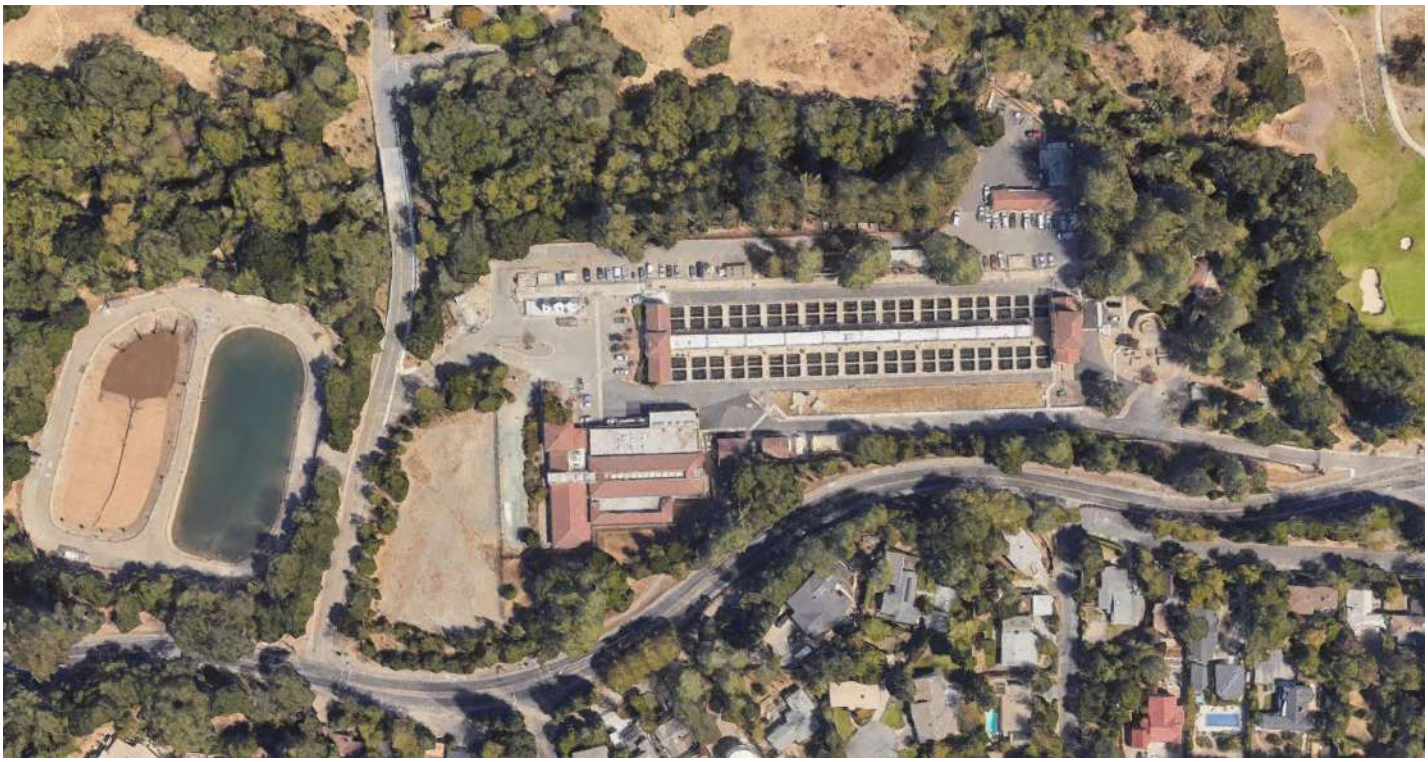
Volume I

ORINDA WATER TREATMENT PLANT DISINFECTION IMPROVEMENTS PROJECT

Draft Supplemental Environmental Impact Report
SCH #2019080297

Prepared for
East Bay Municipal Utility District

July 2020



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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
2017 BODR	Basis of Design Report prepared in October 2017
2017 CAP	2017 Clean Air Plan
AB	California Assembly Bill
ACM	asbestos-containing material
APCO	Air Pollution Control Officer
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
ATCM	Airborne Toxic Control Measures
BAAQMD	Bay Area Air Quality Management District
Basin Plan	Water Quality Control Plan for the San Francisco Bay Basin
BMPs	best management practices
BOE	State Board of Equalization
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
Cal EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCB	Chlorine Contact Basin
CCCHSD	Contra Costa County Health Services Department
CCR	California Code of Regulations

CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFPP	Construction Fire Prevention Plan
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGP	Construction General Permit
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	Carbon dioxide
CO_2e	CO_2 equivalents
Corps	U.S. Army Corps of Engineers
CPUC	California Public Utilities Commission
CRPR	California Rare Plant Rank
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CY	cubic yards
D/DBP	Disinfectants and Disinfection Byproduct
dB	decibel
dBA	A-weighted decibels
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances Control
EBMUD	East Bay Municipal Utility District
EBWMP	East Bay Watershed Management Plan
EI	Expansivity Index
EIR	Environmental Impact Report
EOP	Emergency Operations Plan

ESA	Environmental Science Associates
ESLs	Environmental Screening Levels
FACS	Forensic Analytical Consulting Services
Fed/OSHA	U.S. Department of Labor Occupational Safety and Health Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FWS	Filter Water System
G	global
GHG	greenhouse gas
GWh	gigawatt hour
GWP	global warming potential
HASP	Health and Safety Plan
HCP	Habitat Conservation Plan
HFCs	hydrofluorocarbons
HI	Hazard index
HMBP	Hazardous Materials Business Plan
HRA	health risk assessment
HVAC	heating/ventilation/air conditioning
IBC	International Building Code
IGP	Industrial Stormwater General Permit
in/sec	inches/second
IPCC	International Panel on Climate Change
LAPP1	Los Altos Pumping Plant No. 1
LAPP2	Los Altos Pumping Plant No. 2
LBP	lead-based paint
L_{dn}	day-night average sound level
L_{eq}	equivalent sound level
LID	Low Impact Development
L_{max}	maximum sound levels
LRA	Local Responsibility Area

LT2 Rule	Long Term 2 Enhanced Surface Water Treatment Rule, Interim Enhanced Surface Water Treatment
MAUVE	Maintenance and UV Electrical
MEIR	Maximum Exposed Individual Receptor
MG	million gallon
MGD	million gallons per day
M_L	local magnitude
MMRP	Mitigation Monitoring and Reporting Program
MOFD	Moraga-Orinda Fire District
MRP	Municipal Regional Stormwater NPDES Permit
MS4	Municipal Separate Storm Sewer System
MT	metric tons
M_W	moment magnitude
MWh	megawatt-hour
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NFPA	National Fire Protection Association
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOC	Notice of Completion
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OEHHA	California Office of Environmental Health Hazard Assessment
OES	State Office of Emergency Services
OPR	Governor's Office of Planning and Research
PCBs	polychlorinated biphenyls
PFCs	perfluorocarbons
PG&E	Pacific Gas and Electric Company
PM_{10}	particulate matter less than 10 microns
$PM_{2.5}$	particulate matter less than 2.5 microns
ppm	parts per million
PPV	peak particle velocity

PRC	Public Resources Code
QSD	qualified SWPPP developer
RCRA	Resource Conservation and Recovery Act of 1976
REC	recognized environmental condition
RPS	Renewables Portfolio Standard
RSLs	Regional Screening Levels
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SB X1-2	Senate Bill 2 of the First Extraordinary Session
SCAQMD	South Coast Air Quality Management District
SDS	Safety Data Sheet
SEMS	California Standardized Emergency Management System
SF_6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SHMA	Seismic Hazards Mapping Act
SIP	State Implementation Plan
SP	Special Publication
SRA	State Responsibility Area
STLC	Soluble Threshold Limit Concentration
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
TCLPs	Toxic Characteristic Leaching Procedures
TCR	The Climate Registry
the Board	Board of Forestry and Fire Protection
TMDL	total maximum daily load
TSCA	Toxic Substances Control Act
TTLCs	Threshold Limit Concentrations
TWS	Treated Water System

U.S. EPA	United States Environmental Protection Agency
U.S.C.	United States Code
UBC	Uniform Building Code
UCMP	University of California Museum of Paleontology
USC	United States Code
USDOT	U.S. Department of Transportation
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USPS	U.S. Postal Service
UST	underground storage tank
UV	ultraviolet
VdB	vibration decibel
VMT	vehicle miles traveled
VOCs	volatile organic compounds
WBWG	Western Bat Working Group
WCDP	Water Control and Disposal Plan
WDRs	Waste Discharge Requirements
WGCEP	Working Group on California Earthquake Probabilities
WOTUS	waters of the United States
WTP	Water Treatment Plant
WTTIP	Water Treatment and Transmission Improvements Program

EXECUTIVE SUMMARY

S.1 Introduction

The East Bay Municipal Utility District (EBMUD) is proposing the Orinda Water Treatment Plant (WTP) Disinfection Improvements Project (Project). This Project is a modification of the disinfection improvements at the Orinda WTP in Orinda, California (refer to Figure ES-1) analyzed programmatically in EBMUD's Water Treatment and Transmission Improvements Program (WTTIP) Environmental Impact Report (EIR), which was certified in 2006 (State Clearinghouse No. 2005092019).

EBMUD is implementing a planned system of improvements as part of its WTTIP, which includes new facilities and upgrades to existing facilities primarily in the cities of Lafayette, Moraga, Orinda, and Walnut Creek. The improvements are needed to address systemwide water treatment and distribution needs to ensure a reliable water supply for current and future customers. Since preparation of the WTTIP EIR, the specific details of the design for improvements at the Orinda WTP, which were not available when the WTTIP EIR was prepared, have been developed. Thus, this project-specific Supplemental EIR has been prepared to address the current Project.

The Project includes demolition of an existing maintenance building and construction of a new disinfection facility comprised of a new above-ground two-story maintenance and ultraviolet (UV) electrical (MAUVE) building with a below-grade UV structure and below-grade chlorine contact basin (CCB) (collectively called the MAUVE/UV/CCB Structure), two electrical buildings, a standby generator, pipelines and vaults, and other supporting facilities. The existing maintenance building at the Project site would be demolished and its associated uses incorporated into the new facility and a Grounds Maintenance Building at the Orinda WTP. Refer to Figure ES-2 for the location of Project components. The Project would also remove vegetation in various places within the Orinda WTP site, replace existing and install new security fencing, and restore and landscape the site following construction.

In addition to considering the Project as described above, the EIR considers the following alternatives:

- **No Project Alternative:** This alternative assumes that the Orinda WTP would not be upgraded, and the current water treatment process would remain in service as it currently is.



SOURCE: ESA, 2019; ESRI, 2019.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure ES-1
Project Location

ESA



Path: U:\GIS\GIS\Projects\17xxxx\D1710\40_EBMUDOrindaWTPProject\03_MXDs_Projects\Fig2-3_Proj Components_NEW.mxd rteitel 11/8/2019

SOURCE: ESA, 2019; ESRI, 2019.

NOTE: For pipes and other below-grade project components, refer to the Proposed Site Plan.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure ES-2
Proposed Project Components on
Existing Orinda Water Treatment Plant Site

ESA

- **Disinfection Improvements Near Camino Pablo Alternative:** This alternative involves relocating the UV/CCB Structure to the southern portion of the Orinda WTP, closer to Camino Pablo. Under this alternative, the UV/CCB Structure and associated electrical building would be located farther from San Pablo Creek and the Manzanita East staging area would be eliminated as a staging area in order to avoid or reduce impacts on biological resources associated with San Pablo Creek. The existing maintenance building would not be demolished under this alternative in order to avoid or reduce impacts on historic resources.

S.2 Project Location

The Orinda WTP is located at 190 Camino Pablo on a 25-acre site in the City of Orinda, California. The Project site is located north of Highway 24 and is bounded by Camino Pablo on the southwest and San Pablo Creek on the northeast (refer to Figure ES-1). The Orinda WTP site is bisected by Manzanita Drive, a public street.

S.3 Purpose and Need

The Orinda WTP serves more than 800,000 EBMUD customers, including customers in the city of Orinda. The Project would upgrade and replace existing facilities and construct new facilities at the Orinda WTP as part of EBMUD's WTTIP. WTTIP improvements are necessary to address systemwide water treatment and distribution needs to ensure a reliable water supply for current and future customers.

At the Orinda WTP, the current water treatment process would be improved by adding UV and chlorine disinfection after water treatment at the Orinda WTP filters. Adding disinfection improvements post-filtration would reduce the formation of disinfection byproducts (e.g., trihalomethanes, or THMs) which form when chlorine reacts with naturally-occurring organic matter in water. In addition, the Project would improve disinfection reliability, improve operational flexibility, and reduce disinfection complexity. The Project would provide reliable water treatment infrastructure that meets long-term operational needs and would continue to meet drinking water and environmental regulations to achieve EBMUD's internal long-term water quality goals.

S.4 California Environmental Quality Act Objectives

Table ES-1 presents the objectives that were considered during development of the WTTIP to meet that program's needs.

TABLE ES-1
WTTIP OBJECTIVES

Category	Objective
Reliability	Provide reliable water treatment, transmission, and distribution infrastructure that meets long-term operational needs under average and maximum-day demand conditions.
	Meet EBMUD standards for planned, unplanned, and emergency outages.
	Meet security initiatives.
Regulatory & Water Quality	Continue to meet drinking water and environmental regulations with a margin of safety and achieve EBMUD's internal long-term water quality goals.
Operations	Ensure project will meet short-term peak demand periods in excess of projected demands.
	Minimize the risk of service disruption and meet demands during construction.
Implementation	Minimize implementation issues by considering the complexity of public and local agency issues.
Environmental	Minimize environmental impacts during construction.
	Minimize environmental impacts after construction and during operations.
Economics	Minimize life-cycle costs (capital, operating, and maintenance) to EBMUD customers.

SOURCE: EBMUD, 2006.

The Project is consistent with and advances the objectives noted in Table ES-1 and, in particular, the Regulatory and Water Quality objective. The specific objectives that have guided Project development are in response to the drinking water quality regulations and include (refer to Section 2.3.3, Water Quality Regulations, for more information):

- Improve disinfection reliability
- Reduce the formation of disinfection byproducts
- Improve chemical dosing
- Reduce disinfection complexity

S.5 Summary of Impacts

Chapter 3 of this Supplemental EIR presents the environmental impact analyses for several resource areas consistent with Appendix G of the 2020 *California Environmental Quality Act* (*CEQA) Guidelines*. For each resource area, the impact analysis describes the environmental and regulatory setting, identifies significance criteria used in the analysis, evaluates potential physical effects of the Project on both a project and cumulative basis, and provides feasible mitigation measures that would reduce the severity of significant impacts.

Table ES-2 summarizes all impacts identified for the Project in this Supplemental EIR, lists the significance determination for each impact, and presents the text of the mitigation measures identified to avoid, reduce, or otherwise lessen significant impacts specific to the Project. The mitigation measures provided in the adopted WTTIP Mitigation Monitoring and Reporting Program that were applicable to WTTIP projects at the Orinda WTP have been incorporated into the Project Description, or revised and included as Project mitigation measures (refer to Appendix A and Appendix C).

TABLE ES-2
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Aesthetics			
Impact AES-1: Have a substantial adverse effect on a scenic vista.	LTS	**Adopted WTTIP Mitigation Measure 3.3-2c.** The District will use design elements to enhance the aesthetic appearance of proposed facilities and to integrate them with the existing visual environment. Proposed facilities will be painted or include appropriate concrete admixtures to achieve low-glare, earth-tone colors that blend with the surrounding terrain and visual setting. For each project, colors will be selected based on site-specific conditions with the goal of (1) reducing the visual contrast between new facilities and the surrounding natural landscape setting and/or (2) integrating the facility appearance with the neighboring built environment. Concrete structures need not be painted; however, integral coloring should be employed, as noted above, where structures are seen from sensitive community viewpoints. • Use textures, colors and materials that will blend with existing filter plant buildings. • For the Orinda WTP, the design of new walls, gates, and fencing will include aesthetic architectural treatment where facilities are located near public trails, residences, or scenic roadways.	LTS
Impact AES-2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	NI	**No mitigation measures required.**	NI
Impact AES-3: In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage points), or in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.	LTS	**Adopted WTTIP Mitigation Measure 3.3-1.** For stationary (non-pipeline) projects expected to be constructed over a period of one year or more, the District will require the contractor to ensure that construction-related activity is as clean and inconspicuous as practical by storing building materials and equipment within the proposed construction staging areas or in areas that are generally away from public view and by removing construction debris promptly at regular intervals and placing black fabric fence screening on fences where feasible. **Adopted WTTIP Mitigation Measure 3.3-2a.** The District will implement landscaping plans prepared for the Orinda WTP. • The District will plant native vegetation and/or construct earth berms around all proposed above-ground facilities to provide screening, consistent with the requirements set forth in adopted WTTIP Mitigation Measures 3.6-1a, c, and d, and Mitigation Measure 3.6-1b-ORWTPDI in Section 3.4, Biological Resources (see Impact BIO-4). Landscaping will include revegetation of disturbed areas to minimize textural contrasts with the surrounding vegetation. • The District will replace any landscaping that is removed or destroyed during construction consistent with landscape plans. New plants would include grasses, shrubs, and trees typical of the surrounding area. The District will consult with the appropriate jurisdiction when developing final landscaping plans. For disturbance of natural, non-landscaped areas, see adopted WTTIP Mitigation Measure 3.6-3c in Section 3.4, Biological Resources (see Impact BIO-1). • The District will also install additional landscaping north of Manzanita Drive at the Orinda WTP to provide additional screening of existing ponds or new above-ground facilities.	LTS

NOTES: LTS = Less than significant; NI = No Impact; PS = Potentially Significant; LSM = Less than significant with mitigation measures identified in this Supplemental EIR

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Aesthetics (cont.)			
Impact AES-3 (cont.)		• Implement Mitigation Measure 3.6-1b-ORWTPDI in Section 3.4, Biological Resources, regarding pruning (see Impact BIO-4). • The District will coordinate with and involve neighborhood representatives during the development of final landscaping plans. • The contractor will be required to warrant landscape plantings for one year after project completion. **Adopted WTTIP Mitigation Measure 3.3-2b.** The District will ensure that its contractors restore disturbed, graded areas to a natural-appearing landform. **Adopted WTTIP Mitigation Measure 3.3-2c.** (See full text with Impact AES-1 above.) **Adopted WTTIP Mitigation Measure 3.3-3.** Implement adopted WTTIP Mitigation Measures 3.3-2a through 3.3-2c, as detailed above.	
Impact AES-4: Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.	LTS	**Adopted WTTIP Mitigation Measure 3.3-5b.** The District will ensure that new lighting utilizes cutoff shields and nonglare fixture design. **Adopted WTTIP Mitigation Measure 3.3-5c.** To the extent possible, the District will ensure that all permanent exterior lighting is directed onsite and downward. In addition, new lighting will be oriented to ensure that no light source is directly visible from neighboring residential areas and will be installed with motion-sensor activation. In addition, highly reflective building materials and/or finishes will not be used in the designs for proposed structures, including fencing and light poles. In accordance with adopted WTTIP Mitigation Measure 3.3-2a, above, landscaping will be provided around proposed facilities. This vegetation will be selected, placed, and maintained to minimize offsite light and glare in surrounding areas.	LTS
Air Quality			
Impact AIR-1: Conflict with or obstruct implementation of the applicable air quality plan.	PS	**Adopted WTTIP Mitigation Measure 3.9-1b.** The District will incorporate into the contract specifications the following requirements: *BAAQMD Enhanced Control Measures* • Hydroseed or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more). • Enclose, cover, water, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.) • Limit traffic speeds on unpaved roads to 15 miles per hour. • Install sandbags or other erosion control measures to prevent silt runoff to public roadways. • Replant vegetation in disturbed areas as quickly as possible.	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Air Quality (cont.)			
Impact AIR-1 (cont.)		**Adopted WTTIP Mitigation Measure 3.9-1c.** To limit exhaust emissions, the District will incorporate into the contract specifications the following requirements: *BAAQMD Exhaust Controls* • Use line power instead of diesel generators at all construction sites where line power is available. • As specified in EBMUD Policy 7.05, limit the idling of all mobile and stationary construction equipment to five minutes; as specified in Sections 2480 and 2485, Title 13, California Code of Regulations, limit the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds, both California- or non-California-based trucks) to 30 seconds at a school or five minutes at any location. In addition, limit the use of diesel auxiliary power systems and main engines to five minutes when within 100 feet of homes or schools while driver is resting. • For operation of any stationary, diesel-fueled, compression-ignition engines, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards. • If stationary equipment (such as generators for ventilation fans) must be operated continuously, locate such equipment at least 100 feet from homes or schools where possible. • Require low-emissions tuneups and perform such tuneups regularly for all equipment, particularly for haul and delivery trucks. Submit a log of required tuneups to EBMUD on a quarterly basis for review. **Mitigation Measure 3.9-1a-ORWTPDI: BAAQMD Basic Construction Mitigation Measures with Water Application and Lead Agency Contact.** EBMUD will incorporate into the contract specifications the following requirements: *BAAQMD Basic Control Measures* • Maintain dust control within the site and provide adequate measures to prevent a dust problem for neighbors. Use water sprinkling, temporary enclosures, and other suitable methods to limit the rising of dust and dirt. Dust control will be adequate to ensure that no visible dust clouds extend beyond the project boundaries or extend more than 50 feet from the source of any onsite project construction activities. • Load trucks in a manner that will prevent materials or debris from dropping on streets. Trim loads and remove all material from shelf areas of vehicles to prevent spillage. Take precautions when necessary to avoid cresting dust and littering by watering the load after trimming and by promptly sweeping the pavement to remove dirt and dust. • Cover all trucks hauling soil, sand, and other loose materials. • Pave, apply water, or apply nontoxic soil stabilizers or rock on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep daily with water sweepers all paved access roads, parking areas, and staging areas at construction sites.	

