Temporary impacts on police and fire protection services would include accidental ignition of a wildfire, use of hazardous materials that may require additional fire protection services, and temporary increases and disruptions to vehicle traffic in the Project vicinity, which could impede emergency response timing. Implementation of BMPs HM-12, HM-8, and HM-9 will minimize the risk of accidental ignition. BMP TR-1 will require construction warning signs, safety fencing, and detours which would minimize potential impacts on emergency response times. Although construction traffic levels would increase emergency service response times, it would not disrupt emergency service response to the point that would require the construction or expansion of police or fire protection facilities other than potentially the need for temporary emergency access roads, which might cause significant impacts, which a significant impact. **Mitigation Measure PS-1** requires preparation of a TMP and coordination with fire protection services and first responders, and **Mitigation Measure WF-1** which requires coordination with local and state emergency response agencies and preparation of a Response and Evacuation Strategy, which will maintain adequate emergency response and identify and maintain evacuation routes, will reduce potential impacts associated with impeding emergency response times to a less-than-significant level. Impacts to police and fire services would be **less than significant with mitigation.** The Ogier Ponds Alternative would have the same impact as the Project.

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) Emergency Action Plan

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on public services. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.4.18 Recreation

The Ogier Ponds Alternative would not affect the impact on recreation. The alternative would have the same impacts to public services as the Project as described in Section 3.18, *Recreation*.

Recreation Facilities

The Project would require closure of Anderson Lake County Park, Coyote Creek Parkway, Ogier Ponds, and the Coyote Percolation Pond for the duration of construction; however, there are 100 other recreational facilities in the study area (i.e., all parks within 5 miles of the Project area as well as regional parks in the county), many of which include a variety of infrastructure and accommodate a wide range of recreational activities including hiking and fishing (see **Table 3.18-1** and **Figure 3.18-1**). Temporary impacts on recreational facilities resulting from the Seismic Retrofit components would be distributed across many nearby recreational facilities, so this impact is less than significant.

Coyote Creek Trail and portions of Hellyer Park would be periodically inundated by Coyote Creek at several low flow crossings more frequently during construction the seismic retrofit. Longer recreational facility closures during the wet season could result in physical deterioration of other recreational facilities or the acceleration of the physical deterioration of those facilities. Therefore, this impact would be significant.

Implementation of **Mitigation Measure REC-1** will reduce impacts to **less than significant with mitigation** by requiring Valley Water to provide funding and implementation of the future relocation and/or modification of recreational facilities within the Coyote Creek corridor to mitigate for inundation and other Project impacts on those facilities compensating SCCPRD for anticipated extra maintenance costs. The Ogier Ponds Alternative would have the same impact to recreational facilities as the Project.

Permanent Modification to Recreation Facilities

The Project would result in several permanent modifications to recreational facilities. As described in Section 2.4.5.12, the Live Oak Picnic Area would include an improved walking loop, a bridge over the North Channel and connection to the Serpentine Trail, an interpretive trail along Coyote Creek, relocation of the group picnic area closer to restroom and parking areas, and tree replacement planting. Additionally, the existing boat ramp at Anderson Dam would be improved by constructing a second entrance off Cochrane Road, constructing a dedicated inspection area, and an EV charging area would be replaced and improved. These facility improvements would be minor and would not have a significant adverse physical effect on the environment. This impact would be **less than significant**. The Ogier Ponds Alternative would have the same impacts to permanent facilities as the Project.

Mitigation Measures

REC-1 Funding and Implementation of Maintenance Reimbursement for Park Facility Improvements within the Coyote Creek Corridor Closures During High Flow Events

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on recreation. Cumulative impacts would be the same as the Project's cumulative impacts.

5.9.4.19 Transportation

The Ogier Ponds Alternative would generate less construction trips compared to the Project as described in Section 3.19, *Transportation,* due to the reduced amount of excavation and the reuse of excavated materials onsite at Ogier Ponds.