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Air Quality (cont.)			
Impact AIR-1 (cont.)		• Sweep streets daily with water sweepers if visible soil material is carried onto adjacent public streets. • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • Post a publicly visible sign 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 BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.	
Impact AIR-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard.	PS	**Adopted WTTIP Mitigation Measure 3.9-1b.** (See full text with Impact AIR-1 above.) **Adopted WTTIP Mitigation Measure 3.9-1c.** (See full text with Impact AIR-1 above.) **Mitigation Measure 3.9-1a-ORWTPDI: BAAQMD Basic Construction Mitigation Measures with Water Application and Lead Agency Contact.** (See full text with Impact AIR-1 above.)	LSM
Impact AIR-3: Expose sensitive receptors to substantial pollutant concentrations.	PS	**Mitigation Measure AIR-1: Use of Tier 4 Construction Equipment.** EBMUD shall require construction contractors to use all off-road diesel-powered construction equipment compliant with Tier 4 off-road emissions standards. In the event that equipment with a Tier 4 engine is not available for any off-road engine, that engine shall be operated with tailpipe retrofit controls that provide an equivalent reduction of exhaust particulate emissions. Diesel retrofit technologies considered shall include, but not be limited to, the California Air Resources Board's (CARB) currently verified diesel emission control strategies. If emission levels equivalent to Tier 4 standards cannot be reached, the emissions shall be reduced to the maximum extent possible based on the selected retrofit technology.	LSM
Biological Resources			
Impact BIO-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 the CDFW or USFWS.	PS	**Adopted WTTIP Mitigation Measure 3.6-3c.** The District will revegetate all natural areas temporarily disturbed due to project activities. Areas supporting sensitive plant communities will be restored using locally collected plant materials specific to that community. For all sites, revegetation criteria will include general restoration concepts and methods, including use of locally native plant material, protection and restoration of soil conditions, irrigation, and control of aggressive non-native species. The planting effort will commence in the fall following construction at the project site. Sites disturbed prior to the planting effort will be treated immediately with a (1) seed mixture and mulch using broadcast methods, or (2) hydroseed. The plant palette will include native plants found locally, such as coffeeberry, sticky monkeyflower, miniature lupine, California poppy, purple needlegrass, California brome, and blue wild rye. All revegetated sites will be monitored for five years. Success criteria to be met at the end of five years may include: at least 80 percent survival of plantings, 75 percent vegetative cover by desirable species, and a viable, self-sustaining plant community. **Adopted WTTIP Mitigation Measure 3.6-4a.** EBMUD will avoid disturbing active nests of raptors and other special-status nesting birds by performing preconstruction surveys and creating no-disturbance buffers. If construction activities (i.e., ground clearing and grading, including removal of trees or shrubs) are scheduled to occur during the nonbreeding season (September 1 through January 31), no mitigation is required.	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Biological Resources (cont.)			
Impact BIO-1 (cont.)		If construction activities are scheduled to occur during the breeding season (February 1 through August 31), EBMUD will implement the following measures to avoid potential adverse effects on nesting raptors and other special-status birds: • EBMUD will retain a qualified wildlife biologist to conduct preconstruction surveys of all potential nesting habitat within 500 feet of construction activities where access is available. If active nests are found during preconstruction surveys, EBMUD will create a no-disturbance buffer (acceptable in size to the CDFW) around active raptor nests and nests of other special-status birds during the breeding season, or until it is determined that all young have fledged. Typical buffers include 500 feet for raptors and 250 feet for other nesting birds. The size of these buffer zones and types of construction activities restricted in these areas may be further modified during construction with the CDFW and will be based on existing noise and human disturbance levels at each project site. Nests initiated during construction are presumed to be unaffected, and no buffer would be necessary. However, the "take" of any individuals will be prohibited. • If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that are located outside the no-disturbance buffer for active nests may be removed. **Adopted WTTIP Mitigation Measure 3.6-5.** EBMUD will avoid disturbance of the roosts of special-status bats by performing preconstruction surveys and creating no-disturbance buffers. Prior to construction activities (i.e., ground clearing and grading, including removal of trees or shrubs) within 200 feet of trees that potential support special-status bats, EBMUD will retain a qualified bat biologist to survey for special-status bats. If no evidence of bats (i.e., direct observation, guano, staining, strong odors) is present, no further mitigation is required. If evidence of bats is observed, EBMUD will carry out the following measures to avoid potential adverse effects special-status bats: • EBMUD will create a no-disturbance buffer (acceptable in size to the CDFW) around active bat roosts during the breeding season (April 15 through August 15). Bat roosts initiated during construction are presumed to be unaffected, and no buffer would be necessary. However, the take of individuals will be prohibited. • Removal of trees showing evidence of bat activity will occur during the period least likely to affect bats, as determined by a qualified bat biologist (generally between February 15 and October 15 for winter hibernacula, and between August 15 and April 15 for maternity roosts). If exclusion is necessary to prevent indirect impacts to bats due to construction noise and human activity adjacent to trees showing evidence of bat activity, these activities will also be conducted during these periods. **Adopted WTTIP Mitigation Measure 3.6-6.** EBMUD will avoid disturbance to San Francisco dusky-footed woodrat by performing preconstruction surveys and by avoiding or relocating nests. Not more than two weeks prior to construction, a qualified wildlife biologist will conduct a preconstruction survey to identify woodrat nests within 10 feet of proposed ground disturbance. A qualified wildlife biologist will conduct additional surveys periodically throughout the duration of construction activities to identify newly constructed woodrat nests. If woodrat nests can be avoided by project activities, the qualified biologist would demarcate suitable buffer areas for avoidance. If woodrat nests are located within areas proposed for construction, nest relocation would be implemented.	

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Biological Resources (cont.)			
Impact BIO-1 (cont.)		Active woodrat nests found within 10 feet of proposed disturbance areas that cannot be avoided will be relocated offsite to adjacent suitable woodland habitat under the supervision of a qualified wildlife biologist. Understory vegetation would first be cleared from around the nest. Next, the wildlife biologist would disturb the nest and allow all woodrats to leave the nest. Finally, the biologist would remove the nest sticks offsite to the base of an adjacent suitable oak, bay, or other tree. Sticks would be placed at a suitable distance determined by the qualified wildlife biologist. **Mitigation Measure BIO-1: Pre-construction surveys of special-status plant species.** EBMUD shall require that a presence/absence survey for special-status plant species be conducted by a qualified botanist during the spring prior to construction within areas that are both within the zone of construction and/or staging areas plus a 25-foot buffer, and within 100 feet of San Pablo Creek. Surveys shall be conducted using CDFW or USFWS survey guidelines. All surveys shall be conducted during the period when the species are identifiable and shall be repeated seasonally, as needed, to provide a complete species list. Any observed sensitive plant species shall be mapped and flagged for avoidance where feasible. The results of the surveys shall be filed as part of the Project administrative record; if the presence of any of these species is confirmed, a copy of the survey results shall be forwarded to the CDFW and/or USFWS. In the event that special-status species are proven absent, then no additional mitigation is necessary. In addition, the sensitive plant communities that are located within the Project site footprint shall be mapped and quantified prior to construction to aid in later avoidance, revegetation, and replacement efforts. **Mitigation Measure BIO-2: Buffer zone and restoration mitigation plan for impacted special-status plant species.** In the event that special-status plant species or sensitive plant communities are present or assumed present within or immediately adjacent to the limits of construction, EBMUD shall avoid these species or sensitive plant communities and establish a visible buffer zone (25 feet at minimum, if feasible) prior to construction, in coordination with a qualified biologist, or shall redesign or relocate the proposed structure and/or staging area. If EBMUD determines that it is not feasible to avoid disturbance or mortality, then special-status plant habitat and/or sensitive plant communities shall be mitigated. Mitigation approach may include, but not be limited to: restoring the impacted area, permanently preserving any unaffected on-site populations, or providing off-site compensation. Off-site compensation may include permanent protection of known populations through use of a conservation easement or purchase of mitigation bank credits. If feasible, special-status plants shall be salvaged and transplanted to nearby similar habitat. The appropriate agencies shall be consulted by EBMUD to determine the appropriate species-specific mitigation measures, including mitigation ratios. A 5-year restoration mitigation and monitoring program shall be developed and implemented. Appropriate performance standards may include, but not be limited to: a 75 percent survival rate of restoration plantings or plant cover; absence of invasive plant species; and a functioning, self-sustainable plant community at the end of 5 years.	

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Biological Resources (cont.)			
Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS, or 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.	PS	**Adopted WTTIP Mitigation Measure 3.6-2e.** Where construction activities occur adjacent to or within the dripline of riparian habitat, the District will implement special construction techniques to allow the roots of riparian trees to breathe and obtain water (examples include, but are not limited to, using hand equipment for tunnels and trenching, and allowing only one pass through a riparian tree's dripline). Excavation adjacent to or within the dripline of any riparian tree will occur in a manner that causes only minimal root damage. **Adopted WTTIP Mitigation Measure 3.6-2f.** The District will implement the following measures: • Store equipment and materials away from waterways to the extent feasible as determined by the District. No debris will be deposited within 60 feet of creeks. • Provide proper and timely maintenance for vehicles and equipment used during construction to reduce the potential for mechanical breakdowns leading to a spill of materials into or around creeks. Maintenance and fueling will be conducted away from the creek. • To control erosion, install silt fencing material at the edge of established buffer zones for riparian habitat, or at the edge of the creek where no riparian habitat is present (see WTTIP Mitigation Measure 3.6-2b-ORWTPDI). • Minimize the removal of riparian and wetland vegetation. **Adopted WTTIP Mitigation Measure 3.6-7a.** EBMUD will avoid disturbing central California coast steelhead, other aquatic species, and associated habitats. Implementation of adopted WTTIP Mitigation Measure 3.5-1a in Section 3.5, Hydrology and Water Quality (see Impact HYD-1), as well as best management practices (BMPs) for construction activities, would reduce potential impacts to steelhead and other aquatic species and habitat resulting from sedimentation, turbidity, and hazardous materials. Specific measures aimed at protecting steelhead and other aquatic species include: • Construction activities within and adjacent to aquatic and riparian habitats will be monitored by a qualified biologist. The biologist will survey the work area for sensitive resources prior to the start of construction each day and monitor identified biological resources during construction activities, such as initial clearing and grading, installation of silt fencing, pipeline trench excavation, and backfilling and compaction. • Sediment curtains will be placed downstream of the construction or maintenance zone to prevent sediment disturbed during trenching activities from being transported and deposited outside of the construction zone. • If groundwater is encountered, or if water remains within the worksite after flows are diverted, it will be pumped out of the construction area and into a retention basin constructed of hay bales lined with filter fabric. The pump(s) will be screened to avoid entrapment of aquatic species. • Silt fencing will be installed in all areas where construction occurs within 100 feet of actively flowing water.	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Biological Resources (cont.)			
Impact BIO-2 (cont.)		• A spill prevention plan for potentially hazardous materials will be prepared and implemented. The plan will include the proper handling and storage of all potentially hazardous materials, as well as the proper procedures for cleaning up and reporting any spills. If necessary, containment berms will be constructed to prevent spilled materials from reaching the creek channels. • Equipment and materials will be stored at least 50 feet from waterways. No debris (such as trash and spoils) will be deposited within 100 feet of wetlands. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents will be located outside of the stream channel and banks and be limited to the smallest size feasible as determined by EBMUD. Stationary equipment such as motors, pumps, generators, compressors, and welders located within or adjacent to the stream will be positioned over drip pans. Any equipment or vehicles driven and/or operated within or adjacent to the stream will be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life. Vehicles will be moved away from the stream prior to refueling and lubrication. • Proper and timely maintenance of vehicles and equipment will be performed to reduce the potential for mechanical breakdowns that could lead to a spill of materials into or around creeks. Maintenance and fueling will be conducted at least 75 feet from riparian or aquatic habitats. • Project sites will be revegetated with an appropriate assemblage of native upland vegetation and, if necessary, riparian and wetland vegetation suitable for the area. A plan describing pre-project conditions, invasive species control measures, and restoration and monitoring success criteria will be prepared prior to construction. **Mitigation Measure 3.6-2b-ORWTPDI: Construction Exclusion Zone.** In coordination with a qualified biologist, EBMUD shall, to the extent feasible, establish a minimum 10-foot construction exclusion zone, where direct impacts will be avoided from the creek top-of-banks, using protective fencing. Existing riparian vegetation that is not to be disturbed shall be delineated with orange construction fencing. **Mitigation Measure 3.6-2c-ORWTPDI: Jurisdictional Features and Riparian Vegetation.** If impacts to potentially jurisdictional features and associated riparian vegetation cannot be avoided or minimized, then EBMUD shall obtain a qualified biologist to complete a wetland delineation in accordance with Corps guidelines and shall obtain the appropriate permits/agreements, including a Section 401 water quality certification from the RWQCB, a Section 404 wetland permit from the Corps, and/or a Section 1602 Streambed Alteration Agreement from the CDFW. EBMUD shall implement all conditions contained in these permits. EBMUD shall revegetate temporarily disturbed portions of the creek and herbaceous vegetation at a ratio of 1:1 (or at a ratio agreed on by the wetland permitting agencies). EBMUD shall compensate for permanent wetland and stream impacts onsite at a ratio of 2:1 (or at a ratio agreed on by the wetland permitting agencies) with the same type of feature as the feature affected. If EBMUD determines that onsite restoration is not feasible, EBMUD shall compensate for permanent impacts at a 3:1 ratio (or at a ratio agreed on by the permitting agencies). EBMUD shall develop and implement a five-year riparian vegetation mitigation and monitoring program by a certified arborist to reduce potential impacts to the riparian corridor attributable to the Project and include:	

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Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Biological Resources (cont.)			
Impact BIO-2 (cont.)		• Riparian tree assessment/inventory to be conducted for native, riparian trees for the extent of the tiebacks on the west bank of San Pablo Creek (approximately from the upper spillway downstream to the Lafayette 1 Drain outfall): – Immediately after installation of the tiebacks is completed – Immediately after construction of the MAUVE/UV/CCB Structure is completed – Annually (in the late spring) for five years after construction Appropriate performance standards may include, but are not limited to: existing riparian tree health changes since the Project, absence of non-native, invasive plant species; and a functioning, self-sustaining riparian system at the end of five years. After each inspection, a technical memorandum shall be prepared by the certified arborist and submitted to EBMUD reporting the findings of each inspection, including but not limited to findings regarding changes in existing conditions vegetation in the riparian corridor, and whether specified performance standards are being met. As determined necessary by the certified arborist per the findings of the technical memoranda, EBMUD shall revegetate temporarily disturbed portions of creeks and the riparian corridor to meet the performance standards specified above. Revegetation will include a palette of species native to the watershed area. Following removal, woody trees would be replanted at a 3:1 ratio at minimum, or as determined and agreed on by the appropriate permitting agencies. Interim measures to protect the unvegetated creek from erosion may be required. Interim measures may include replanting banks using native or sterile non-native seeds or seedlings following construction within the riparian corridor, and removing non-native vegetation from stream banks, where appropriate. EBMUD shall engage the regulatory agencies with jurisdiction over San Pablo Creek and its riparian corridor to review and confirm the adequacy of proposed revegetation and/or interim measures to meet the specified performance standards and any applicable regulatory requirements. **Mitigation Measure BIO-3: Staging Area Silt Fence Installation.** EBMUD shall require installation of silt fence along the perimeter of staging areas adjacent to riparian corridors and waterways to prevent sediment from entering riparian or aquatic areas. EBMUD shall also require a qualified biologist to review and approve silt fence plans and to monitor silt fence installation to minimize riparian impacts during installation. **Mitigation Measure HYD-2: Tieback Installation Monitoring and Remedial Actions.** (See full text with Impact HYD-1 below.) **Mitigation Measure HYD-3: San Pablo Creek Bank Monitoring and Remediation Program.** (See full text with Impact HYD-3d below.)	

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TABLE ES-2 (CONTINUED)
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Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Biological Resources (cont.)			
Impact BIO-3: 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.	LTS	**No mitigation measures required.**	LTS
Impact BIO-4: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	PS	**Adopted WTTIP Mitigation Measure 3.6-1a.** EBMUD will prepare a map indicating the trees to be removed and retained (preserved). Prior to the start of any clearing, stockpiling, excavation, grading, compaction, paving, change in ground elevation, or construction, retained trees that are adjacent to or within project construction areas will be identified and clearly delineated by protective fencing (e.g., short post and plank walls), which will be installed at the dripline of each tree to hold back fill. The delineation markers will remain in place for the duration of all construction work. Where proposed development or other site work must encroach upon the dripline of a preserved tree, special construction techniques will be required to allow the roots of remaining trees within the project site to breathe and obtain water (examples include, but are not limited to, using hand equipment for trenching and/or allowing only one pass through a tree's dripline). Tree wells or other techniques may be used where advisable by a certified arborist. Excavation adjacent to any trees will be performed in a manner that causes only minimal root damage. The following will not occur within the dripline of any retained tree: parking; storage of vehicles, equipment, machinery, stockpiles of excavated soils, or construction materials; or dumping of oils or chemicals. **Adopted WTTIP Mitigation Measure 3.6-1c.** The contractor will be required to warrant tree health for one year after project completion and the District will guarantee the health of all trees to be preserved within and adjacent to the construction corridor of project-related pipeline and facility sites for two additional years, for a total of three years. The guarantee period for a tree will be five years if the District constructs or installs improvements or performs approved mechanical excavation within the dripline of any tree. The District will replace any tree that is to be retained but that dies as a result of project construction activities during the guarantee period with a tree of the same species. The replaced trees would be subject to the same monitoring protocols as those protected trees removed due to construction. **Adopted WTTIP Mitigation Measure 3.6-1d.** The District will develop and implement a five-year tree monitoring program. Performance standards may include, but are not limited to: a 75 percent survival rate of tree plantings and the ability to be self-sustaining at the end of five years.	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Biological Resources (cont.)			
Impact BIO-4 (cont.)		**Mitigation Measure 3.6-1b-ORWTPDI: Tree Replacement.** For each project site, all pruning of preserved trees shall be performed by a certified arborist. No more than 25 percent of a tree's canopy shall be removed. Tree replacement shall adhere to the following guidelines: • If any protected tree native to the local area, such as valley oak and coast live oak, is removed, the District shall replace it on a 3:1 basis with native trees of the same species as those removed. • In natural areas, defined as outside the Orinda WTP existing fenceline, all unprotected native and non-native trees that are removed shall be replaced at a 1:1 ratio. Unprotected native trees shall be replaced with native trees. Unprotected non-native trees shall be replaced with a non-invasive tree species (native or non-native) at a distribution that reflects the local tree species' composition. • Replacement trees shall be planted on site where feasible. Where this is not feasible, trees shall be planted at ecologically appropriate sites on EBMUD watershed lands. • In lieu of tree replacement, the District may consider the establishment of permanent conservation easements on EBMUD watershed lands that support high quality oak woodlands. Oak woodland acreage lost through individual tree removal shall be quantified prior to initiation of project construction activities and concurrent with the mapping activities to occur under adopted WTTIP Mitigation Measure 3.6-1a.	
Impact BIO-5: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.	LTS	**No mitigation measures required.**	LTS
Cultural Resources			
Impact CUL-1: Cause a substantial adverse change in the significance of a historical resource, as defined in CEQA Guidelines Section 15064.5.	PS	**Mitigation Measure CUL-1a: Prepare documentation of all historic-age buildings, structures, objects, and sites that make up the Orinda WTP.** Before ground disturbance, EBMUD shall hire an architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards for architectural history to prepare California Department of Parks and Recreation (DPR) 523 forms that document all historic-age buildings, structures, objects, and sites that make up the Orinda WTP. The completed DPR 523 forms shall be submitted to the Northwest Information Center at Sonoma State University, the City of Orinda, and the Orinda Historical Society. **Mitigation Measure CUL-1b: Document Existing Grounds/Maintenance Building and LAPP1 before removal.** Before the start of any construction and demolition work at the existing Grounds/Maintenance Building and LAPP1, EBMUD shall fully document the building. Documentation by an architectural historian (or historical architect, as appropriate) shall consist of a written history of the two buildings and drawings and photographs, as described below.	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Cultural Resources (cont.)			
Impact CUL-1 (cont.)		• ***Written history.*** An architectural historian (or historical architect, as appropriate) shall prepare a written history of the two buildings, conducting archival research as required. The completed DPR 523 forms for the Orinda WTP described in Mitigation Measure CUL-1a shall be used to the greatest extent possible. The report shall be produced on archival bond paper. • ***Drawings and photographs.*** An architectural historian (or historical architect, as appropriate) shall conduct research into the availability of architectural drawings and photographs of the existing Grounds/Maintenance Building and LAPP1 as they existed historically and as they currently exist. – *Drawings*: Select existing drawings, where available, may be photographed with large-format negatives or photographically reproduced on Mylar in accordance with the U.S. Copyright Act, as amended. – *Photographs*: Photographs with large-format negatives of exterior and interior views and historic views where available and produced in accordance with the U.S. Copyright Act, as amended, shall be included in the documentation. The documentation shall be prepared by an architectural historian or historical architect, as appropriate, who meets the Secretary of the Interior's Professional Qualifications Standards. The documentation shall be submitted to the Orinda Historical Society and kept on file at EBMUD.	
Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource, pursuant to CEQA Guidelines Section 15064.5.	LTS	**Adopted WTTIP Mitigation Measure 3.7-1a.** EBMUD will include the following in contract specifications for ground-disturbing activities, including excavation and grading. In the event of accidental discovery of cultural resources, such as structural features, bone, shell, artifacts, human remains, architectural remains (such as bricks or other foundation elements), or historic archaeological artifacts (such as antique glass bottles, ceramics, horseshoes, etc.), work will be suspended and EBMUD staff will be contacted. A qualified cultural resource specialist will be retained and will perform any necessary investigations to determine the significance of the find. EBMUD will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources. In addition, pursuant to Sections 5097.97 and 5097.98 of the California Public Resources Code and Section 7050.5 of the California Health and Safety Code, in the event of the discovery of human remains, all work will be halted and the county coroner will be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission will be adhered to in the treatment and disposition of the remains.	LTS
Impact CUL-3: Disturb any human remains, including those interred outside of dedicated cemeteries.	LTS	**Adopted WTTIP Mitigation Measure 3.7-1a.** (See full text with Impact CUL-2 above.)	LTS

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Energy			
Impact EN-1: Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation.	LTS	**No mitigation measures required.**	LTS
Geology, Soils, Seismicity, and Paleontological Resources			
Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic groundshaking; seismic-related ground failure (liquefaction, lateral spreading); or landslides.	LTS	**Adopted WTTIP Mitigation Measure 3.4-2.** During the design phase for all project components that require ground-breaking activities (excluding pipelines), the District will perform site-specific, design-level geotechnical evaluations to identify potential secondary ground failure hazards (i.e., seismically-induced settlement) associated with the expected level of seismic ground shaking. The geotechnical analysis would provide recommendations to mitigate those hazards in the final design and, if necessary during construction. The site-specific design-level geotechnical evaluations, based on the site conditions and location and professional opinion of the geotechnical engineer, could include subsurface drilling, soil testing, and analysis of site seismic response. The geotechnical engineer would review the seismic design criteria of facilities to ensure that facilities are designed to withstand the highest expected peak acceleration, set forth by the CBC for each site. Recommendations resulting from findings of the geotechnical study will be incorporated into the design and construction of proposed facilities. Design and construction for buildings will be performed in accordance with the District's seismic design standards, which meet and/or exceed design standards for Seismic Zone 4 of the Uniform Building Code. **Adopted WTTIP Mitigation Measure 3.4-4.** During the design phase for all project components that require ground-breaking activities (excluding pipelines), the District will perform site-specific design-level geotechnical evaluations to identify geologic hazards and provide recommendations to mitigate those hazards in the final design and during construction. The design-level geotechnical evaluations will include the collection of subsurface data for determining liquefaction potential. The evaluation and mitigation of liquefaction hazards shall be in conformance with the California Geological Survey's Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, which provides methods to identify, evaluate, and reduce the hazards and earthquake-induced landslide hazards as required under the Seismic Hazards Mapping Act (SHMA) of 1990. The evaluation and mitigation shall be conducted by a California registered professional engineer or California certified engineering geologist. When site-specific testing identifies a potential for significant liquefaction-induced ground failures and damage to project facilities, appropriate feasible measures, as recommended in SP 117, shall be developed and incorporated into the project design. Because the project sites are not located in an area zoned under the SHMA, review of the investigation report by the CGS is not required. For all pipelines located in liquefaction hazard areas, appropriate piping material with the ability to deform without rupture (e.g. ductile steel) will be used. For large diameter pipes (greater than 12 inches in diameter) located in high liquefaction hazard areas, a geotechnical evaluation will be conducted. Measures to minimize significant liquefaction hazards could include the following:	LTS

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Geology, Soils, Seismicity, and Paleontological Resources (cont.)			
Impact GEO-1 (cont.)		• Densification or dewatering of surface or subsurface soils, • Construction of pile or pier foundations to support pipelines and/or buildings • Removal of material that could undergo liquefaction in the event of an earthquake, and replacement with stable material, • Modification of site geometry to reduce the risk of translational site instability.	
Impact GEO-2: Result in substantial soil erosion or the loss of topsoil.	LTS	**Adopted WTTIP Mitigation Measures 3.9-1b.** (See full text with Impact AIR-1 above.)	LTS
Impact GEO-3: Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse.	PS	**Adopted WTTIP Mitigation Measure 3.4-2.** (See full text with Impact GEO-1 above.) **Adopted WTTIP Mitigation Measure 3.4-3a.** During the design phase for all project components that require ground-breaking activities (excluding pipelines), the District will perform site-specific design-level geotechnical evaluations to identify geologic hazards and provide recommendations to mitigate those hazards in the final design and during construction. The geotechnical evaluations, conducted by a California registered professional engineer, will include site-specific investigations, which may include, if necessary, soil sampling and testing to determine the presence and characteristics of potentially compressible soils, the engineering properties of the proposed foundation material, the depth and thickness of soil layers, and the depth to groundwater. Based on the findings of the investigations, the registered professional shall formulate adequate measures to reduce the expansivity index of the site soil to a low expansion potential (Expansivity Index (EI) less than 50) as defined in the 1997 Uniform Building Code. For compressible soils, the registered professional would develop and implement a strategy to improve the soil to achieve settlements below what the proposed structure can tolerate, as determined through laboratory soils testing and professional judgment. Feasible mitigation measures, as listed below, are standard engineering practice and are common engineering design strategies used to overcome problematic soil conditions. • Removal and replacement of problematic topsoil • Soil pre-compression, using vertical drains, surcharge fills or dynamic compaction • Installation of deep foundations (i.e., piles, drilled piers) • Deep mixing of compressible or expansive soils with stabilizing agents • Mitigation measures included in the geotechnical evaluations will be incorporated into the project design specifications and would become part of the project. **Adopted WTTIP Mitigation Measure 3.4-4.** (See full text with Impact GEO-1 above.) **Mitigation Measure HYD-3: San Pablo Creek Bank Monitoring and Remediation Program.** (See full text with Impact HYD-3d below.)	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Geology, Soils, Seismicity, and Paleontological Resources (cont.)			
Impact GEO-4: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Buildings Code (1994), creating substantial direct or indirect risks to life or property.	LTS	**Adopted WTTIP Mitigation Measure 3.4-3a.** (See full text with Impact GEO-3 above.) **Adopted WTTIP Mitigation Measure 3.4-3b.** The District will include in the contract specifications that any fill will be selected, placed, compacted, and inspected in accordance with plans and specifications prepared by a licensed professional engineer in accordance with standard and accepted engineering protocols (inspection, compaction-density testing, in-situ field testing) necessary to prevent engineered fill soils from becoming expansive or compressible after placement.	LTS
Impact GEO-5: Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.	LTS	**Adopted WTTIP Mitigation Measure 3.7-2.** EBMUD or an appointed representative will notify a qualified paleontologist of any discoveries, document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in Section 15064.5 of the *CEQA Guidelines*. In the event a fossil is discovered during construction, excavations within 50 feet of the find will be temporarily halted or diverted until the discovery is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards (SVP, 1995). The paleontologist will notify EBMUD to determine procedures to be followed before construction is allowed to resume at the location of the find. If EBMUD determines that avoidance is not feasible, the paleontologist will prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important, and the plan will be implemented. The plan will be submitted to EBMUD for review and approval.	LTS
Greenhouse Gas Emissions			
Impact GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	LTS	**Adopted WTTIP Mitigation Measure 3.9-1c.** (See full text with Impact AIR-1 above.)	LTS
Impact GHG-2: Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	LTS	**Adopted WTTIP Mitigation Measure 3.9-1c.** (See full text with Impact AIR-1 above.) **Adopted WTTIP Mitigation Measure 3.12-4a:** The District will require project facility design and construction methods that produce less waste, or that produce waste that could more readily be recycled or reused. **Adopted WTTIP Mitigation Measure 3.12-4b:** The District will include in its construction specifications a requirement for the contractor to describe plans for recovering, reusing, and recycling 50 percent of projected solid waste through construction, demolition, and excavation activities. **Adopted WTTIP Mitigation Measure 3.12-5:** The District will implement adopted WTTIP Mitigation Measures 3.12-4a and 3.12-4b.	LTS

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Hazards and Hazardous Materials			
Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	PS	**Adopted WTTIP Mitigation Measure 3.11-2.** The District will perform or incorporate into contract specifications for all project components involving demolition or renovation of existing facilities the requirement that the contractor(s) have a hazardous building materials survey completed for each of the structures by a registered environmental assessor or a registered engineer prior to demolition or renovation activities. If any friable asbestos-containing materials, lead-containing materials, or hazardous components of reservoir liner materials are identified, adequate abatement practices, such as containment and/or removal, will be implemented prior to demolition or renovation. **Mitigation Measure HAZ-1a: Project Safety and Health Plan.** Before the start of construction, the construction contractor(s) shall prepare a Project Safety and Health Plan in accordance with 29 CFR 1910.120 and approved by EBMUD that addresses anticipated hazards related to hazardous substances, fall protection, confined spaces, and trenches or excavations. The plan must designate a Project Safety and Health Representative and a qualified person to take air samples and measurements of known or suspected hazardous materials. All personnel who will likely be exposed to hazardous substances must have appropriate training. The plan shall include an Emergency Action Plan in the event of an accident or serious unplanned event that requires notifying any responsive agencies (e.g., fire department, utilities, rescue teams). **Mitigation Measure HAZ-1b: Construction Demolition Waste and Disposal Plan.** Prior to construction, the construction contractor(s) shall prepare and implement a site-specific Construction Demolition Waste and Disposal Plan and submit a copy of the plan prior to disposing of any material (except for water wastes, which shall be addressed in the Water Control and Disposal Plan). The plan shall identify how the construction contractor(s) will remove, handle, transport, and dispose of all materials required to be removed under this contract (including, but not limited to asbestos-containing and lead-containing materials) in a safe, appropriate, and lawful manner in compliance with all applicable regulations of local, state, and federal agencies having jurisdiction over the disposal of removed materials. The construction contractor(s) shall procure the necessary permits required by the local, state, and federal agencies having jurisdiction over the handling, transportation, and disposal of construction and demolition waste and include a list of reuse, recycling, and processing facilities that will be receiving recovered materials. The plan must identify materials that are not recyclable or not recovered that will be disposed of in a landfill (or other means acceptable by the state of California and local ordinance and regulations) and list the permitted landfill, or other permitted disposal facilities, that will be accepting the disposed waste materials. The plan must also identify each type of waste material to be reused, recycled, or disposed of, estimate the amount by weight, and include the sampling and analytical program for characterization of any waste material, as needed, prior to reuse, recycle, or disposal. Materials or wastes shall only be disposed of at facilities approved by EBMUD. Prior to disposition of wastes, the contractor must submit permission to reuse, recycle, reclaim, or dispose of material from the reuse, recycling, reclamation, or disposal site owner, along with any other information needed by the EBMUD to evaluate the acceptability of the proposed reuse, recycling, or disposal site. The contractor shall disclose all information pertinent to the characterization of the material or waste to EBMUD. **Mitigation Measure HAZ-1c: Water Control and Disposal Plan.** The construction contractor(s) shall prepare and implement a site-specific Water Control and Disposal Plan (WCDP) prior to any work at the worksite. The WCDP shall comply with all EBMUD requirements and applicable discharge permit requirements. The construction contractor(s) shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Hazards and Hazardous Materials (cont.)			
Impact HAZ-1 (cont.)		**Mitigation Measure HAZ-1d: Spill Prevention and Response Plan.** The construction contractor(s) shall prepare and implement a site-specific Spill Prevention and Response Plan prior to any work at the worksite. The plan shall detail the means and methods for preventing and controlling the spilling of known hazardous substances used on the worksite or staging areas. The plan shall include a list of the hazardous substances proposed for use or generated by the construction contractor(s) on site, including petroleum products, and measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills. Spill response measures shall address notification of the engineer and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; and spill control and cleanup. A Safety Data Sheet (SDS) shall be submitted for each hazardous substance proposed to be used prior to delivery of the material to the worksite.	
Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.	PS	**Adopted WTTIP Mitigation Measure 3.12-1c.** The District or its contractors will confirm the specific location of all high priority utilities (i.e. pipelines carrying petroleum products, oxygen, chlorine, toxic or flammable gases; natural gas in pipelines greater than 6 inches in diameter, or with normal operating measures, greater than 60 pounds per square inch gauge; and underground electric supply lines, conductors, or cables that have a potential to ground more than 300 volts that do not have effectively grounded sheaths) and such locations will be highlighted on all constructions drawings. In the contract specifications, the District will require that the contractor provide weekly updates on planned excavation for the upcoming week and identify when construction will occur near a high priority utility. On days when this work will occur, District construction managers will attend tailgate meetings with contractor staff to review all measures—those identified in the Mitigation Monitoring and Reporting Program and in the construction specifications—regarding such excavations. The contractor's designated health and safety officer will specify a safe distance to work near high-pressure gas lines, and excavation closer to the pipeline will not be authorized until the designated health and safety officer confirms and documents in the construction records that: (1) the line was appropriately located in the field by the utility owner using as-built drawings and a pipeline-locating device, and (2) the location was verified by hand by the construction contractor. The designated health and safety officer will provide written confirmation to the District that the line has been adequately located, and excavation will not start until this confirmation has been received by the District. **Mitigation Measure HAZ-1a: Project Safety and Health Plan.** (See full text with Impact HAZ-1 above.) **Mitigation Measure HAZ-1b: Construction Demolition Waste and Disposal Plan.** (See full text with Impact HAZ-1 above.) **Mitigation Measure HAZ-1c: Water Control and Disposal Plan.** (See full text with Impact HAZ-1 above.) **Mitigation Measure HAZ-1d: Spill Prevention and Response Plan.** (See full text with Impact HAZ-1 above.)	LSM
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.	PS	**Mitigation Measure HAZ-1a: Project Safety and Health Plan.** (See full text with Impact HAZ-1 above.) **Mitigation Measure HAZ-1b: Construction Demolition Waste and Disposal Plan.** (See full text with Impact HAZ-1 above.) **Mitigation Measure HAZ-1c: Water Control and Disposal Plan.** (See full text with Impact HAZ-1 above.) **Mitigation Measure HAZ-1d: Spill Prevention and Response Plan.** (See full text with Impact HAZ-1 above.)	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Hazards and Hazardous Materials (cont.)			
Impact HAZ-4: Be located on a site which is included on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5 and as a result, would it create a significant hazard to the public or the environment.	LTS	**Adopted WTTIP Mitigation Measure 3.11-1.** For construction of all facilities requiring excavation of more than 50 cubic yards of soil, the District or contractor will use a qualified professional to conduct a Phase I environmental site assessment in conformance with standards adopted by ASTM International. If the Phase I environmental site assessment indicates that a release of hazardous materials could have affected soil or groundwater quality at the site, the District will retain a qualified environmental professional to conduct a Phase II environmental site assessment to evaluate the presence and extent of contamination at the site, in conformance with state and local guidelines and regulations. If the results of the subsurface investigation(s) indicate the presence of hazardous materials, alteration of facility design or site remediation may be required by the applicable state or local regulatory agencies, and the contractors will be required to comply with all regulatory requirements for facility design or site remediation. The Phase I environmental site assessment will be completed within twelve months prior to construction to accurately estimate the conditions that could be expected during construction.	LTS
Impact HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LTS	**Adopted WTTIP Mitigation Measure 3.8-1.** (See full text with Impact TRA-1 below.) **Adopted WTTIP Mitigation Measure 3.8-4.** (See full text with Impact TRA-1 below.)	LTS
Impact HAZ-6: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	PS	**Mitigation Measure WF-1: Construction Fire Prevention Plan.** (See full text with Impact WF-2 below.)	LSM
Hydrology and Water Quality			
Impact HYD-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	PS	**Adopted WTTIP Mitigation Measure 3.5-1a.** EBMUD will incorporate into contract specifications the requirement for the grading of construction staging areas to contain surface runoff so that contaminants such as oil, grease, and fuel products do not drain towards receiving waters. If heavy-duty construction equipment is stored overnight at the construction staging areas, drip pans will be placed beneath the machinery engine block and hydraulic systems to prevent any leakage from entering runoff or receiving waters. **Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan.** EBMUD or its contractor shall obtain authorization of discharges of stormwater associated with construction activity from the California State Water Resources Control Board under the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ; "construction general permit") or more recent general permit as relevant. The construction general permit requires all dischargers to comply with all applicable water quality standards, including any more stringent standards applicable to a water body.	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Hydrology and Water Quality			
Impact HYD-1 (cont.)		A site-specific Stormwater Pollution Prevention Plan (SWPPP) shall be prepared. The SWPPP shall include the information needed to demonstrate compliance with all requirements of the construction general permit, and must be kept on the construction site and be available for review. A qualified SWPPP developer (QSD) shall develop the SWPPP prior to the beginning of construction. The QSD shall determine relevant BMPs for the SWPPP based on sediment transport risk and risk to receiving waters. The SWPPP must also contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the Project area. A qualified SWPPP practitioner shall oversee implementation of the BMPs included in the SWPPP. All BMPs shall be inspected routinely. The SWPPP shall contain a visual monitoring program, and a chemical monitoring program for non-visible pollutants to be implemented if there is a failure of BMPs. EBMUD or its contractor shall electronically submit a notice of intent and permit registration documents in order to obtain coverage under the construction general permit. EBMUD or its contractor shall notify the SFBRWQCB of violations or incidents of non-compliance, as well as submit annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. **Mitigation Measure HYD-2: Tieback Installation Monitoring and Remedial Actions.** EBMUD or its contractor shall engage a California-licensed geotechnical engineer to monitor tieback installation (i.e., drilling, grouting). The California-licensed geotechnical engineer shall develop and maintain detailed drilling and grouting records. Grout placement volumes shall be observed to ensure grout volumes do not exceed the theoretical placed volume, which could be an indication of grout leakage. The following tieback installation remediation process shall be implemented if a frac-out or drilling fluid or grout loss is encountered. If a visible frac-out or grout leakage occurs, work shall cease at the tieback drilling location and EBMUD shall be immediately notified to determine the appropriate course of remedial action. Remedial measures shall include, but not be limited to: • Staging the grout filling of the tieback anchor to limit hydrostatic head at the bottom of the tieback borehole. • Pre-treating the tieback anchor borehole by using a thixotropic grout to reduce grout leakage into the bedrock. • Thickening the grout mix by reducing the water to cement ratio. • Using a grouting “sock” to minimize grout penetration into the bedrock. • Including additives, such as bentonite, in the grout mix to reduce grout penetration. • If a frac-out (i.e., grout) is encountered on dry ground surface outside the San Pablo Creek channel and it is determined that containment is necessary, stormwater BMPs, such as straw wattles, shall be deployed completely around the grout. The grout shall be collected, removed from the site, and disposed of in a manner according to applicable regulations. If the volume of grout is too small to warrant containment, it shall be allowed to dry and disposed of in a manner according to applicable regulations. • If a frac-out (i.e., grout) is encountered within the San Pablo Creek channel, the regulatory agencies with jurisdiction in the channel shall be notified by EBMUD to determine appropriate remedial action (i.e., U.S Army Corps of Engineers, Regional Water Quality Control Board, California Fish and Wildlife). The frac-out remedial actions shall comply with the requirements pertaining to regulated waterways, including associated water quality requirements of the RWQCB.	