Transportation Plans

Project construction and operation would largely be consistent with plans and policies governing the circulation system. However, as with the Project, modified flows expected in Coyote Creek could result in impacts to recreational facilities that are used by pedestrians. This would be a significant impact on pedestrian facilities. **Mitigation Measure REC-1** (Funding and Implementation of Maintenance Reimbursement for Park Facility Improvements within the Coyote Creek Corridor Closures During High Flow Events) would reduce impacts on pedestrian facilities and prevent substantial conflicts with trails plans and policies. This impact would therefore be **less than significant with mitigation.**

The Ogier Ponds Alternative would have the same impact to transportation plans as the Project.

Emergency Access

The Project would generate additional construction roadway vehicle trips and include road closures that have the potential to impede emergency access. MP TR-1 would reduce this impact, but it would still be significant. With implementation of **Mitigation Measure PS-1** (Prepare and Implement Traffic Management Plan) and **Mitigation Measure WF-1** (Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) Emergency Action Plan), impacts on emergency access will be less than **significant with mitigation.** The Ogier Ponds Alternative would have less impacts on on emergency access than the Project due to less construction trips.

VMT

The Project's construction-related VMT would be temporary and operation-related VMT would be negligible and would not contribute to a substantial change in long-term VMT. As a large infrastructure project, the Project would have little long-term effect on air quality and greenhouse gas benefits related to long-term reductions in VMT (as discussed under Section 3.19.3, *Methodology*). Because the increase in VMT during construction would be temporary, and there would be a de minimis effect on VMT during operations, the Project would not conflict with or be inconsistent with *CEQA Guidelines* section 15064.3(b). Therefore, impacts related to VMT would be **less than significant.** The Ogier Ponds Alternative would have less impact to VMT compared to the Project due to less construction trips.

Hazards

The Project would not include any new roadway or access improvements that would increase hazards due to a geometric design. Rather, the proposed roadway and access modifications would improve roadway conditions and increase public safety. Therefore, impacts regarding increased hazards due to a geometric design feature would be **less than significant.** The Ogier Ponds Alternative would have the same impact to traffic hazards as the Project.

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

REC-1 Funding and Implementation of Maintenance Reimbursement for Park Facility Improvements within the Coyote Creek Corridor Closures During High Flow Events

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) Emergency Action Plan

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on transportation. Cumulative impacts would be less than the Project's cumulative impacts.

5.9.4.20 Tribal Cultural Resources

The Ogier Ponds would have no substantial change in impacts to tribal cultural resources compared to Project impacts as described in Section 3.20, *Tribal Cultural Resources*.

Tribal Cultural Resources

Ground disturbance during construction and maintenance around the dam and the Ogier Ponds areas could impact elements of tribal cultural resources. Erosion and recreational power boating within Anderson Reservoir could erode Native American archaeological resources that may qualify as tribal cultural resources buried along the shoreline of the reservoir. In addition, construction activities and future use of reservoir could expose undiscovered Native American archaeological resources that may qualify as tribal cultural resources. BMP-CUL-1 (Accidental Discovery of Archaeological Artifacts or Burial Remains) will require that work will cease in areas where archaeological materials are discovered. Nevertheless, these impacts are significant.

Mitigation Measures CR-1 (Pre-construction Cultural Resources Awareness Training), **CR-2** (Prepare a Data Recovery and Treatment Plan for Tribal Cultural Resources that Cannot be Avoided), and **CR-3** (Prepare a Monitoring and Unanticipated Discoveries Plan) will require construction crews to receive tribal cultural awareness training, provide guidance on treating resources with respect, require that all tribal cultural resources be included in the treatment plan, and require that work stop in the vicinity of any archaeological materials discovered during Project construction. Implementation of these BMPs and mitigation measures will reduce the Project's impact to tribal cultural resources to a **less-than-significant level with mitigation**. The Ogier Ponds Alternative would have the same impact to tribal resources as the Project.