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Hydrology and Water Quality (cont.)			
Impact HYD-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.	LTS	**No mitigation measures required.**	LTS
Impact HYD-3a: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on or off site.	PS	**Adopted WTTIP Mitigation Measure 3.5-1a.** (See full text with Impact HYD-1 above.) **Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan.** (See full text with Impact HYD-1 above.)	LSM
Impact HYD-3b: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface run-off in a manner which would result in flooding on- or offsite.	PS	**Adopted WTTIP Mitigation Measure 3.5-1a.** (See full text with Impact HYD-1 above.) **Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan.** (See full text with Impact HYD-1 above.)	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Hydrology and Water Quality (cont.)			
Impact HYD-3c: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would create or contribute run-off water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted run-off.	PS	**Adopted WTTIP Mitigation Measure 3.5-1a.** (See full text with Impact HYD-1 above.) **Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan.** (See full text with Impact HYD-1 above.) **Mitigation Measure HYD-2: Tieback Installation Monitoring and Remedial Actions.** (See full text with Impact HYD-1 above.)	LSM
Impact HYD-3d: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows.	PS	**Adopted WTTIP Mitigation Measure 3.5-1a.** (See full text with Impact HYD-1 above.) **Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan.** (See full text with Impact HYD-1 above.) **Mitigation Measure HYD-3: San Pablo Creek Bank Monitoring and Remediation Program.** Prior to ground excavation activities for the MAUVE/UV/CCB Structure, EBMUD shall retain a fluvial geomorphologist to develop and implement a creek bank monitoring and remediation program for the reach of San Pablo Creek adjacent to the MAUVE/UV/CCB Structure site, and EBMUD shall implement the creek bank monitoring and remediation program. The bank monitoring shall occur for the extent of the tiebacks and anchors on the west and east banks of San Pablo Creek (approximately from the upper spillway downstream to the Lafayette 1 Drain outfall) to reduce the potential for creek bank instability as a result of Project construction. This program shall include, but not be limited to: • Baseline creek cross-section surveys; • Visual creek bank stability evaluations to be conducted at specific construction milestones and for five years annually after Project completion. If warranted through visual evaluation by the fluvial geomorphologist, follow-up cross-section surveys to be conducted; • Preparation of a technical memo after each creek bank stability evaluation to include, but not limited to, documented field conditions, established photo viewpoints, and recommended remedial actions, if any; • Development of specific bank stability thresholds to determine when remedial actions are required, including, but not limited to, visual evidence of bank erosion and changes in channel cross-section;	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Hydrology and Water Quality (cont.)			
Impact HYD-3d (cont.)		• Development of bank stabilization remedial actions, to be taken if bank stability thresholds are exceeded, including, but not limited to, biotechnical bank stabilization methods (e.g., live willow stake planting) and native riparian bank re-vegetation. Remedial actions to be determined based on the specific bank instability issue and Project-specific permit requirements or – if no Project-specific permit has been issued – applicable regulatory requirements in force at that time. If at any monitoring or reporting point, signs of potential creek bank instability become evident, EBMUD shall engage the regulatory agencies with jurisdiction over San Pablo Creek to confirm EBMUD's proposed remedial bank stabilization actions. EBMUD shall comply with all permitting or other regulatory requirements identified by the regulatory agencies to ensure that the remedial actions will not significantly adversely affect San Pablo Creek or its riparian corridor.	
Impact HYD-4: In a flood hazard, tsunami, or seiche zone, risk release of pollutants due to Project inundation.	PS	**Adopted WTTIP Mitigation Measure 3.5-1a.** (See full text with Impact HYD-1 above.) **Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan.** (See full text with Impact HYD-1 above.)	LSM
Impact HYD-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	PS	**Adopted WTTIP Mitigation Measure 3.5-1a.** (See full text with Impact HYD-1 above.) **Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan.** (See full text with Impact HYD-1 above.)	LSM
Noise and Vibration			
Impact NOI-1: Result in the 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.	LTS	**Adopted WTTIP Mitigation Measure 3.10-1a.** The District will incorporate into contract specifications a requirement that construction activities at the construction site not cause daytime noise levels to exceed the 70-dBA speech interference criterion at the closest affected sensitive receptors, as well as that noise levels are consistent with local ordinances (see Table 3.10-1 of the WTTIP EIR). Measures that would be implemented to reduce noise levels (as demonstrated in Table 3.10-5 of the WTTIP EIR) to meet this criterion include the following: • Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours, as described in adopted WTTIP Mitigation Measure 3.10-1b. • Best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will be used for all equipment and trucks as necessary.	LTS

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Noise and Vibration (cont.)			
Impact NOI-1 (cont.)		• If impact equipment (e.g., jackhammers, pavement breakers, and rock drills) is used during project construction, hydraulically or electric-powered equipment will be used wherever possible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust will be used (a muffler can lower noise levels from the exhaust by up to about 10 dB). External jackets on the tools themselves will be used, where feasible, which could achieve a reduction of 5 dB. Quieter procedures, such as drilling rather than impact equipment, will be used whenever feasible. • Stationary noise sources will be located as far from sensitive receptors as possible. If they must be located near receptors, adequate muffling (with enclosures) will be used to ensure local noise ordinance limits are met. Enclosure opening or venting will face away from sensitive receptors. Enclosures will be designed by a registered engineer regularly involved in noise control analysis and design. Operation of any stationary equipment beyond the time limits specified will meet applicable noise ordinance noise limits (see adopted WTTIP Mitigation Measure 3.10-1b). • Material stockpiles as well as maintenance/equipment staging and parking areas will be located as far as practicable from residential and school receptors. • An EBMUD contact person will be designated to respond to construction-related issues, including noise. The name and phone number of the liaison will be conspicuously posted at construction areas, on all advanced notifications, and on the EBMUD project website. This person will take steps to resolve complaints, including periodic noise monitoring and the option of hotel accommodations, if necessary. **Adopted WTTIP Mitigation Measure 3.10-1b.** Construction producing substantial noise will be restricted to the hours of operation specified by each jurisdiction's noise ordinance (as listed in Table 3.10-1 of the WTTIP EIR, including restrictions provided in footnotes and any other ordinance exceptions and provisions in effect at the time of EIR publication), except during critical water service outages or other emergencies and special situations. Any equipment operating beyond these hours will be subject to the day and night noise limits of each jurisdiction (as listed in Table 3.10-1 of the WTTIP EIR) for various activities in single-family residential zones. EBMUD will coordinate with local agencies regarding noise controls for any construction work that needs to occur after 6:00 p.m. and before 7:00 a.m. To ensure that these standards could be met at the closest sensitive receptors, EBMUD will conduct a noise monitoring program prior to implementation of any project where construction would extend beyond ordinance time limits to accurately determine baseline ambient noise levels at the closest residential receptors and to measure noise levels at these receptors during a test run of equipment proposed to be operated on the site during the more noise-sensitive nighttime hours. Project noise limits will be adjusted appropriately depending on the existing ambient noise levels to ensure noise disturbance is maintained at a less-than-significant level at the closest residential receptors. Measures that could be implemented to reduce noise levels (as demonstrated in Table 3.10-6 of the WTTIP EIR) to meet local nighttime standards include engine controls listed in adopted WTTIP Mitigation Measure 3.10-1a. **Adopted WTTIP Mitigation Measure 3.10-4.** Equipment will not cause ambient noise levels to exceed the nighttime noise limits specified in Table 3.10-8 of the WTTIP EIR. Measures that could be incorporated into the design of proposed facilities to ensure that noise levels meet this criterion (as demonstrated in Table 3.10-8 of the WTTIP EIR) include the following:	

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Noise and Vibration (cont.)			
Impact NOI-1 (cont.)		• Pumping and emergency generator facilities will be fully enclosed, and vents will be located on the building facades facing away from adjacent residential receptors. • Building enclosures will provide at least 40 dB of attenuation on solid walls (i.e., a 40-dB difference between interior vs. exterior noise) and a 20-dB reduction on the louvered side of the enclosure, when measured at 6 feet from the wall, directly in front of the louvers. • Masonry sound barriers will be constructed around transformers, and substations will be of sufficient height to provide at least 10 dB or more of noise attenuation.	
Impact NOI-2: Result in the generation of excessive groundborne vibration or groundborne noise levels.	LTS	**No mitigation measures required.**	LTS
Recreation			
Impact 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.	LTS	**No mitigation measures required.**	LTS
Transportation			
Impact TRA-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	PS	**Adopted WTTIP Mitigation Measure 3.8-1.** The District will incorporate into contract specifications for the project the following requirements: • The contractor(s) will obtain any necessary road encroachment permits prior to construction and will comply with conditions of approval attached to project implementation. As part of the road encroachment permit process, the contractor(s) will prepare a traffic safety / traffic management plan (for work in the public right of-way), in accordance with professional traffic engineering standards, for review and approval by EBMUD. The plan will be submitted to the agencies having jurisdiction over the affected roads. Elements of the plan will likely include, but are not necessarily limited to, the following: – Develop circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible. Use flaggers and/or signage to guide vehicles through and/or around the construction zone.	LSM

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Transportation (cont.)			
Impact TRA-1: (cont.)		– Control and monitor construction vehicle movements through the enforcement of standard construction specifications by periodic onsite inspections. – To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours. – Limit lane closures during peak hours to the extent possible (and unless otherwise approved by the local agency). Restore roads and streets to normal operation by covering trenches with steel plates outside of allowed working hours or when work is not in progress. – As approved by the local agency, include signage to direct pedestrians and bicyclists around construction work zones that displace sidewalks or bike lanes. – As approved by the local agency, store all equipment and materials in designated contractor staging areas on or adjacent to the worksite, in such a manner to minimize obstruction to traffic. – As approved by the local agency, identify locations for parking by construction workers within the construction zone or, if needed, at a nearby location with transport to and from the worksite provided. – Comply with roadside safety protocols. Provide "Road Work Ahead" warning signs and speed control (including signs informing drivers of state-legislated double fines for speed infractions in a construction zone) to achieve required speed reductions for safe traffic flow through the work zone. – Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, transit stations, hospitals, and schools. Provide advance notification to the facility owner or operator of the timing, location, and duration of construction activities and the locations of detours and lane closures. – Coordinate construction activities, to extent possible, to minimize traffic disturbances adjacent to schools (e.g., do work during summer months when there is less activity at schools). During periods when school children at the Wagner Ranch Elementary School are walking to and from school in the morning and in the afternoon on the asphalt trail along the north side of Camino Pablo, when construction truck traffic is present near the trail, the contractor(s) will provide flaggers and crossing guards (the latter as needed to supplement the school-provided crossing guards) to ensure pedestrian and traffic safety. School arrival and departure schedules will be monitored for changes such as vacation periods, and the school traffic and pedestrian safety plan will be modified as needed. – Coordinate with the County Connection so the transit provider can temporarily relocate bus routes or bus stops in work zones as it deems necessary. – To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule construction of project elements to avoid overlapping maximum trip-generation construction phases.	

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Transportation (cont.)			
Impact TRA-1 (cont.)		– As part of the coordination with school administrators, the District will coordinate with providers of school bus service regarding road closures, delays and detours during times that school buses run. – The contractor(s) will post all construction sites with signs that state the permitted hours of construction. Those signs will identify the construction project as initiated by EBMUD, and will provide contact information for inquiries or comments. **Adopted WTTIP Mitigation Measure 3.8-4.** Implement adopted WTTIP Mitigation Measure 3.8-1, which stipulates actions required of contractor(s) to reduce potential traffic safety impacts to a less-than-significant level. **Mitigation Measure TRA-1: Heavy Construction Vehicle Traffic Safety Monitoring.** • EBMUD's Contractor shall distribute written traffic safety requirements to all Contractor heavy construction vehicle drivers. All drivers shall provide signed acknowledgement of having read and understood all traffic safety requirements and consequences of non-compliance. • Written traffic safety requirements shall include: – Construction work hours specifying when construction traffic would be allowed to access the Orinda WTP and staging areas – Construction haul routes and associated speed limits – Designated parking and queuing locations • Contractor shall provide Project sticker or equivalent to drivers who have provided written acknowledgement of traffic safety requirements – Project sticker shall be made available upon request by EBMUD during the construction contract period • Contractor shall record all heavy construction traffic vehicle license plates and driver's license numbers upon entrance to the Orinda WTP and maintain a daily log of Project heavy construction traffic vehicles and drivers. • Contractor heavy construction vehicle drivers shall conform to designated construction hours, including no driving, queuing, idling or parking on local roadways outside of designated construction hours as outlined in written traffic safety requirements. • Contractor heavy construction vehicle drivers shall use only designated construction traffic haul routes. • Contractor shall provide Radar Speed Feedback Signs along construction access routes within the City of Orinda for the entire Project duration (two, one in each direction of traffic on Camino Pablo) to deter speeding by heavy construction vehicles on construction traffic routes.	

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Transportation (cont.)			
Impact TRA-1 (cont.)		• EBMUD and Contractor shall coordinate weekly with the Orinda Police Department (OPD) on the Project construction schedule and OPD officer patrol car services along construction access routes within the City of Orinda during periods of high construction traffic (i.e., soil off-haul and concrete delivery activities where soil off-haul and concrete delivery trucks to and from the Orinda WTP are greater than 4 truck roundtrips per hour) to monitor and enforce local roadway traffic regulations, including ticketing any violators. • Contractor heavy construction vehicle drivers shall comply with roadway traffic safety rules as outlined in written traffic safety requirements, including, but not limited to: – Stoplight signals and stop signs – Roadway speed limits (reduced speeds in construction zones and near schools)	
Impact TRA-2: Conflict or be inconsistent with *CEQA Guidelines* Section 15064.3, Subdivision (b).	LTS	**No mitigation measures required.**	LTS
Impact TRA-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	PS	**Adopted WTTIP Mitigation Measure 3.8-1.** (See full text with Impact TRA-1 above.) **Adopted WTTIP Mitigation Measure 3.8-4.** (See full text with Impact TRA-1 above.) **Mitigation Measure TRA-1: Heavy Construction Vehicle Traffic Safety Monitoring.** (See full text with Impact TRA-1 above.) **Mitigation Measure TRA-2: Pavement Monitoring.** Prior to Project construction, EBMUD shall require the contractor(s) to video document pavement conditions for the portion of Manzanita Drive, a residential roadway, that will be used by Project-related vehicles. Pavement conditions shall also be documented after Project construction is complete. Pavement damaged by construction-related traffic shall be repaired to a structural condition equal to that which existed prior to Project construction activity.	LSM
Impact TRA-4: Result in inadequate emergency access.	LTS	**Adopted WTTIP Mitigation Measure 3.8-1.** (See full text with Impact TRA-1 above.) **Adopted WTTIP Mitigation Measure 3.8-4.** (See full text with Impact TRA-1 above.)	LTS

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TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Tribal Cultural Resources			
Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe.	LTS	**Adopted WTTIP Mitigation Measure 3.7-1a.** (See full text with Impact CUL-2 above.)	LTS
Wildfire			
Impact WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan.	LTS	**Adopted WTTIP Mitigation Measure 3.8-1.** (See full text with Impact TRA-1 above.) **Adopted WTTIP Mitigation Measure 3.8-4.** (See full text with Impact TRA-1 above.)	LTS
Impact WF-2: Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.	PS	**Mitigation Measure WF-1: Construction Fire Prevention Plan.** EBMUD and/or its contractors shall prepare and implement a Final Project-specific CFPP to ensure the health and safety of construction workers and the public from fire-related hazards. The CFPP shall include the requirements listed below. Prior to construction, EBMUD shall contact and consult with the Moraga-Orinda Fire District to determine the appropriate amounts of fire equipment to be carried on the vehicles and appropriate prevention measures to be taken. The Final CFPP shall list fire safety measures including fire prevention and extinguishment procedures, as well as specific emergency response and evacuation measures to follow during emergency situations; examples are listed below. The Final CFPP also shall provide fire-related rules for smoking, storage and parking areas, usage of spark arrestors on construction equipment, and fire-suppression tools and equipment. The Final CFPP shall include or require, but not be limited to, the following: • All work shall be performed in a fire-safe manner, and adequate fire-fighting equipment capable of extinguishing incipient fires shall be supplied and maintained on site. All work shall comply with applicable federal, local, and state fire prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standards for Safeguarding Building Construction Operations (National Fire Protection Association [NFPA] No. 241) shall be followed.	LSM

NOTES: LTS = Less than significant; NI = No Impact; PS = Potentially Significant; LSM = Less than significant with mitigation measures identified in this Supplemental EIR

* The acronym "LTS" is used to indicate that a potentially adverse environmental impact was identified, but that the impact would be less than significant, either because (1) previously adopted WTTIP mitigation measures incorporated into the Project minimize the impact, or (2) the impact is less than significant on its own, without any mitigation measures. In either case, for impacts denoted as "LTS," new project-specific mitigation measures are not required to ensure that impacts remain less than significant.

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Wildfire (cont.)			
Impact WF-2 (cont.)		• As construction may occur simultaneously at several locations, each construction site shall be equipped with fire extinguishers and fire-fighting equipment sufficient to extinguish small fires. • A long-handled, round-point shovel or a fire extinguisher shall be kept at an accessible (unlocked) location on the construction site at all times. • Earthmoving and portable equipment with internal combustion engines shall be equipped with spark arrestors to reduce the potential for igniting a wildfire. Such equipment shall be maintained to ensure proper functioning of spark arrestors. • EBMUD shall ensure that all construction workers receive training on the proper use of fire-fighting equipment and procedures to be followed in the event of a fire. • EBMUD shall instruct construction personnel to park vehicles within roads, road shoulders, graveled areas, and/or cleared areas (i.e., away from dry vegetation) wherever such surfaces are present at the construction site. • For all work occurring between April 1 and December 1, or any other periods during which a high fire danger has been identified: – Equipment that could produce a spark, fire, or flame shall not be used within 10 feet of any flammable materials. • Portable tools powered by gasoline-fueled internal combustion engines shall not be used within 25 feet of any flammable materials. • Regarding vegetation management for fire prevention and protection, prior to and during construction: – Create and maintain a defensible space (100 feet or to the EBMUD property boundary, whichever is shorter) around the construction site as well as construction ingress and egress sites through landscaping, mowing, disking, and/or spraying dry brush or native grasses to a height of 4-inches or less. – Remove dead trees within 100 feet of the construction site. – Limb up trees within 100 feet of the construction site so that no leafy foliage, twigs, or branches are within 5 feet of the ground. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season. – Ensure and maintain 5 feet of vertical clearance between roof surfaces and portions of trees overhanging all structures within the construction site, and keep roofs free of leaves, needles, twigs, and other combustible matter. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season. – Keep all overhanging trees, shrubs, and other vegetation, or portions thereof, free of dead limbs, branches, and other combustible matter. • Neatly stack all combustible materials away from structures within the construction site and have all combustible growth cleared 15 feet around the stack. • At each construction site, after construction has been completed for the day, the contractor shall perform a visual inspection of all construction equipment within the PG&E easement and within 12 vertical feet of the PG&E power line to ensure that no equipment (e.g., cranes) left onsite could interfere with (e.g., touch or fall into) the PG&E power line and result in an arc, spark, or other line failure, resulting in ignition risks, after construction has concluded for the day (PRC Section 4293).	

NOTES: LTS = Less than significant; NI = No Impact; PS = Potentially Significant; LSM = Less than significant with mitigation measures identified in this Supplemental EIR

* The acronym "LTS" is used to indicate that a potentially adverse environmental impact was identified, but that the impact would be less than significant, either because (1) previously adopted WTTIP mitigation measures incorporated into the Project minimize the impact, or (2) the impact is less than significant on its own, without any mitigation measures. In either case, for impacts denoted as "LTS," new project-specific mitigation measures are not required to ensure that impacts remain less than significant.

TABLE ES-2 (CONTINUED)
SUMMARY OF IMPACTS AND ADOPTED WTTIP AND PROJECT-SPECIFIC MITIGATION MEASURES

Impact Area	Significance Before Mitigation*	Mitigation Measure	Significance After Mitigation
Wildfire (cont.)			
Impact WF-3: 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.	LTS	**No mitigation measures required.**	LTS
Impact WF-4: Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of run-off, post-fire slope instability, or drainage changes.	PS	**Adopted WTTIP Mitigation Measure 3.5-1a.** (See full text with Impact HYD-1 above.) **Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan.** (See full text with Impact HYD-1 above.) **Mitigation Measure WF-1: Construction Fire Prevention Plan.** (See full text with Impact WF-2 above.)	LSM

NOTES: LTS = Less than significant; NI = No Impact; PS = Potentially Significant; LSM = Less than significant with mitigation measures identified in this Supplemental EIR

* The acronym "LTS" is used to indicate that a potentially adverse environmental impact was identified, but that the impact would be less than significant, either because (1) previously adopted WTTIP mitigation measures incorporated into the Project minimize the impact, or (2) the impact is less than significant on its own, without any mitigation measures. In either case, for impacts denoted as "LTS," new project-specific mitigation measures are not required to ensure that impacts remain less than significant.

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CHAPTER 1
Introduction

1.1 Overview, Purpose, and Authority

1.1.1 Overview

East Bay Municipal Utility District (EBMUD) supplies and treats water for approximately 1.4 million people in a 332-square-mile area in Alameda and Contra Costa Counties, serving 20 incorporated cities and 15 unincorporated areas. In December 2006, the EBMUD Board of Directors approved the Water Treatment and Transmission Improvements Program (WTTIP) and certified an Environmental Impact Report (EIR) on the WTTIP (State Clearinghouse No. 2005092019). The purpose of the WTTIP is to address the water treatment, transmission, and distribution system needs in the EBMUD service area, particularly in Lafayette, Moraga, Orinda, and western Walnut Creek, through the year 2030. The WTTIP includes over 20 projects involving water treatment plant facilities and transmission and distribution system pipelines, pumping plants, and reservoirs.

EBMUD advanced the design of some WTTIP projects following EIR certification and, based on refinements to design and construction assumptions, is proposing to modify one of the WTTIP projects: the Orinda Water Treatment Plant (WTP) Disinfection Improvements Project (Project).

EBMUD is proposing to upgrade existing and construct new facilities in order to improve the disinfection system at the Orinda WTP in the city of Orinda, California. The Project includes a new disinfection facility comprised of a below-grade ultraviolet (UV) disinfection/chlorine contact basin (CCB) system and an aboveground maintenance and UV electrical building (MAUVE), two electrical buildings, a standby generator, pipelines and vaults, and other supporting facilities. The existing maintenance building at the Project disinfection facility site would be demolished and its associated uses incorporated into the new facility and a grounds maintenance building on the Orinda WTP site.

1.1.2 CEQA Process

The California Environmental Quality Act (CEQA) requires that all state and local government agencies consider the environmental consequences over which they have discretionary authority before taking an action that has the potential to affect the environment. Because the Project has changed since certification of the WTTIP EIR in 2006, environmental impacts disclosed in WTTIP EIR may have changed. Consequently,

consistent with the 2020 *CEQA Guidelines* (referred to in the rest of this Supplemental EIR as the *CEQA Guidelines*), EBMUD has prepared this Supplemental EIR to inform agencies and the public about the proposed modifications to the Project, to evaluate the environmental impacts associated with the modifications, and to identify measures to reduce such impacts.

This document supplements the analysis presented in the WTTIP EIR by describing the proposed modifications to the Project and evaluating their potential: (1) to generate significant impacts not disclosed in the WTTIP EIR, and (2) to change the severity of significant impacts disclosed in the WTTIP EIR. Those portions of the WTTIP EIR that address the Project are incorporated by reference and summarized in this Supplemental EIR. Also, adopted mitigation measures from the WTTIP Mitigation Monitoring and Reporting Program (MMRP) that were applicable to Orinda WTP projects are incorporated into the Project (refer to Appendix A). The WTTIP EIR, including the Findings and MMRP for the WTTIP, is available for review at www.ebmud.com/orwtpimprovements.

The issues evaluated in detail in this Supplemental EIR include the following: aesthetic resources; air quality; biological resources; cultural resources; energy; geology, soils, seismicity, and paleontological resources; greenhouse gases; hazards and hazardous materials; hydrology and water quality; noise and vibration; recreation; transportation; tribal cultural resources; and wildfire.

1.1.3 Purpose and Authority

This Supplemental EIR provides an analysis of the potential environmental effects of the Project. The environmental impacts of the Project are analyzed to the appropriate degree of specificity, in accordance with Section 15146 of the *CEQA Guidelines*. This document addresses the potentially significant adverse environmental impacts that may be associated with construction and operation of the Project and identifies appropriate and feasible mitigation measures and alternatives that may be adopted to reduce or avoid significant impacts.

1.2 Lead Agency Determination

EBMUD is designated as the lead agency for the purposes of this Supplemental EIR. *CEQA Guidelines* Section 15367 defines the lead agency as "…the public agency, which has the principal responsibility for carrying out or approving a project." Other public agencies may use this Supplemental EIR in the decision-making or permitting process and consider the information in this Supplemental EIR along with other information that may be presented during the CEQA process.

1.3 Notice of Preparation

In accordance with Sections 15082(a), 15103, and 15375 of the *CEQA Guidelines*, EBMUD prepared and circulated a Notice of Preparation (NOP) of a Supplemental EIR

for the Project for a 30-day comment period between August 15, 2019 and September 16, 2019. A postcard mailer was sent to approximately 600 residents and property owners notifying them of the NOP. The full NOP was sent to an additional approximately 20 individuals representing agencies and special interest stakeholders.

EBMUD conducted a public outreach and scoping meeting to discuss the Project and to solicit public input. The public meeting was held on August 26, 2019 at the Masonic Lodge located at 9 Altarinda Road in Orinda, to receive public comments on the scope and content of the Supplemental EIR. Appendix B contains a copy of the NOP for the Project, as well as a comment letter that was submitted in response to the NOP. The only comment letter received was from Contra Costa County Flood Control and Water Conservation District.

In addition to the scoping meeting, two public informational meetings were conducted by EBMUD to inform the public on the development of certain aspects of the Project. A public meeting was conducted on October 21, 2019, also at the Orinda Masonic Lodge, to present and discuss conceptual perimeter landscaping for the Project. During the May 13, 2020 meeting, conducted online via Microsoft Teams to comply with COVID-19 shelter-in-place orders, EBMUD presented preliminary findings related to the Project's air quality and transportation analyses.

1.4 Issues Raised During Public Outreach and Scoping

Issues and concerns raised during the public outreach and scoping meeting conducted by EBMUD include, but are not limited to, the following: noise, traffic, safety, and health risk during construction; visual impacts of the facilities; and Project proximity to San Pablo Creek.

1.5 Review and Use of the Supplemental EIR

Upon completion of this Supplemental EIR, EBMUD filed a Notice of Completion (NOC) with the Governor's Office of Planning and Research to begin the 45-day public review period (Public Resources Code, Section 21161). Concurrent with the NOC, this Supplemental EIR has been distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the Supplemental EIR in accordance with Public Resources Code 21092(b)(3). During the public review period, the Supplemental EIR and technical appendices are available for review on EBMUD's website: www.ebmud.com/orwtpimprovements. Agencies, organizations, and interested parties, including those not previously contacted or who did not respond to the NOP, currently have the opportunity to comment on the Supplemental EIR during the public review period.

Written comments on this Supplemental EIR should be addressed to:

Chien Wang, Project Manager
East Bay Municipal Utility District
375 Eleventh Street, MS 701
Oakland, CA 94607-4240

Email: orwtp.improvements@ebmud.com

1.6 Organization of the Supplemental EIR

This Supplemental EIR is organized into the following main chapters:

Executive Summary. This chapter includes a summary of the Project evaluated in this Supplemental EIR. It includes a table that summarizes the impacts, mitigation measures, and level of significance after mitigation measures are incorporated.

Chapter 1: Introduction. This chapter provides an introduction and overview describing the Project, purpose and scope of this Supplemental EIR, brief explanation of the areas of consideration and issues to be resolved, and a summary of the CEQA review process.

Chapter 2: Project Description. This chapter describes the Project including objectives, location, construction methods, and operations and maintenance activities. A list of responsible agencies and required approvals is included.

Chapter 3: Environmental Analysis. This chapter analyzes the environmental impacts of the Project. Each topic area includes a description of the environmental setting, methodology, significance criteria, impacts, mitigation measures, and significance after mitigation.

Section 3.1: Introduction to Environmental Analysis. This section provides an overview of the environmental analysis and presents the format for each topical section. It describes issues that have been determined to have no or less-than-significant impacts and therefore are not carried forward for further analysis. The approach for the analysis of cumulative impacts is also described.

Section 3.2: Aesthetics. This section evaluates impacts on visual and scenic resources.

Section 3.3: Air Quality. This section addresses local and regional air quality impacts, as well as consistency with Bay Area Air Quality Management District rules and regulations.

Section 3.4: Biological Resources. This section addresses impacts on habitat, vegetation, and wildlife; the potential degradation or elimination of important habitat; and impacts on listed, proposed, and candidate threatened and endangered species.

Section 3.5: Cultural Resources. This section addresses impacts on known historical resources and potential archaeological resources.

Section 3.6: Energy. This section evaluates energy consumption.

Section 3.7: Geology, Soils, Seismicity, and Paleontological Resources. This section evaluates the potential for the Project to directly or indirectly cause potential substantial adverse effects relative to geologic conditions or paleontological resources.

Section 3.8: Greenhouse Gas Emissions. This section addresses the potential for construction and operation of the Project to generate greenhouse gases.

Section 3.9: Hazards and Hazardous Materials. This section addresses the Project's potential to release or result in the handling of hazards and hazardous materials at the Project site, as well as the potential for Project-related activities to create a hazard to the environment.

Section 3.10: Hydrology and Water Quality. This section addresses impacts on local hydrological conditions, including drainage areas, and changes in water quality.

Section 3.11: Noise and Vibration. This section addresses potential construction noise and vibration impacts from mobile and stationary sources and also addresses the impact of noise and vibration generation on neighboring uses.

Section 3.12: Recreation. This section evaluates Project impacts on existing recreational facilities.

Section 3.13: Transportation. This section addresses impacts on the local and regional roadway system, public transportation (including school buses), bicycle, and pedestrian access.

Section 3.14: Tribal Cultural Resources. This section addresses impacts on known tribal cultural resources.

Section 3.15: Wildfire. This section addresses impacts related to wildfire in a Very High Fire Severity Zone.

Section 3.16: Other Environmental Issues. This section addresses environmental topics whose analyses and conclusions would not change those discussed in the WTTIP EIR.

Chapter 4: Alternatives. This chapter compares the impacts of the Project with other alternatives considered by EBMUD, including the No Project Alternative. The environmentally superior alternative is also evaluated.

Chapter 5: Other CEQA Considerations. This chapter describes potential growth-inducing impacts associated with the Project, a summary of significant environmental impacts, including cumulative effects, and the Project's irreversible and irretrievable commitment of resources.

Chapter 6: Supplemental EIR Preparers. This chapter lists the authors that assisted in the preparation of the Supplemental EIR, by name and company or agency affiliation.

Appendices. This section includes notices and other procedural documents pertinent to the Supplemental EIR, as well as technical material prepared to support the analysis.

1.7 References

EBMUD (East Bay Municipal Utility District), 2006. *Water Treatment and Transmission Improvements Program Final Environmental Impact Report*, SCH # 2005092019. November 2006.

CHAPTER 2
Project Description

2.1 Overview

The East Bay Municipal Utility District (EBMUD) is upgrading existing and constructing new facilities at the Orinda Water Treatment Plant (WTP), in the city of Orinda, California. The Orinda WTP is located north of Highway 24 and is bounded by Camino Pablo on the southwest and San Pablo Creek on the northeast (Figure 2-1).

EBMUD is implementing a planned system of improvements as part of its Water Treatment and Transmission Improvements Program (WTTIP). The WTTIP includes new facilities and upgrades to existing facilities primarily in the cities of Lafayette, Moraga, Orinda, and Walnut Creek. The improvements are needed to address systemwide water treatment and distribution needs to ensure a reliable water supply for current and future customers. Improvements to the disinfection[1] system at the Orinda WTP were included in the WTTIP.

The environmental impacts of the WTTIP were evaluated in the WTTIP Environmental Impact Report (EIR, State Clearinghouse No. 2005092019), which was certified by EBMUD's Board of Directors in December 2006. The WTTIP EIR evaluated some improvements at a project level, and some improvements, for which sufficient design details were not available, were evaluated at a program level. The installation of ultraviolet (UV) disinfection facilities and chlorine contact basins (CCBs) was evaluated programmatically in the WTTIP EIR (refer to Appendix H for a description and figures of the Orinda WTP WTTIP improvements certified in 2006).

Since preparation of the WTTIP EIR, the specific details of the design for improvements at the Orinda WTP, which were not available when the WTTIP EIR was prepared, have been developed. Thus, this project-specific Supplemental EIR has been prepared to address the current project, the Orinda WTP Disinfection Improvements Project (Project). The mitigation measures provided in the adopted WTTIP Mitigation Monitoring and Reporting Program (MMRP) that were identified for improvements at the Orinda WTP have been incorporated into the Project Description (refer to Appendix A), or revised and included as Project mitigation measures (refer to Appendix C for the Project's MMRP).

[1] The purpose of disinfection is to minimize or eliminate the potential for disease from waterborne pathogens.



SOURCE: ESA, 2019; ESRI, 2019.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 2-1
Project Location

ESA

Figure 2-2 shows existing Orinda WTP facilities. Figure 2-3 shows the locations of Project facilities within the Orinda WTP site which includes a new disinfection facility comprised of a below-grade UV disinfection/CCB system and an aboveground maintenance and UV electrical building, two electrical buildings, a standby generator, pipelines and vaults, and other supporting facilities. The existing maintenance building at the Project disinfection facility site would be demolished and its associated uses incorporated into the new facility and a Grounds Maintenance Building on the Orinda WTP site.

2.2 Project Background

2.2.1 Service Area

Figure 2-4 shows the boundaries of the EBMUD water service area. EBMUD's water system serves approximately 1.4 million people in a 332-square-mile area in Alameda and Contra Costa Counties, serving 20 incorporated cities and 15 unincorporated areas. The service area is divided by the Oakland-Berkeley Hills into the West of Hills and East of Hills service areas. The Project is located within the East of Hills service area.

2.2.2 Overview of Existing Water System Operations

Water Supply

EBMUD's principal water source is the Mokelumne River watershed, a 575-square-mile area of the Sierra Nevada mountains in Alpine, Amador, and Calaveras Counties. Water from the Mokelumne River is stored at the Pardee and Camanche Reservoirs, about 40 miles northeast of the city of Stockton. Untreated water flows by gravity via the Mokelumne Aqueducts from Pardee Reservoir to the San Francisco Bay Area. Mokelumne Aqueducts No. 1 and No. 2 combine to become Lafayette Aqueduct No. 1, and Mokelumne Aqueduct No. 3 becomes Lafayette Aqueduct No. 2. Both Lafayette Aqueducts convey untreated water to the Orinda WTP. Additional water (less than 10 percent of total supply) comes from local watersheds in Alameda and Contra Costa Counties. During droughts, EBMUD draws water from the Sacramento River via the Freeport Regional Water Project, which connects to the Mokelumne Aqueducts (EBMUD, 2016).

Water Treatment Plants

EBMUD operates five WTPs: Walnut Creek, Lafayette, Orinda, Sobrante, and Upper San Leandro. EBMUD also operates a sixth WTP, the San Pablo WTP, a facility used during drought operations and planned outage of key facilities such as the Claremont Tunnel (labeled on Figure 2-6), which transports water from the Orinda WTP to the west side of the Berkeley-Oakland Hills. Substantial overlap occurs in the areas served by the Sobrante, Orinda, and Upper San Leandro WTPs, as well as between the areas served by the Lafayette and Orinda WTPs. The overlap notwithstanding, on any given day, production from one WTP could offset some or all of the production from another facility, depending on actual demands and daily operational decisions.



Path: U:\GIS\G\S\Projects\17xxxx\D1710401_EBMUDOrindaWTPProject\03_MXDs_Projects\Fig2-2_ExistingWTP_Aerial.mxd rtelitel 4/14/2020

SOURCE: ESA, 2019; ESRI, 2019.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 2-2
Existing Orinda Water Treatment Plant Site

ESA



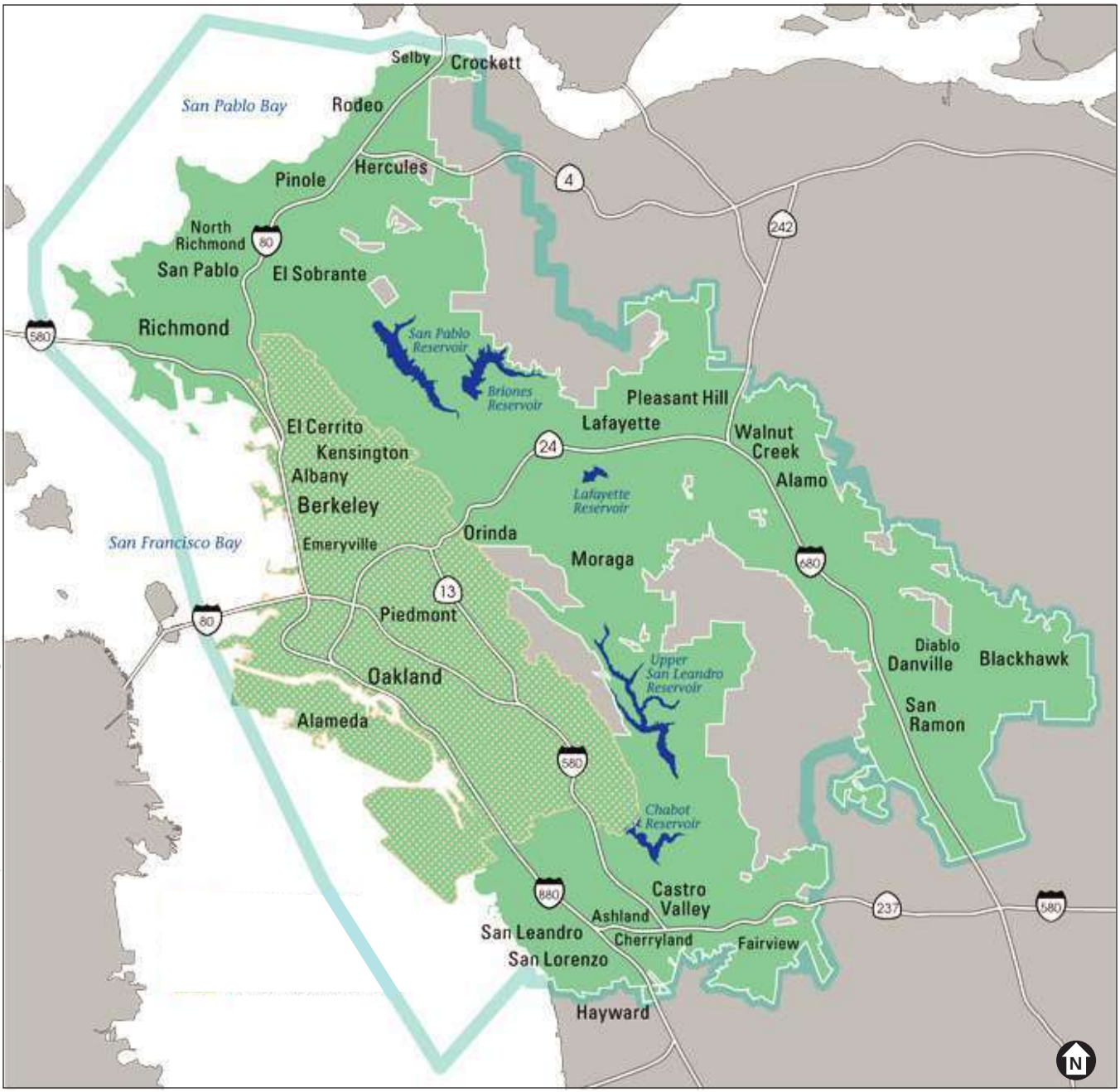
SOURCE: ESA, 2019; ESRI, 2019.

NOTE: For pipes and other below-grade project components, refer to the Proposed Site Plan.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 2-3
Proposed Project Components on
Existing Orinda Water Treatment Plant Site

ESA



D160330.00 - EBMUD Central Reservoir Replacement EIR\05 Graphics-GIS-Modeling\Illustrator

Water Service Area

Ultimate Water Service Boundary

Wastewater Service Area

SOURCE: EBMUD, 2018

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 2-4
EBMUD Service Area

ESA

Treated Water Transmission and Distribution

The WTPs and transmission pipelines are the backbone of EBMUD's water treatment and transmission system. After passing through the WTPs, water is distributed to customers throughout the EBMUD service area via a network of transmission and distribution pipelines and distribution reservoirs (typically tanks) and pumping plants. The water distribution network contains approximately 4,200 miles of distribution pipelines, 140 pumping plants, and 170 distribution reservoirs (EBMUD, 2016).

The EBMUD service area is divided into approximately 120 pressure zones, ranging in elevation from sea level to approximately 1,450 feet above sea level. A pressure zone is an area within a specific elevation band where storage and distribution facilities are designed to deliver water at a pressure range suitable for customer use. Generally, the pumping plant(s) in one pressure zone pumps water up to reservoir(s) in the next higher pressure zone(s). From the reservoir, the water is then delivered by gravity to customers in the pressure zone it serves.

Overview of Water Treatment Operations

Untreated water contains impurities such as sediment, bacteria, algae, and other microorganisms. The levels of sediment, bacteria, algae, and other microorganisms vary depending on the water source and determine the extent of water treatment processes needed. The primary goal of water treatment is to minimize or eliminate the potential for disease from waterborne pathogens, such as *Cryptosporidium*[2] and *Giardia.*[3] Regulations (such as the Clean Water Act of 1977, described in Section 3.10, Hydrology and Water Quality) require disinfection as part of a multi-barrier treatment approach to eliminate pathogens. One of the goals of the WTTIP, and the proposed improvements at the Orinda WTP in particular, is improving disinfection processes.

The Orinda WTP currently uses coagulation,[4] filtration,[5] and disinfection processes to treat untreated water. Sodium hypochlorite and ammonia are the disinfectants currently used at the Orinda WTP.

Orinda Water Treatment Plant Service Area

The capacity of the Orinda WTP is approximately 200 million gallons per day (MGD) (EBMUD, 2006).[6] In service since 1935, the Orinda WTP is EBMUD's largest WTP. During the summer months, much of the water treated at the Orinda WTP is sent to

2 *Cryptosporidium* is a microscopic parasite that causes the gastrointestinal illness known as cryptosporidiosis and is a significant concern in drinking water because it contaminates surface waters, is resistant to chlorine and other disinfectants, and has caused disease outbreaks.

3 *Giardia* is a microscopic parasite that causes the gastrointestinal illness known as giardiasis.

4 Coagulation is a chemical process to induce particles suspended in the water to settle out. Chemicals such as polyaluminum chloride, alum, and polymers are added to reduce or eliminate inter-particle forces allowing particles to bind together and settle.

5 Filtration is a physical/chemical process whereby coagulated or settled water flows by gravity through a layer of sand and anthracite. Particles are trapped as water passes through the filter media.

6 Hydraulic capacity and permitted maximum operating capacity.

customers west of the Oakland-Berkeley Hills via the Claremont Tunnel, while a small portion is sent to a sub-set of customers in the Orinda-Lafayette-Moraga (Lamorinda) area. During the summer, the Lafayette WTP serves the Lamorinda customers not served by the Orinda WTP. During the winter months, the Lafayette WTP is typically shut down and the Orinda WTP serves all of the Lamorinda area customers.

2.2.3 Water Quality Regulations

Water treatment processes at the Orinda WTP are designed to meet numerous regulations governing drinking water quality, including the following that are particularly relevant for the Project:

- ***Long Term 2 Enhanced Surface Water Treatment Rule, Interim Enhanced Surface Water Treatment (LT2) Rule.*** The purpose of the LT2 Rule is to reduce the incidence of disease associated with *cryptosporidium* and other pathogens in drinking water. The rule applies to all public water systems that use surface water. Key provisions in the LT2 Rule include (among other things) source water monitoring, criteria for the use of *cryptosporidium* treatment and control processes, and additional treatment requirements for higher risk systems (i.e., those with the highest source-water levels of *cryptosporidium*).

- ***Stage 1 and Stage 2 Disinfectants and Disinfection Byproduct (D/DBP) Rules***. Disinfection byproducts form when disinfectants used to treat drinking water react with organic matter or other constituents that occur naturally in drinking water. Disinfection byproducts are a concern because long-term exposure through drinking water is potentially carcinogenic and represents a reproductive and developmental risk. All strong oxidants – including chlorine, chlorine dioxide, and ozone – produce disinfection byproducts. Two widely occurring classes of disinfection byproducts formed during disinfection area haloacetic acids and total trihalomethanes. These rules are designed to balance the need for treatment with potential increases in disinfection byproducts. The Stage 1 D/DBP Rule is aimed at reducing drinking water exposure to disinfection byproducts. The Stage 2 D/DBP Rule is intended to protect public health by focusing on compliance monitoring requirements for haloacetic acids and trihalomethanes.

The Project would help EBMUD continue to comply with regulations set by these rules by the United States Environmental Protection Agency (U.S. EPA) and the California State Water Resources Control Board, Division of Drinking Water, as described below in Section 2.2.4.

2.2.4 Existing Orinda Water Treatment Plant Disinfection Process

Untreated water is conveyed to the Orinda WTP through Lafayette Aqueducts No. 1 and No. 2, which are large (9-foot diameter) EBMUD conveyance pipelines. Sodium hypochlorite is currently added for disinfection in the aqueducts, upstream of the Orinda WTP.