Mitigation Measures

CR-1 Pre-construction Cultural Resources Awareness Training

CR-2 Prepare a Data Recovery and Treatment Plan for Historical Resources that cannot be Avoided

CR-3 Prepare a Monitoring and Unanticipated Discoveries Plan

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on tribal cultural resources. Cumulative impacts would be the same as the Project's cumulative impacts

5.9.4.21 Utilities and Service Systems

The Ogier Ponds Alternative would require less fill at Pond 1 than the Project; therefore, there would be more soils excavated from the reservoir that would need to be disposed of in some manner.

Solid Waste

Adequate capacity remains in local solid waste management facilities, or the extra soils could be disposed of within the reservoir. The alternative would comply with the Santa Clara County Integrated Waste Management Plan, the City of San José's Zero Waste Strategic Plan, and State regulations, and impacts related to solid waste would be **less than significant**. The Ogier Ponds Alternative would have the greater impact on utilities as the Project due to the increase in excavated soil that would need to be disposed of.

Utility Systems

The Project would not require construction of new stormwater, telecommunications, or electric facilities. Relocation of some power lines would be required as part of the Seismic Retrofit component. The utility infrastructure proposed to be relocated to serve Project would not affect other users. Decommissioning of the hydroelectric facility would not require Valley Water or PG&E to construct replacement electrical facilities. Impacts related to the replacement, relocation, or construction of public utilities would be **less than significant**. The Ogier Ponds Alternative would have the same impact on utilities as the Project.

Regarding cumulative impacts, like the Project, the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on utility systems. Cumulative impacts would be greater than the Project's cumulative impacts

5.9.4.22 Wildfire

The Ogier Ponds would have no substantial change in impacts to wildfire risk from the Project as described in Section 3.22, *Wildfire*.

Wildfire Risk Exacerbation

Implementation of BMP HM-12 (requires fire suppression equipment and measures, and spark arrestors on equipment) and implementation of California Fire Code provisions and CAL FIRE requirements will reduce the risk of accidental ignition from construction equipment, minimizing the impacts of the Project on exacerbation of wildfire risks. Post-construction operations would not require the use of equipment that could generate sparks or extreme heat; therefore, there would be no impact related to wildfire. Risk of wildfire is **less than significant**. The Ogier Ponds Alternative would have the same impact related to increasing wildfire risk as the Project.

Wildfire Risk from Infrastructure

The Project would include the modification, construction, and/or relocation of roads and electrical transmission infrastructure; however, access throughout the Project Area and existing power lines would be relocated and improved through Project implementation, thus providing an improvement over existing conditions. Post-construction operations of the powerlines would also be similar to post-FOCP implementation conditions. Therefore, infrastructure associated with the Project would not exacerbate wildfire risks, and this impact would be **less than significant.** The Ogier Ponds Alternative would have the same risk as the Project to wildfire from infrastructure.

Risk from Post-Fire Instability

The Project would not exacerbate or increase wildfire risks in the area, and therefore would not increase the risks of post-fire effects, such as landslides and flooding. The Project would not result in significant risks to people or structures from downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes, and this impact would be **less than significant**. The Ogier Ponds Alternative would have the same impact related to increasing risk from post-fire instability as the Project.

Exposure to Wildfire Risk

Construction traffic and road closures would result in impacts on emergency response and evacuations, and expose construction workers to wildfire risks, in the event of a wildland fire. Traffic impacts on emergency response and evacuations would be reduced through implementation of **BMP TR-1** which requires implementation of construction warning signs, safety fencing, and detours; however, a significant impact would still occur. Implementation of **Mitigation Measure PS-1** (Traffic Management Plan)**,** which requires preparation and implementation of a TMP and coordination with State and local agencies and **Mitigation Measure WF-1 (**Reduce Emergency Response and Evacuation Interference during Construction and Develop Response and Evacuation Strategy (RES) Emergency Action Plan), which requires coordination with local and state emergency response agencies and preparation of a Response and Evacuation Strategy and fire agencies to identify an alternative temporary refuge area or access to the 24 Woodchoppers Flat Picnic Area during a wildfire, will minimize impacts on emergency response and evacuation procedures. This impact would be **less than significant with mitigation.** The Ogier Ponds Alternative would have the same impact to wildfire safety as the Project.