The California Division of Drinking Water has issued a special 3-year permit for the Orinda WTP filters for *Cryptosporidium* and *Giardia*. The 3-year permit enables EBMUD to use water quality analyzers to demonstrate adequate removal of *Giardia* and chlorination in the aqueducts upstream of the WTP, which can be challenging when there are changes in source water quality.[7]

The strategy of chlorinating the untreated water in the aqueducts upstream of the Orinda WTP puts relatively high concentrations of chlorine in contact with relatively high concentrations of naturally-occurring organics for an extended time period. The combination of chlorine and organics can generate disinfection byproducts in the form of haloacetic acids and trihalomethanes.

Because of changes in source water quality, such as seasonal algal blooms in EBMUD's supply reservoirs, and higher concentrations of organic material and increased turbidity after several years of drought followed by high rainfall, heavy runoff, and wildfire events in the EBMUD's supply watersheds, the concentration of total trihalomethanes in EBMUD's distribution system has risen over the last several years, although trihalomethane levels never exceeded any state or federal standards. EBMUD took immediate action to address the increase in trihalomethane formation by reducing chlorine doses, flushing the distribution system, and draining some reservoirs. The Project was launched to provide a long-term, cost-effective solution to make the Orinda WTP more adaptive to changes in source water quality which are anticipated to continue due to warming climates, fires in the watershed and future droughts.

2.2.5 Orinda Water Treatment Plant Disinfection Improvements Evaluated in the WTTIP EIR

The WTTIP EIR analysis of impacts associated with the Project assumed that Project components would be located to the north of the Orinda WTP site on another EBMUD-owned property. In the WTTIP EIR, the CCB and UV structures and electrical substation would have been located to the north of the Orinda WTP on the EBMUD-owned North Orinda Sports Field. For the Project, the new components have been sited within the main portion of the Orinda WTP with no permanent Project components at the sports field site. The change in location of the Project components would alter the environmental impacts disclosed in the WTTIP EIR.

Consequently, consistent with the *2020 California Environmental Quality Act Guidelines* (referred to in the rest of this Supplemental EIR as the *CEQA Guidelines*), EBMUD has prepared this Supplemental EIR to provide information to agencies and the public about the proposed modification to the Project. Also, the substantial components of the Project were evaluated in the WTTIP EIR at a "programmatic" level. At that time, only some Project components were defined to a level of detail sufficient to provide quantifiable project-level impacts. Since then, the development of these Project components has

[7] EBMUD must show a percent removal of particles in the water. There are challenges in measuring very low particle counts, which can be influenced by very small variations in water quality.

progressed such that a meaningful project-level evaluation can be conducted. This Supplemental EIR evaluates the environmental impacts associated with these modifications and identifies measures to reduce such impacts in cases which the WTTIP EIR mitigation measures would not be sufficient to do so.

2.3 Project Purpose and Objectives

2.3.1 Purpose and Need

The purpose of the Project is to improve the disinfection process associated with the Orinda WTP, as described above, to ensure continued compliance with water quality regulations.

2.3.2 Project Objectives

Table 2-1 presents the objectives that were considered during development of the WTTIP to meet that program's needs.

TABLE 2-1
WTTIP OBJECTIVES

Category	Objective
Reliability	Provide reliable water treatment, transmission, and distribution infrastructure that meets long-term operational needs under average and maximum-day demand conditions.
	Meet EBMUD standards for planned, unplanned, and emergency outages.
	Meet security initiatives.
Regulatory & Water Quality	Continue to meet drinking water and environmental regulations with a margin of safety and achieve EBMUD's internal long-term water quality goals.
Operations	Ensure project will meet short-term peak demand periods in excess of projected demands.
	Minimize the risk of service disruption and meet demands during construction.
Implementation	Minimize implementation issues by considering the complexity of public and local agency issues.
Environmental	Minimize environmental impacts during construction.
	Minimize environmental impacts after construction and during operations.
Economics	Minimize life-cycle costs (capital, operating, and maintenance) to EBMUD customers.

SOURCE: EBMUD, 2006.

The Project is consistent with and advances the objectives noted in Table 2-1 and, in particular, the Regulatory and Water Quality objective. The specific objectives that have guided Project development are in response to the drinking water quality regulations described in Section 2.3.3, Water Quality Regulations, and include (EBMUD, 2018):

- Improve disinfection reliability
- Reduce the formation of disinfection byproducts
- Improve chemical dosing
- Reduce disinfection complexity

2.4 Project Location

The Orinda WTP is located at 190 Camino Pablo in the city of Orinda, California, north of Highway 24, as shown on Figure 2-1. Manzanita Drive bisects the Orinda WTP site. Single-family homes are to the north, south, and west of the site, with buffers between the homes and Project site provided by San Pablo Creek to the north, and Camino Pablo to the south and west. The Orinda Country Club is adjacent to the eastern boundary of the Orinda WTP, and the North Orinda Sports Field and Wagner Ranch Elementary School are located to the north/northwest of the Orinda WTP.

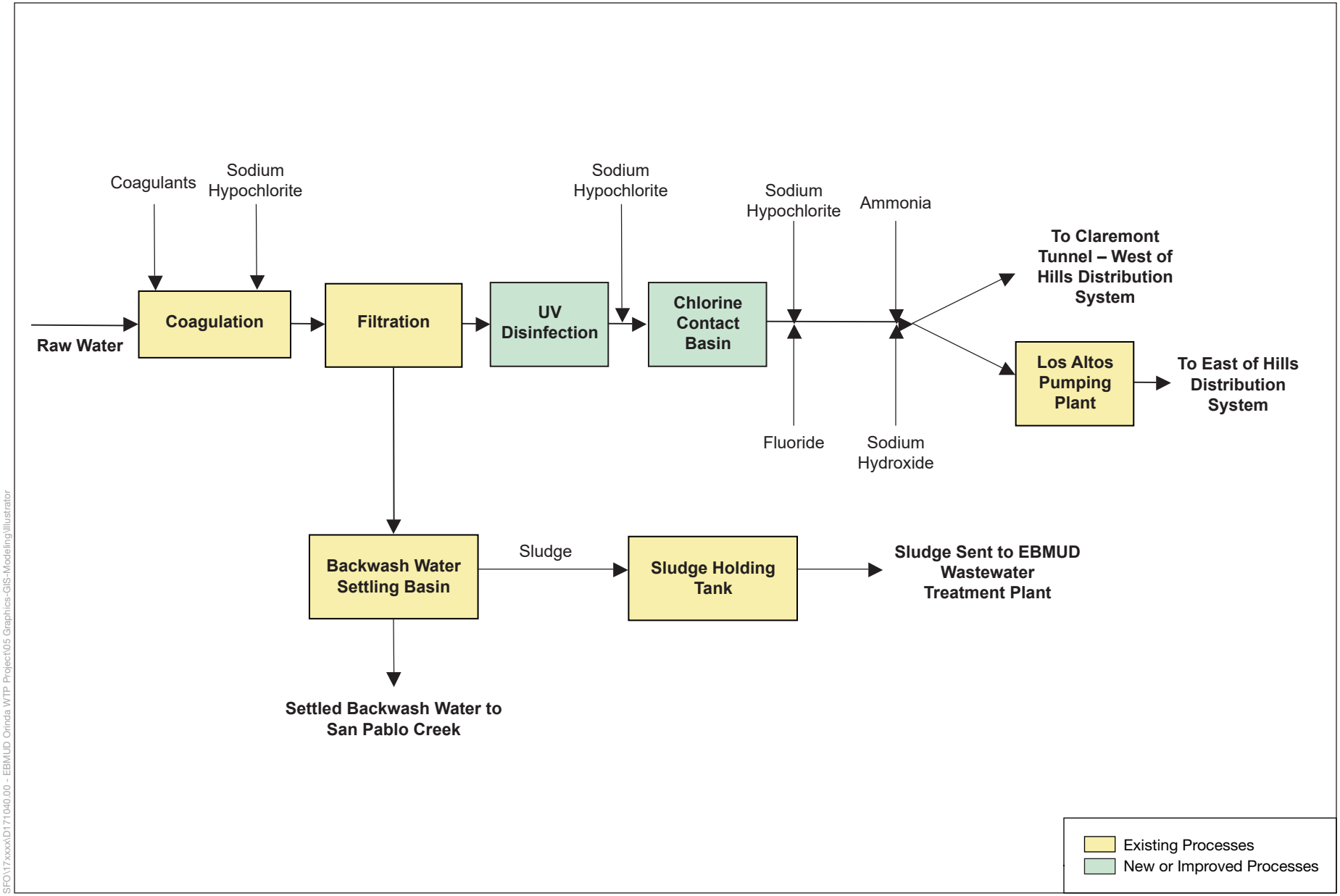
As shown on Figure 2-3, with the exception of the Grounds Maintenance Building and parking area, Project components would generally be located within the eastern portion of the Orinda WTP, behind the existing filter gallery building, and between Camino Pablo and San Pablo Creek. The Grounds Maintenance Building and parking area would be located near Manzanita Drive.

Refer to Section 2.6 for the location of construction staging areas.

2.5 Project Characteristics

The Project involves incorporation of existing uses at the site into new facilities, construction and operation of new facilities, and changes in existing facilities for disinfection at the Orinda WTP. Figure 2-3 depicts the existing and proposed facilities, and Figure 2-5 depicts existing and proposed processes. The primary components of the Project are shown on Figure 2-6 and include the following (with corresponding numbers on the figure) and are described in more detail below:

1. Maintenance and UV Electrical (MAUVE) Building with Below-Grade UV Structure
2. CCB and Effluent Weir Structure
3. Pipelines
4. Filter Effluent Modifications
5. Effluent 1 Bypass
6. Demolition of Los Altos Pumping Plant No. 1 (LAPP1), construction of Los Altos Pumping Plant Power Building
7. Electrical Modifications to Los Altos Pumping Plant No. 2 (LAPP2)
8. Influent Channel Bifurcation Gates and Additional Spillway Siphons
9. South Standby Generator
10. South Electrical Building
11. Grounds Maintenance Building and Parking



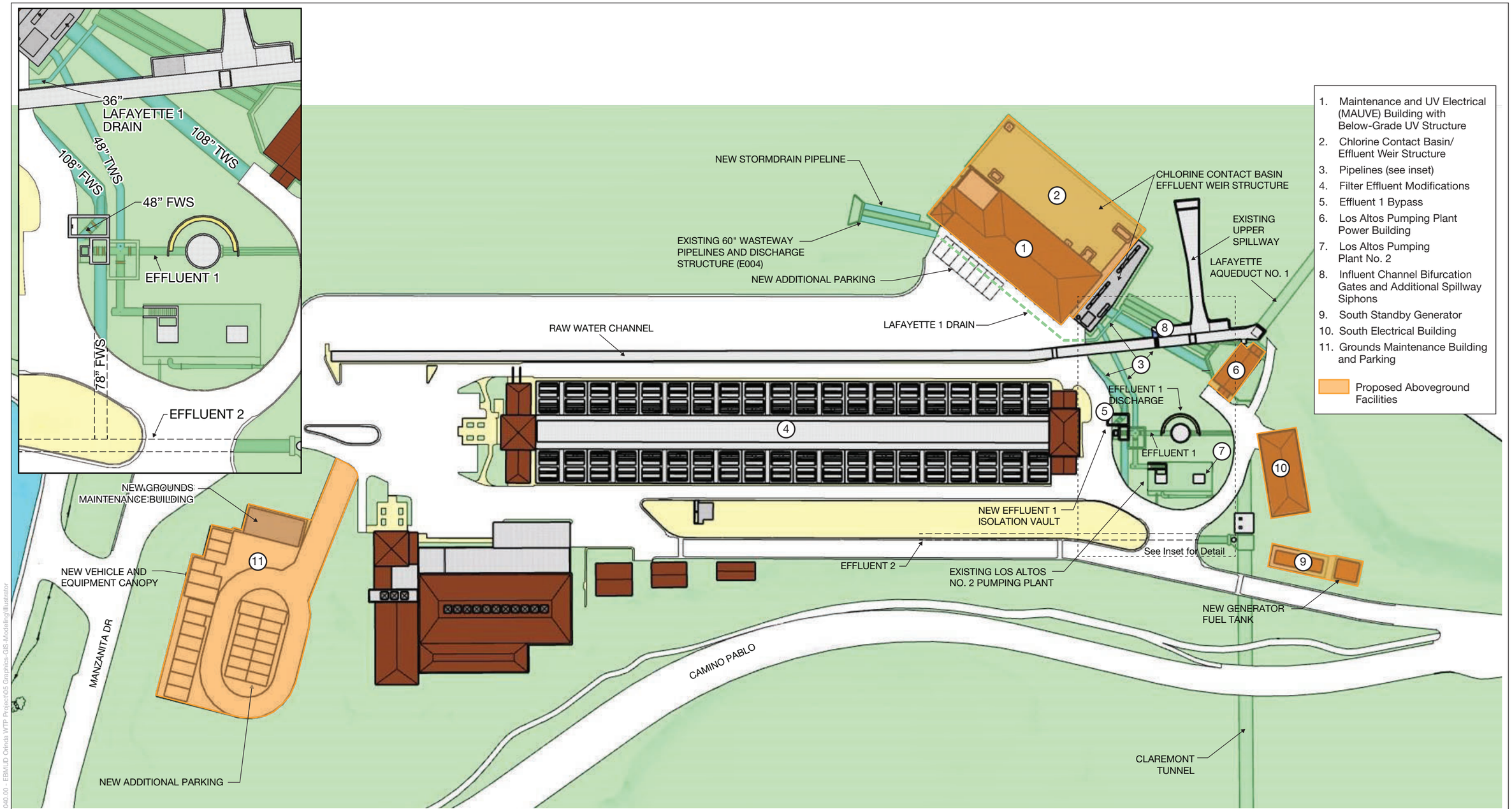
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SOURCE: EBMUD and ESA, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 2-5
Schematic Flow Diagram of Orinda Water Treatment Plant

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SOURCE: Carollo, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 2-6
Project Site Plan

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Table 2-2 includes the approximate dimensions associated with primary Project components. All components would include a Distributed Control System (a local, computerized control system for plant processes with remote monitoring and supervision) where needed to integrate with the existing Orinda WTP operations.

TABLE 2-2
ESTIMATED DIMENSIONS OF PROJECT COMPONENTS

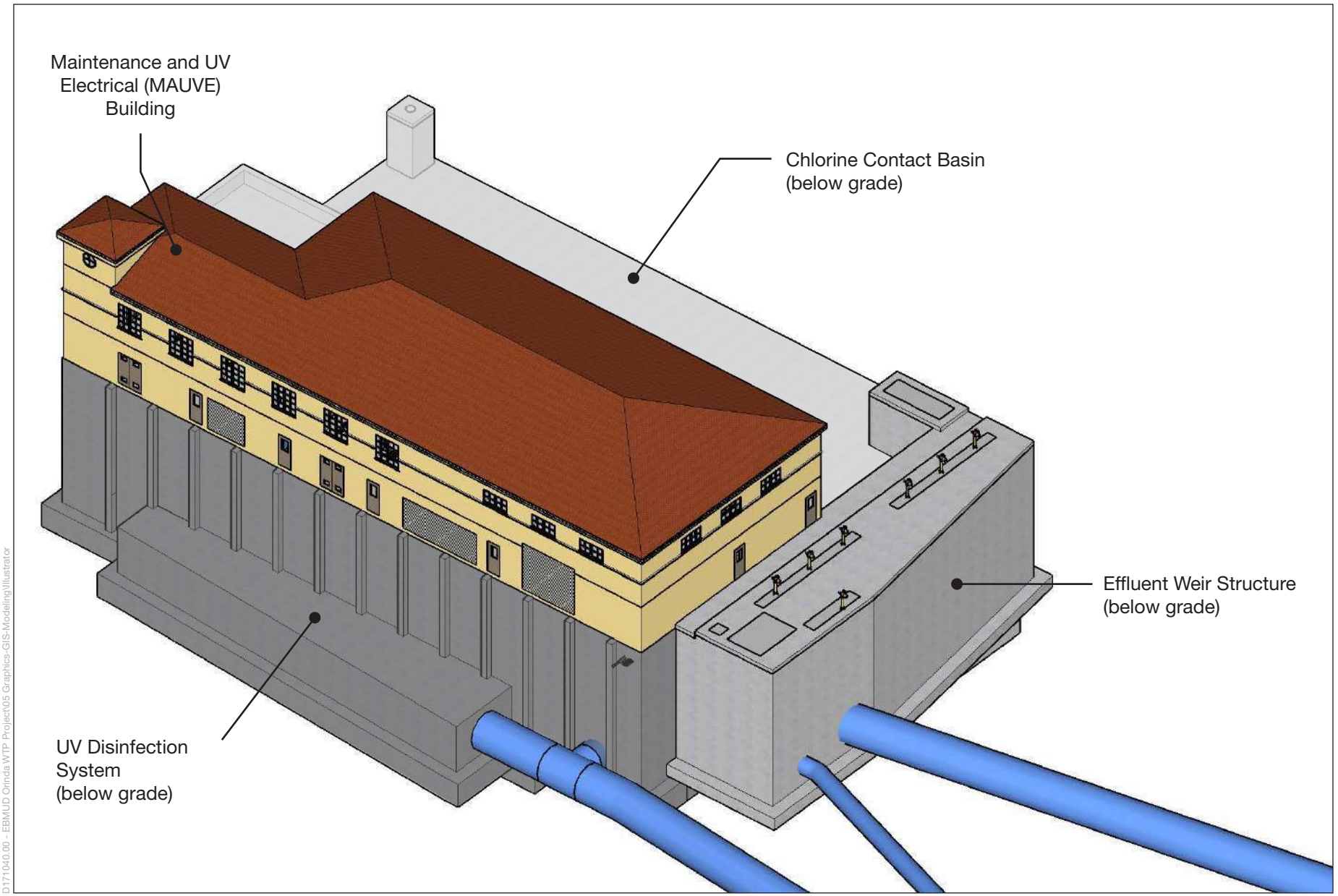
Project Component	Approximate Dimensions (length x width; feet)	Depth Below Existing Grade (feet)	Height Above Existing Grade (feet)
MAUVE Building	155 x 60	Above grade	40
UV Structure	154 x 55	43	1
CCB	154 x 52	65	3
Effluent Weir Structure	100 x 32	33	4
Los Altos Pumping Plant Power Building	52 x 27	Above grade	14
South Standby Generator	55 x 20	Above grade	14
South Electrical Building	77 x 41	Above grade	14
Grounds Maintenance Building	53 x 25	Above grade	12

SOURCE: EBMUD, 2019; Carollo, 2019.

2.5.1 MAUVE Building with Below-Grade UV Structure

The MAUVE Building would be located above a below-grade UV Structure. Note that the MAUVE Building, UV Structure, CCB, and Effluent Weir Structure (MAUVE/UV/CCB Structure) would be adjacent and fully integrated facilities, as shown on Figure 2-7.

The two-story MAUVE Building would house mechanical and grounds maintenance activities servicing the Orinda WTP (which currently occur in the existing maintenance building that would be demolished with current uses incorporated into the Project) as well as mechanical, electrical, and other support facilities specific to UV disinfection. The MAUVE Building would house a mechanical maintenance shop with storage and office space; an electrical shop with storage and office space; a UV ballast room; a UV electrical room; battery room; shower/locker facilities; support buildings systems (i.e., heating, ventilation, and air conditioning [HVAC]) room; and a mechanical room. The ground level would have approximately 7,360 square feet of maintenance/office/storage space, while the upper level would have approximately 3,280 square feet of office/storage space (refer to Table 2-2 for dimensions of the MAUVE Building). The HVAC equipment would be located outside the building on its second story roof deck. This deck and HVAC equipment would be enclosed by an approximate 12 to 14-foot parapet wall to attenuate equipment noise. The exterior color and architectural design would match that of the existing buildings at the Orinda WTP, as shown on Figure 2-8. Primary access points into the building would be on the structure's west side and include single- and double-doors for pedestrian access, and overhead coiling doors for vehicle and equipment access. Approximately seven parking stalls would be provided at the MAUVE Building on the existing paved surface.



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SOURCE: EBMUD, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 2-7
MAUVE Building, Below-Grade UV Disinfection System, Chlorine Contact Basin, and Effluent Weir Structure

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D1710400.00 - EBMUD Orinda WTP Project\05 Graphics-GIS-Modeling\Illustrator

SOURCE: EBMUD, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 2-8
Existing Buildings at the Orinda WTP

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UV disinfection is a physical (rather than chemical) process used to inactivate or destroy pathogenic organisms. UV disinfection systems transfer electromagnetic energy from a mercury arc lamp to an organism's genetic material, thereby destroying a cell's ability to reproduce. The UV disinfection system would be installed below the MAUVE Building downstream of the existing Orinda WTP filtration processes that occur in the filter gallery building. The UV Structure would have a base at an elevation of approximately 330 feet to be consistent with the hydraulic grade line[8] for Orinda WTP operations, and would occupy the same general footprint as the MAUVE Building (refer to Table 2-2 for dimensions of the UV Structure; refer to Figures 2-6 and 2-7 for visual representations of the UV Structure). The UV disinfection system within the UV Structure would include six UV reactors and associated valves and flow meters, with accommodation for one additional reactor, associated drain pump and treatment chemical piping, control panels, and an overhead bridge crane. The treatment chemicals for the system would be stored in the existing chemical storage building (refer to Figure 2-2).

2.5.2 Chlorine Contact Basin and Effluent Weir Structure

After UV disinfection, the CCB would provide disinfection contact time between free chlorine (sodium hypochlorite) and water for disinfection. Directing water through a basin after filtration allows for the removal of naturally-occurring organics through sedimentation and filtration prior to chlorination, which reduces the formation of disinfection byproducts. The proposed 1.4-million-gallon (MG) CCB and Effluent Weir Structure would be installed below grade on the east and south sides of the MAUVE Building and UV Structure (refer to Figure 2-7).

To maintain gravity flow in the Orinda WTP's primary treatment system, the CCB would be constructed at the low point of flow through the facility and would be completely below ground surface except for access hatches and vents (refer to Table 2-2 for dimensions of the CCB). The CCB would have two levels, each with four channels. The CCB would receive water directly from the UV Structure on the upper level and discharge the finished water through the Effluent Weir Structure from the lower level via two slide gates (which would be used to isolate the CCB during bypass operation). From the Effluent Weir Structure, the treated water would be directed to the Claremont Tunnel for distribution to EBMUD customers west of the Oakland-Berkeley Hills and in the Lamorinda area via the Claremont Tunnel, LAPP2, and some of the pipeline improvements described below.

The CCB would provide chemical feed and monitoring points in addition to those in the upstream treatment process (i.e., during coagulation). Chemicals injected at the additional chemical feed point would include caustic soda, sodium hypochlorite, ammonia, and fluoride.

[8] The hydraulic grade line is the surface or profile of water flowing in an open channel or a pipeline flowing partially full. If a pipeline is under pressure, the hydraulic grade line is that level water would rise to in a small, vertical tube connected to the pipeline.

2.5.3 Pipelines

The Project includes several large diameter pipelines and associated structures in the southern portion of the Orinda WTP (Figure 2-6), including the following:

- ***Filter Water System (FWS) Pipelines***. Filtered water (effluent from the filters) would be conveyed from the existing Effluent 1 and Effluent 2 pipelines to the UV Structure via several pipeline segments, ranging in diameter from 48 to 108 inches.
- ***Treated Water System (TWS) Pipelines***. A 108-inch pipeline would convey treated (disinfected) water from the UV Structure and CCB directly to the Claremont Tunnel for delivery to the West of Hills service area, while a 48-inch pipeline would convey the disinfected water to LAPP2 for delivery to the Lamorinda area.
- ***UV/CCB Bypass Pipeline***. An 84-inch UV/CCB bypass pipeline would be included within and along the south side of the UV Structure. Bypassing the UV and CCB components would be necessary to conduct maintenance or repair activities on either or both components.
- ***Lafayette 1 Drain***. As part of Project construction, a section of the three existing 60-inch wasteway pipelines currently used to drain Lafayette Aqueduct No. 1 to San Pablo Creek for diversion and maintenance purposes would be demolished. To maintain drainage for Lafayette Aqueduct No. 1, a 36-inch drain pipeline, referred to as the Lafayette 1 Drain, would reconnect two portions of an existing wasteway pipeline to restore the means of draining the aqueduct and bypassing the Orinda WTP. The wasteways currently can drain Lafayette Aqueduct No. 1 at a maximum flow rate of approximately 200 MGD when untreated water needs to bypass the Orinda WTP for water quality and/or maintenance reasons. That maximum discharge via Lafayette 1 Drain would be reduced by approximately 60 percent, but there would be no change in water quality.

2.5.4 Filter Effluent Pumping Modifications

No significant modifications would be made to the filters or the filter gallery building as part of the Project. However, to address turbidity spikes associated with operation of some new downstream components, the filter effluent piping would be modified, including the potential installation of orifice plates[9] on some of the filter effluent pipelines.

2.5.5 Effluent 1 Bypass

Under existing conditions, as water exits the filtration system, a portion is directed to the Effluent 1 Discharge Structure. An additional isolation vault – the Effluent 1 Bypass – would be constructed upstream of the discharge structure to house two new 48-inch valves and a new 48-inch FWS pipeline that would direct water toward the new UV

[9] An orifice plate is a device installed in a pipeline opening used to reduce pressure or restrict flow. It is also known as a restriction plate.

Structure and CCB. Additionally, two new valves would replace an existing flow meter in the existing vault to control flow to the Effluent 1 Discharge Structure.[10]

During operation of the UV disinfection system and CCB, the two new 48-inch valves on the new 48-inch FWS pipeline would be open to allow filtered water to enter the UV and CCB structures, and the two new valves in the existing vault would be closed to prevent flow to the Effluent 1 Discharge Structure. To keep the Orinda WTP operational during maintenance of the proposed treatment facilities, the valves would be reversed to direct flow back to the existing Effluent 1 Discharge Structure, bypassing the proposed treatment facilities and directing filtered water to the Claremont Tunnel.

The chemical monitoring equipment in LAPP2 would be demolished as part of the Project. Therefore, LAPP2 must remain off-line or alternative monitoring must be provided when the Effluent 1 Bypass is in operation.

2.5.6 Los Altos Pumping Plant No. 1/ Los Altos Pumping Plant Power Building

LAPP1 would be demolished and backfilled as part of the Project (refer to Section 2.6.1), to make room for Project facilities. The new Los Altos Pumping Plant Power Building would be constructed on the site of the existing LAPP1. The building would house new electrical equipment to support the Los Altos Pumping Plant and some existing equipment in the southeast corner of the Orinda WTP. The building would be a prefabricated building with the same simple architecture as that of other prefabricated buildings on the Orinda WTP site (refer to the upper photograph on Figure 2-8).Refer to Table 2-2 for the estimated dimensions of the Los Altos Pumping Plant Power Building.

2.5.7 Los Altos Pumping Plant No. 2

LAPP2 currently delivers water to the Lamorinda area. Hydraulic changes created by the Project could cause operational concerns for LAPP2.[11] To avoid the operational concerns, a suction priming system would be installed at LAPP2. The existing electrical equipment at LAPP2 would be replaced with that being installed in the Los Altos Pumping Plant Power Building.

2.5.8 Influent Channel Bifurcation Gates and Additional Spillway Siphons

The existing upper spillway (refer to Figure 2-6) is currently used to spill excess untreated water from Lafayette Aqueducts No. 1 and No. 2 into San Pablo Creek to

[10] The flow meter currently measures flow but would be removed to make room for the two new 48-inch valves. Flow measurement would be conducted using other existing flow meters at the Orinda WTP as well as the new flow meters that are part of the new UV treatment system.

[11] Air could enter the existing pump suction pipeline and cause the pumps to lose their prime, causing the pumps to cavitate. Cavitation is when rapid changes of pressure in a liquid lead to the formation of small vapor-filled cavities that can collapse, possibly leading to pump failure.

protect the Orinda WTP from overflow. Water from either or both Lafayette Aqueducts can flow over the upper spillway or flow into the Orinda WTP depending on various hydraulic conditions. The spillway currently employs six siphons to draw water out of the raw water channel when the level gets too high.

Most of the time, Lafayette Aqueduct No. 1 delivers Mokelumne River water diverted by EBMUD pursuant to its Mokelumne River water rights to the Orinda WTP.

During droughts, Lafayette Aqueduct No. 1 is occasionally used to convey supplemental water diverted by EBMUD at the Freeport Regional Water Project on the Sacramento River. While Mokelumne River water is pristine and has low turbidity, thereby requiring minimal treatment, Sacramento River water generally requires additional treatment by processes not currently available at the Orinda WTP. As such, EBMUD does not allow Sacramento River water to enter the Orinda WTP. Sacramento River water is currently diverted away from the Orinda WTP through the wasteways to San Pablo Creek, and ultimately to the San Pablo Reservoir. However, after construction of the Project, the wasteways would not have sufficient capacity to divert all of the Sacramento River water, and a larger portion of Sacramento River water would need to be diverted to San Pablo Creek over the upper spillway. The remaining portion of Sacramento River water would be diverted via the Lafayette 1 Drain.

To prevent comingling two untreated water sources in the raw water channel when the Lafayette Aqueduct No. 1 is conveying Sacramento River water, the raw water channel would be bifurcated in the middle of the upper spillway through the use of stop logs, which are modular barriers that can be placed to stop or divert the flow of water. One-half of the upper spillway would accommodate untreated water from Lafayette Aqueduct No.1 from the south; the other would accommodate untreated water from Lafayette Aqueduct No. 2 from the north, and no Sacramento River water from Lafayette Aqueduct No. 1 would reach Orinda WTP.

To achieve the needed spillway capacity on each side of the bifurcation in the raw water channel, one additional overflow siphon would be constructed. Once operational, excess untreated water would flow through the siphons and into San Pablo Creek as under existing conditions.

2.5.9 South Standby Generator

A diesel-powered 2,000-kilowatt generator, including two fuel tanks and a portable generator termination cabinet, would be installed at the south end of the Orinda WTP. The generator would include an integral insulated metal sound-attenuating enclosure. Refer to Table 2-2 for dimensions of the South Standby Generator. Two rectangular approximately 5,200-gallon, aboveground, double-walled fuel tanks providing fuel storage adequate for 72 hours of power generation would be installed adjacent to the generator structure. The fuel tanks would be approximately 16 feet long by 8 feet wide, stand approximately 9 feet high, and have concrete walls with steel reinforcement.

The fuel tanks and all fuel piping would be double walled to provide secondary containment, with leak detection between the walls to alert operators if any leaks occur. If a leak were to occur, it would be contained within the second wall. The equipment would be shut down and the leak fixed immediately, before any fuel reaches the outer environment. The tanks would be constructed of steel, encased in a 6-inch concrete wall with steel reinforcement in the center of the wall, making the fuel tanks resistant to vehicle impacts and projectiles. The generator and fuel tanks would also comply with the California Fire Code.

2.5.10 South Electrical Building

The South Electrical Building would be constructed to the north of the Orinda WTP south entrance gate at Camino Pablo, midway between the South Standby Generator and existing LAPP1/proposed Los Altos Pumping Plant Power Building. The building would house new electrical equipment to support the MAUVE Building as well as existing equipment in the southwest corner of the Orinda WTP. Table 2-2 shows the dimensions of the South Electrical Building.

The South Electrical Building would be a prefabricated building that would match the Los Altos Pumping Plant Power Building and other prefabricated buildings on the Orinda WTP site (refer to the upper photograph on Figure 2-8). Grading for the South Electrical Building would require construction of a retaining wall into the hillside south of the building. The retaining wall would be approximately 180 feet long and range in height from approximately 2 to 12 feet. The wall would be constructed of cast-in-place concrete with a fence or railing along its top for fall protection.

2.5.11 Grounds Maintenance Building and Parking

The Grounds Maintenance Building would be constructed in a currently vacant area in the northern portion of the Orinda WTP site near the Manzanita Drive site entrance access. The building would be sheathed in metal siding, with a metal standing seam roof. The building would include the grounds maintenance shop area, as well as tool and supply storage spaces, which are currently housed in the existing maintenance building to be demolished. Refer to Table 2-2 for dimensions of the Grounds Maintenance Building.

A parking area would be developed adjacent to the Grounds Maintenance Building. The parking area would provide driveway access for the Grounds Maintenance Building and include a new vehicle and equipment canopy covering three parking stalls. The parking area would accommodate approximately 28 vehicles and/or pieces of equipment.

Perimeter fencing would be installed in the new parking area of the site. The fence would be EBMUD's standard security fencing: 8-feet high, black vinyl coated, 1-inch mesh, with double v-arm three-strand barbed wire, and a maximum post spacing of approximately 10 feet.

A stormwater management system would be constructed on the Grounds Maintenance Building site to handle stormwater run-on from Camino Pablo and points west. This Project component is presented in detail in Section 2.7.1, Operations.

2.5.12 Screening and Landscaping

Although the Orinda WTP has some existing landscaping within and along the perimeter of the Orinda WTP, the Project would include additional vegetation (trees and shrubs) to further screen the existing and proposed facilities. The proposed landscaping is shown on Figure 2-9 and would include approximately nine new trees planted to supplement existing trees and to replace trees removed during construction. Trees and shrubs would be planted along Camino Pablo and Manzanita Drive and placed on the site in a layout designed to maintain a naturalized pattern compatible with slopes, and screen views into the site. No plants or shrubs would be planted within 6 feet of the fence line on the exterior side of the site for security reasons.

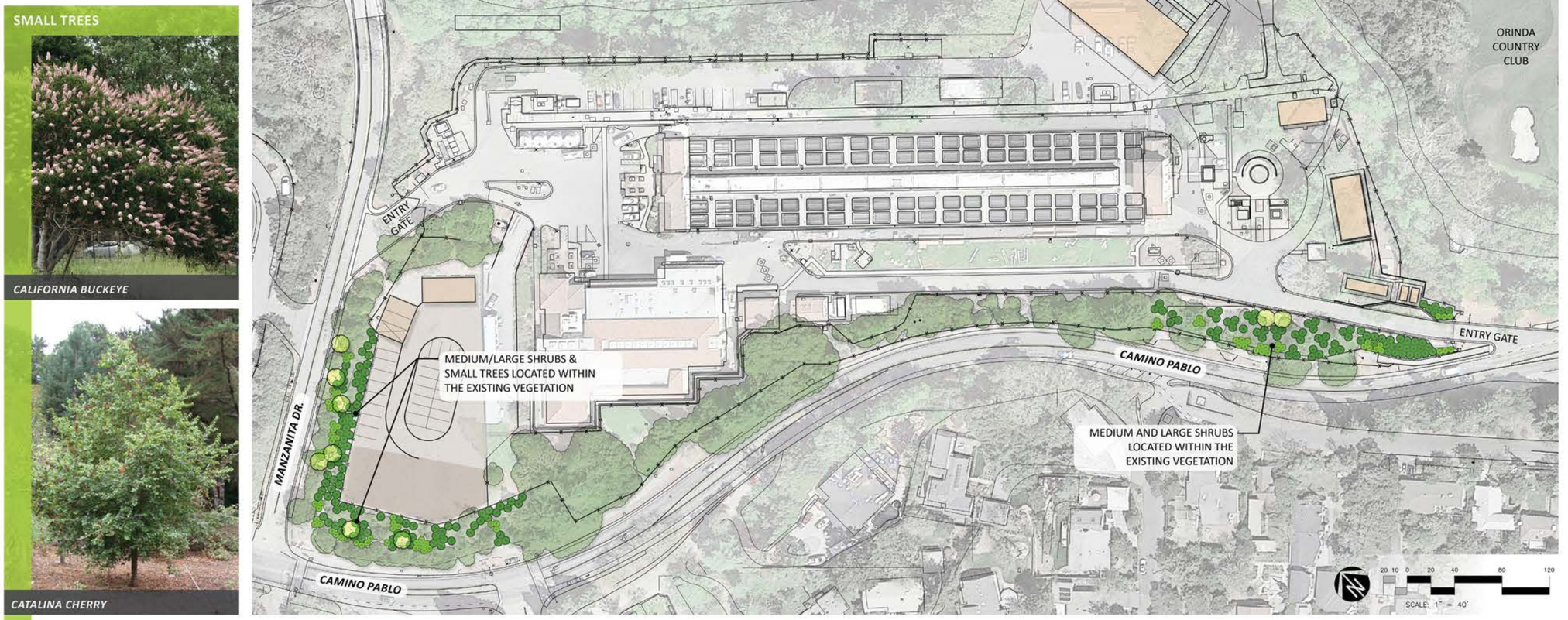
The landscaping plants would include primarily drought-tolerant native tree and shrub species. The plantings would provide a mix of moderate- and fast-growing plant material to promote screening after installation. The shrubs and trees would require minimal irrigation and maintenance, although temporary irrigation would be required for plant establishment. This temporary irrigation may be required for approximately 18 to 24 months. EBMUD would manage vegetation and provide weed control.

2.5.13 Briones Diversion Weir Actuators

New electric valve actuators[12] to replace existing manual valve actuators would be installed on three existing valves in the Briones Diversion Weir located at the Briones Center, an EBMUD facility approximately 1,200 feet north of the Orinda WTP (refer to Figure 2-1). The Lafayette Aqueduct No. 2 conveys untreated water to the Briones Center and diverts the untreated water via the Briones Diversion Weir into the north end of the Orinda WTP. The new actuators would be operated remotely to open and close the valves in the Briones Diversion Weir to regulate untreated water flow to the Orinda WTP during construction activities. Installation of the actuators would require construction of approximately 100 feet of new electrical ductbank (shallow trenching) through the Briones Center paved parking area. Construction in the paved parking area would be the only surface-disturbing activity occurring outside the Briones Center structure. The valves themselves may be replaced pending further investigation into their condition; however, the existing valves would be maintained if possible. A level sensor would also be installed to monitor water level in the Briones Weir Structure.

[12] An actuator is a component of a machine that is responsible for moving and controlling a mechanism or system.

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SMALL TREES

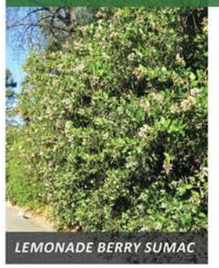
CALIFORNIA BUCKEYE

CATALINA CHERRY



WESTERN REDBUD

LARGE SHRUBS



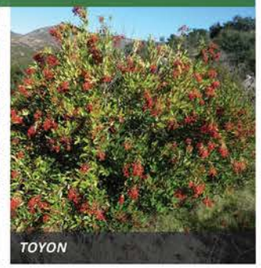
LEMONADE BERRY SUMAC



COAST SILKTASSEL

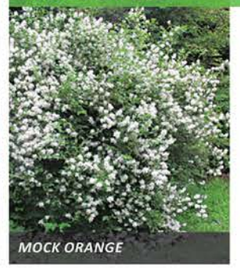


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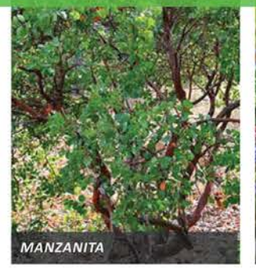


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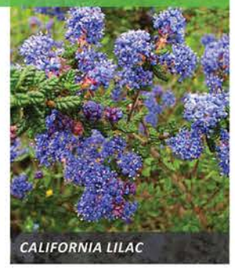
MEDIUM SHRUBS



MOCK ORANGE



MANZANITA



CALIFORNIA LILAC

SOURCE: ESA, 2019; EBMUD, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 2-9
Conceptual Landscaping Plan

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2.6 Project Construction

2.6.1 Construction Activities

Table 2-3 identifies the construction activities that would occur and the estimated duration of each construction phase. Construction staging could occur at the following staging areas:

- Orinda WTP staging area (0.8 acre)
- North Orinda Sports Field staging area (0.5 acre)
- Manzanita East staging area (0.05 acre)
- San Pablo Reservoir Overflow Parking Lots staging area (0.5 to 1 acre)

TABLE 2-3
CONSTRUCTION PHASES, MAJOR ACTIVITIES, AND DURATION

Construction Phase	Construction Activity		Approximate Duration (months)
Site Preparation, Demolition, and Landscaping[a]	• Site mobilization. • Construct temporary facilities, relocate staff. • Demolish existing maintenance and storage buildings. • Demolish LAPP1.	• Remove central portion of the wasteway. • Remove vegetation. • Abandon a portion of Effluent 2. • Install landscaping.	10
Construction	• Install additional siphon on upper spillway and bifurcate raw water channel. • Relocate small utilities, excavate and shore for new CCB and UV Structure. • Construct UV/CCB walls and foundation. • Relocate utilities, excavate pits, and install pipelines from UV and CCB excavation to tie-ins. • Construct South Electrical Building and South Standby Generator. • Construct LAPP Power Building. • Complete large diameter pipeline tie-ins.	• Construct Effluent 1 isolation valve vault and backfill tie-in/receiving pits. • Complete LAPP2 electrical improvements. • Construct Lafayette Aqueduct No. 1 drain pipeline to San Pablo Creek. • Complete CCB and UV Structure and MAUVE Building construction. • Construct Grounds Maintenance Building and associated parking.	40
Testing and Site Restoration[b]	• Tie-in electrical and control systems. • Conduct testing, startup, and training.	• Install perimeter fencing and lighting.	8

NOTES:
CCB = Chlorine Contact Basin
LAPP1/2 = Los Altos Pumping Plant No.1/2
MAUVE = Maintenance and UV Electrical Building
UV = Ultraviolet

[a] A portion of the site preparation and demolition phase overlaps with the first 3 months of the construction phase during demolition and vegetation removal activities.
[b] The site restoration phase overlaps with the last 4 months of the construction phase during pipeline tie-ins.

Figure 2-10 shows the construction staging and laydown, parking, and trailer locations. The Orinda WTP staging area would be used for contractor parking, office trailers, equipment, and materials storage until the Grounds Maintenance Building and associated parking are constructed there. The area south of the ballfields parking at the North Orinda Sports Field

staging area would be used to temporarily locate EBMUD Grounds and Mechanical Maintenance staff, equipment, and fleet vehicles during construction because their existing buildings would be demolished as part of the Project. The Manzanita East staging area is the EBMUD-owned property east of the Manzanita Road Bridge across San Pablo Creek. The Manzanita East staging area would extend approximately 100 feet east along Acacia Drive from Manzanita Drive and would be limited to two construction office trailers and parking for five worker passenger vehicles (refer to Figure 2-11). Activities at the Manzanita East staging area would be limited to the upland areas of the property outside, but adjacent to, the riparian corridor and temporary construction fencing would be placed around the staging area to ensure all staging activities occur within the designated upland area. Site preparation of the staging area would include grass mowing and/or weeding, the placement of gravel ground cover, and, if needed, removal of dead or dying trees within the designated staging area. Minor trimming of trees that overhang the staging area may be needed for placement of the construction trailers. Two EBMUD San Pablo Reservoir Recreation Area overflow parking lots approximately 2 miles north of the Orinda WTP would be used for parking, equipment, and materials storage. At the Manzanita East staging area and the San Pablo Reservoir Recreation Area overflow parking lots, temporary 8-foot high chain-link construction security fencing would be installed for site security and, after the Project is completed, the staging areas would be restored to pre-construction conditions.