Mitigation Measures

PS-1 Prepare and Implement Traffic Management Plan

WF-1 Reduce Emergency Response and Evacuation Interference during Construction and Develop a Response and Evacuation Strategy (RES) Emergency Action Plan

Regarding cumulative impacts, like the Project, after mitigation the Ogier Ponds Alternative would have **not cumulatively considerable** impacts on wildfire risks. Cumulative impacts would be the same as the Project's cumulative impacts

5.10 Environmentally Superior Alternative

An EIR must identify the environmentally superior alternative. If the no project alternative is the environmentally superior alternative, the EIR must identify an environmentally superior alternative among the other alternatives. For this EIR, the No Project Alternative is not environmentally superior. For this EIR, the No Project Alternative is not considered environmentally superior. Although it avoids some of the Project's significant impacts, as shown in **Table 5-8** it creates new significant and unavoidable impacts for many important resources, including fisheries resources, wildlife and terrestrial resources, hydrology, water quality, groundwater, water supply and recreation. It also would not meet the Project purpose and fundamental Project objectives, as explained in Section 5.5.1.

Of the alternatives considered in this chapter, the FAHCE-Plus Modified Alternative is considered the environmentally superior alternative. This alternative achieves all the Project objectives and provides more benefits than the Project for special status fish species, specifically for steelhead, Chinook, and Pacific lamprey rearing habitat and conditions for migration than the Project, thus better achieving the Project objective to avoid and minimize environmental impacts. It also does not cause new or worse significant impacts as compared to the Project.

The FAHCE-Plus Modified Alternative is expected to provide more suitable habitat for all life stages of steelhead and flows for migration would be improved by increasing the number of passage days and promoting and/or maintaining run timing diversity in the steelhead populations. The FAHCE-Plus Modified Alternative would improve steelhead migratory opportunities and diversify migration related pulse flows. Adult steelhead passage days would be higher on average and would have a higher minimum number of passage days under FAHCE-Plus Modified Alternative relative to FAHCE flows in the Project. For steelhead, the FAHCE-Plus Modified Alternative is expected to provide more fry rearing, juvenile rearing, and spawning habitat in the CWMZ and overall compared to the Project.

The FAHCE-Plus Modified Alternative is expected to provide more suitable habitat for fry and juvenile Chinook rearing. Adult passage opportunities would be similar to the Project, but juvenile migration opportunities would improve. The FAHCE-Plus Modified Alternative would increase juvenile Chinook migratory opportunities in most year types and diversify outmigration related pulse flows. Juvenile Chinook would also have a higher minimum number of passage days under FAHCE-Plus Modified Alternative relative to FAHCE flows in the Project. For Chinook, the FAHCE-Plus Modified Alternative is expected to result in a negligible decrease in spawning habitat but would provide more fry rearing and juvenile rearing habitat in the CWMZ and overall compared to the Project.

These habitat benefits are expected to be similar for other special-status fish in Coyote Creek including Pacific lamprey, southern coastal roach, and Sacramento hitch. Since Pacific lamprey are anadromous and have similar migratory tendencies as steelhead, benefits associated with migration with FAHCE-Plus Modified for migration will also benefit Pacific lamprey. Overall increases associated with suitable habitat for steelhead will benefit Pacific lamprey, southern coastal roach, and Sacramento hitch as they coinhabit and have adapted to similar conditions. As with the Project, FAHCE-Plus Modified will have no adverse impacts to longfin smelt, riffle sculpin, white sturgeon, or green sturgeon.

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