Consistent with WTTIP Mitigation Measure 3.3-1,[13] EBMUD would require the contractor to ensure that construction-related activity is as clean and inconspicuous as practical by storing building materials and equipment within the proposed construction staging areas or in areas that are generally away from public view, by removing construction debris promptly at regular intervals, and by placing black fabric fence screening on fences where feasible.

Site Preparation

Site preparation would begin with the set-up of the construction trailers and temporary maintenance buildings, and mobilizing the construction crew. The temporary mechanical and grounds maintenance trailers would be installed at the North Orinda Sports Field staging area. The temporary maintenance trailers would be set up prior to construction and removed post construction. Construction office trailers would also be brought to the Orinda WTP and Manzanita East staging areas. The San Pablo Reservoir Parking Lots would be used for equipment parking and storage. Refer to Figure 2-10 for construction staging and laydown, parking, and trailer locations.

Trees in poor condition, as well as those in locations that conflict with Project construction, would be removed. Where possible, existing mature trees would be preserved. Of the approximately 109 existing trees that were surveyed on the Orinda WTP site within and

[13] Refer to Appendix A for a description of adopted mitigation measures that have been incorporated into the Project.



Path: U:\GIS\GIS\Projects\17xxxx\D1710 40_EBMUDOrindaWTPProject\03_MXDs_Projects\Fig2-10_StagingAreas.mxd, rteitel 11/20/2019

SOURCE: ESA, 2019; ESRI, 2019.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 2-10
Construction Staging Areas

ESA



SOURCE: EBMUD, 2020.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 2-11
Limits of the Manzanita East Staging Area

ESA

adjacent to the Project footprint, approximately 53 are wholly within the Project footprint and would be removed to accommodate Project construction. An additional 29 trees are adjacent to or near the Project footprint and could be adversely affected by construction activities, potentially resulting in the need for removal.[14] Table 2-4 lists both protected and unprotected trees that would be removed or potentially removed as part of the Project.[15] Additional information about existing trees on the Project site and proposed mitigation measures for tree removal and replacement can be found in Appendix D, Tree Inventory/Assessment Report, and Section 3.4, Biological Resources. As indicated in Section 2.5.12 above and according to the conceptual landscaping plan shown on Figure 2-9, approximately nine new trees would be planted for landscaping on the Orinda WTP site.

TABLE 2-4
TREE REMOVAL FOR THE PROJECT

Common Name	Scientific Name	Total Trees Surveyed	Quantity of Unprotected Trees to be Removed and with the Potential to be Removed[a]	Quantity of Protected Trees to be Removed and with the Potential to be Removed[a]
Coast redwood	*Sequoia sempervirens*	35	26	-
Deodar cedar	*Cedrus deodara*	16	18	-
Coast live oak	*Quercus agrifolia*	20	8	10
Incense cedar	*Calocedrus decurrens*	9	7	-
White alder	*Alnus rhombifolia*	6	-	-
Crepe myrtle	*Lagerstroemia indica*	3	2	-
Bigleaf maple	*Acer macrophyllum*	3	2	-
Sweetgum	*Liquidambar styraciflua*	2	-	-
Juniper	*Juniperus* sp.	2	2	-
Valley oak	*Quercus lobata*	2	-	2
Bay laurel	*Umbellularia californica*	2	-	1
California buckeye	*Aesculus californica*	2	-	-
Western sycamore	*Platanus racemosa*	1	-	1
Lemonade berry	*Rhus integrifolia*	1	1	-
Eucalyptus	*Eucalyptus* sp.	1	1	-
Fir	*Abies* sp.	1	1	-
Stump/Dead	*N/A*	3	-	-
	Total Trees	**109**	**68**	**14**

NOTES:

[a] Pursuant to Section 17.21 of the Orinda Code of Ordinances, trees are protected if they are: on vacant property and are 6 inches or more in diameter as measured at 4.5 feet above grade (diameter breast height (DBH)); on developed property and are 12 inches or more DBH and are an oak species; a riparian tree 4.5 inches DBH within 30 feet of the bank of a water course; regardless of size, required as a condition of development approval.

SOURCE: Refer to Appendix D.

[14] Trees that could potentially be within the Project construction footprint include trees that may be exposed to the following: accidental mechanical damage (to trunks and/or canopies) resulting from inadvertent contact by construction equipment; root damage resulting from trenching and excavation activities; and root damage resulting from soil compaction.

[15] Protected trees are those that meet the definition of either a "Native Tree" or "Protected Tree" as defined in the City of Orinda Municipal Code Chapter 17.21 – *Tree Management.* Refer to Appendix D for more information.

In addition to tree removal on the Orinda WTP site, limited tree work may occur within the Manzanita East staging area. If needed, dead or dying trees would be removed or limbed at the Manzanita East staging area to accommodate two office trailers and five worker parking spaces. Activities at the Manzanita East staging area would be limited to the upland areas of the property outside, but adjacent to, the riparian corridor, and temporary construction fencing would be placed around the staging area to ensure all staging activities occur within the designated upland area.

Demolition

As part of the Project, several existing structures would be demolished and other components decommissioned.

To accommodate the MAUVE/UV/CCB Structure, existing maintenance and storage buildings would be demolished. A metal shipping container would also be removed. LAPP1 would be taken out of service and demolished as part of the Project after utilities are relocated and temporary power is provided. After the connection of the 108-inch FWS pipeline to the Claremont Tunnel, the below ground portion of LAPP1 would be backfilled to existing ground level to create a solid surface for constructing the new Los Altos Pumping Plant Power Building.

As part of the construction of the MAUVE/UV/CCB Structure, three existing 60-inch wasteway pipelines currently providing overflow drainage from Lafayette Aqueduct No. 1 to San Pablo Creek would be demolished. The central portion of one wasteway pipeline would be removed during excavation for the MAUVE/UV/CCB Structure and replaced with a 36-inch bypass pipeline, as noted in Section 2.5.3. Of the two remaining wasteway pipelines, one would be repurposed for stormwater conveyance (described in Section 2.7.1, Stormwater Management, below), and one would be abandoned in place.

An approximately 125-foot segment of Effluent 2 would be abandoned in place, backfilled, and sealed after the 78-inch pipeline to the new UV Structure and CCB is connected.

New Construction

Once demolition is complete, the next phase of construction would include site grading, excavation, and construction of Project structures including the installation of the pipelines and appurtenances, the backup generator, fuel tanks, electrical equipment, and filter modifications. The total volume of soil that would be excavated on site is approximately 75,000 cubic yards (CY). All of the excavated soil would be off-hauled to approved landfill disposal sites by the Contractor, not to any EBMUD-owned sites. A majority of the soil generated would be excavated from the MAUVE/UV/CCB Structure construction as described below; other major excavation activities include excavation for the South Electrical Building and the South Generator and the large diameter pipeline installations. Utilities would be relocated early during the new construction phase. Site power from the Orinda WTP would be used for most construction work. Small temporary generators may be required periodically to power construction equipment.

Excavation and Shoring for MAUVE Building with UV Structure, Chlorine Contact Basin and Effluent Weir Structure

The MAUVE/UV/CCB Structure would be founded on bedrock and excavation and grading for the MAUVE/UV/CCB Structure would occur over a total footprint of approximately 20,000 square feet. Excavation for the UV Structure would be approximately 40 feet deep, excavation for the CCB would be approximately 70 feet deep, and excavation for the effluent weir structure would be approximately 30 feet deep. So, excavation of the MAUVE/UV/CCB Structure would yield a total of approximately 60,000 CY of soil material.

To support the MAUVE/UV/CCB Structure, subsurface shoring would be constructed on the north, east, south, and west sides of the combined structures. Shoring would consist of full-depth secant piles (McMillen Jacobs Associates, 2019). The piles would be drilled holes backfilled with concrete and slurry. The tiebacks[16] supporting the shoring would extend out from the base of the secant pile walls approximately 55 feet and would be anchored in bedrock. At this distance, the tiebacks would extend under the west bank of San Pablo Creek. However, the tiebacks would be designed such that there is at least 15 feet of existing soil and rock above the grouted portions of the tiebacks. The below-ground tiebacks would be grouted by gravity (i.e., grout simply poured inside the tieback borehole) and not grouted using pressure injection.

MAUVE Building with Below-Grade UV Structure

The MAUVE Building and UV Structure would be reinforced concrete structures. The foundation system would be an approximate 6-foot-thick mat foundation to provide the weight needed to prevent any structure buoyancy given the high groundwater table. The UV Structure would have a slab roof with concrete support beams to support the MAUVE Building above.

Chlorine Contact Basin and Effluent Weir Structure

The CCB and Effluent Weir Structure would be constructed of reinforced concrete. The foundation system would be an approximate 4-foot-thick mat foundation, due to the high groundwater table.[17] The CCB and Effluent Weir Structure would have a slab roof with concrete support beams to support the overlying soil and truck traffic loads and would be founded on bedrock.

[16] A tieback is a structural, anchoring element installed in soil or rock in the form of a horizontal rod to provide additional stability to the secant pile walls. Tiebacks are drilled into soil and/or bedrock using a small diameter shaft, typically installed at a downward angle of 15 to 45 degrees, between consecutive piles. Grout is used to fill the tieback shafts to increase soil resistance and prevent tiebacks from pulling out.

[17] The slab of the CCB can be thinner than that of the UV Structure because it has approximately 15 feet of earth on top of the slab to hold it down and prevent buoyancy.

Pipelines

The major pipelines to be constructed as part of the Project would be made of steel and constructed as follows:

- ***FWS Pipelines***. The 78-inch and 108-inch FWS pipelines would be installed using trenchless methods (i.e., pipeline jacking)[18], and the 48-inch FWS pipeline would be constructed concurrently with the Effluent 1 Bypass vault and would be installed in the void created when that vault is excavated (which would also serve as a pit for the 78-inch FWS pipeline).
- ***TWS Pipelines***. The TWS pipelines would be installed using trenchless methods (i.e., pipeline jacking).
- ***UV/CCB Bypass Pipeline.*** The UV/CCB Bypass Pipeline would be constructed within the UV Structure.
- ***Lafayette 1 Drain***. The Lafayette 1 drain pipeline would be installed concurrently with the shoring for the UV Structure and CCB, and would be installed in the void created by that excavation for the shoring system.

Excavations for pipeline installation would generally occur concurrently with other construction activities. Trenchless methods require the excavation of sending (or jacking) and receiving pits. In some cases, facility excavations (such as the excavations for the UV Structure and CCB) would be used as sending or receiving pits for pipelines being installed with trenchless construction. The depth of sending and receiving pits would be approximately 50 feet below ground surface; the Claremont Tunnel connection would extend approximately 35 feet below ground surface. Soil material generated for pipeline installation activities would be approximately 10,000 CY.

Filter Effluent Pumping Modifications

As noted in Section 2.5.4, no significant modifications would be made to the filter chambers or the filter gallery building as part of the Project.

Effluent 1 Bypass

Excavation to accommodate the installation of the Effluent 1 Bypass, connection of the 48-inch FWS pipeline to the 108-inch and 78-inch FWS pipelines, and pipeline appurtenances would be up to a depth of approximately 45 feet. Soil material generated would be approximately 3,500 CY; this amount of excavated material is included in the 10,000 CY estimated to be generated by pipeline installation activities.

[18] Pipeline jacking requires the use of a horizontal boring machine or auger to drill a hole, and a hydraulic jack to push a casing through the hole under the crossing. As the boring proceeds, a steel casing pipe is jacked into the hole and the pipeline is installed in the casing. Pipeline jacking requires the excavation of pits typically 10 feet by 35 feet (depth varies) at opposite ends of the pipeline to be installed.

Los Altos Pumping Plant No. 2

Aside from the pipeline work associated with receiving the 48-inch TWS pipeline from the Effluent Weir Structure, construction activities at LAPP2 would be limited to removal of existing electrical equipment within the structure and rewiring and improving some electrical systems, as well as minor mechanical modifications.

Influent Channel Bifurcation Gates and Additional Spillway Siphon

Construction of the new stop logs for the bifurcation gates in the upper spillway would require construction of one additional siphon. Minimal excavation on the north side of the upper spillway structure would be required to expand the spillway for the additional siphon. No in-water work would occur during construction of the influent channel bifurcation gates and spillway siphons.

South Standby Generator

Surficial grading and excavation of the existing sloped site would be required to create a level surface to accommodate the South Standby Generator. Soil material generated would be approximately 1,000 CY.

South Electrical Building

The South Electrical Building would be a prefabricated structure on a concrete mat foundation. Surficial grading and excavation of the existing sloped site would create a level surface to accommodate the foundation. Soil material generated would be approximately 3,000 CY.

Los Altos Pumping Plant Power Building

The Los Altos Pumping Plant Power Building would be a prefabricated structure on a concrete mat foundation. Minimal excavation would be required.

Grounds Maintenance Building and Parking

The site for the Grounds Maintenance Building and parking area would be graded to accommodate the building, parking area, and surficial drainage. Approximately 4 feet of excavation would be required for the Grounds Maintenance Building to provide an adequate foundation, resulting in a minimal excavation quantity.

Briones Diversion Weir Actuators

As stated above, installation of the actuators at the Briones Diversion Weir would require construction of approximately 100 feet of new electrical ductbank (shallow trenching) through the Briones Center paved parking area. Construction in the paved parking area would be the only surface-disturbing activity occurring outside the Briones Center structure (refer to Figure 2-1). Minimal trenching would be required.

Testing and Site Restoration

Once construction is complete, EBMUD would conduct testing, startup, and training for the new treatment facilities. Individual Project component (facility) testing would occur as each component is completed.

All construction equipment, fencing, materials, and trailers would be removed from the Manzanita East and San Pablo Reservoir Parking Lots Overflow Area staging areas after Project construction is completed. The staging areas would be restored to pre-Project conditions. The North Orinda Sports Field staging area would continue to be used by EBMUD as a staging area for other EBMUD projects after completion of Project construction.

Once construction is complete, the existing finished grade and paving at the Orinda WTP site would be maintained, with a few refinements. The grade around aboveground structures would be raised slightly and paved to route drainage away from structures and toward storm drains, and to provide vehicle access and parking. As a result of the Project, an additional area of 1.1 acres of impervious surface would be added to the Orinda WTP site. Most of the impervious area would consist of the Grounds Maintenance Building and associated parking constructed at the site of the Orinda WTP staging area. Proposed stormwater management is discussed in Section 2.7.1 below. Unretained earthen slopes on the site would be graded to a 2:1 slope or less steep. Additional landscaping would also be added to the site as indicated in Section 2.5.12 above.

2.6.2 Construction Equipment and Trips

Project Equipment

Project construction would involve the following equipment:

- Aerial lift
- Air compressor
- Concrete/industrial saw
- Crushing equipment
- Dumper/tender
- Forklift
- Generator
- Bore/drill rig
- Crane
- Crawler tractor
- Excavator
- Grader
- Paving equipment
- Plate compactor
- Pumps
- Rollers

Vehicle Trips

Construction truck traffic for off-hauling, large equipment deliveries, and material deliveries would likely access the Project site via the most direct route, using the Highway 24 on- and off-ramps at Camino Pablo. Camino Pablo would provide access to all four Project staging areas via Manzanita Drive and San Pablo Dam Road.

Table 2-5 lists the approximate average number of construction truck trips per construction phase associated with hauling materials to and from the site. The materials would be hauled in loads of approximately 10 CY, depending on the type of materials being hauled.

TABLE 2-5
CONSTRUCTION TRUCK ROUND TRIPS PER CONSTRUCTION ACTIVITY

Construction Phase	Construction Activity	Major Construction Activity Duration (Days)[a]	Number of Construction Truck Trip Days[b]	Average Construction Truck Round Trips per Day[c]	Construction Truck Round Trips Total per Phase
Preparation, Demolition, and Landscaping	Site Mobilization	88	88	5	440
	Demolition of Maintenance and Ground Services Buildings, Site Clearing	10	10	16	160
	Landscaping	35	35	0	0
Construction	South Electrical Building	30	13	26	338
	Upper Spillway Bifurcation and Briones Weir Actuator Installation	73	1	7	7
	South Generator	79	14	8	112
	UV/CCB Facilities (below ground), including Pipelines				
	Excavation	609	352	23	8,096
	Concrete	571	140	9	1,260
	Backfill	326	264	11	2.904
	MAUVE Building Concrete	204	10	12	120
	LAPP Power Building Concrete	16	2	12	24
	Grounds Maintenance Building	24	18	10	180
Testing and Site Restoration	Fencing	35	35	0	0
	LAPP 2 – Electrical Modifications	66	66	0	0

NOTES:

[a] "Major Construction Activity Duration" is the estimated total duration from beginning of construction activity to completion and includes days during which there would be no construction truck round trips. There is significant overlap of construction activities, so the sum of construction activity duration days is not illustrative of total Project duration.

[b] "Number of Construction Truck Trip Days" is the estimated number of days over which construction truck trips would occur.

[c] "Average Construction Truck Round Trips Per Day" is the estimated number of round trips spread out over a reasonable number of days to complete the work requiring construction truck trips. Actual round trips may range from 0 to 96 concrete delivery or 70 off-haul construction truck round trips per day.

SOURCE: EBMUD, 2019; Carollo, 2019.

In addition to the construction truck trips, there would be worker vehicle trips to and from the Project construction site during Project construction, as shown in Table 2-6 by major construction activity. It was estimated that a maximum of 60 workers would be at the Orinda WTP site at any given time for overlapping construction activities; however, given the Orinda WTP site parking limitations, it was assumed that one-third of the workers would carpool to the Orinda WTP. So, at any phase of the Project, a maximum of approximately 80 one-way worker vehicle trips per day (40 commute trips in the morning and 40 commute trips in the afternoon) to and from the Project construction site would occur during Project construction.

TABLE 2-6
WORKER TRIPS PER CONSTRUCTION ACTIVITY

Construction Phase	Construction Activity	Maximum Daily One-Way Trips	Average Round Trip Worker Trips per Day[a]
Preparation, Demolition, and Landscaping	Site Mobilization	40	20
	Demolition of Maintenance and Ground Services Buildings, Site Clearing	40	20
	Landscaping	16	8
Construction	South Electrical Building	40	20
	Upper Spillway Bifurcation and Briones Weir Actuator Installation	20	10
	South Generator	10	5
	UV/CCB Facilities (below ground)	40	20
	MAUVE Building	50	25
	LAPP Power Building	20	10
	Grounds Maintenance Building	20	10
Testing and Site Restoration	Fencing	16	8
	LAPP 2 – Electrical Modifications	4	2

NOTES:
[a] One round trip vehicle trip equals one vehicle going to and leaving from the Project site on a daily basis.

SOURCE: EBMUD, 2019; Carollo, 2019.

As discussed in more detail in Section 2.6.3, Construction Schedule and Hours, limited work on five Saturdays during the Project construction period is anticipated. No concrete deliveries, soil off-haul, and large construction truck traffic would occur during any Saturday work. The maximum worker traffic anticipated on a working Saturday would be 25 round trips.

2.6.3 Construction Schedule and Hours

Construction is estimated to take approximately 4.5 years. Construction is expected to begin in approximately mid-2021 with the site preparation and demolition phase, which would be followed by construction of the new facilities. Construction of the new facilities, start-up and testing, and site restoration are expected to be completed in approximately late 2025. Periodically, EBMUD would need to shut down parts of the Orinda WTP (partial shutdown) or the entire Orinda WTP (full shutdown) to accommodate construction activities. During the Project construction period, there would be two periods of full shutdown for the Orinda WTP to allow for work at or near functioning facilities. An approximate 14-day shutdown would occur in the winter of 2023-24 and the second shutdown would occur over an approximate 20-day period in the winter of 2024-25. During these shutdowns, San Pablo WTP would be used to ensure water delivery to customers.

Construction activities would generally be limited to the hours of 8:00 a.m. to 6:00 p.m. Monday through Friday. Construction work on Saturdays is anticipated to take place for a

maximum of five Saturdays during the winter 2024-25 shutdown to allow for pipeline connections within Project facilities, and would be restricted to the hours of 10:00 a.m. to 5:00 p.m. No construction activities would be permitted on Sundays or during EBMUD holidays during any work period except for emergencies or for critical work with prior notice to and approval by EBMUD[19].

Construction personnel may arrive on site and depart approximately one hour prior to or after regular construction times. Conforming to assumptions used for the WTTIP EIR traffic trip generation estimates (WTTIP EIR Section 3.8.3), soil and demolition off-haul and heavy equipment delivery truck trips in trucks would be limited to Monday through Friday, 9:00 a.m. to 4:00 p.m. Concrete delivery trucks would be allowed to access the Orinda WTP site from 6:00 a.m. to 6:00 p.m., Monday through Friday to accommodate concrete pours. Sections 3.11, Noise and Vibration, and 3.13, Transportation, discuss construction traffic schedule requirements and assumptions in greater detail.

2.6.4 Construction Water Supply and Discharge

Water would be needed during construction for dust control, as well as equipment washdown, cleaning, and disinfection. The volume of water needed for construction activities would be approximately 7 MG. Construction water would be supplied on site by EBMUD.

Excavations would require groundwater dewatering during construction to maintain dry working conditions. Any discharge water from construction-related activities would be filtered through Baker tanks on site. Any filtered discharge from groundwater dewatering would be released into existing storm drains on site that outfall into San Pablo Creek. All other filtered discharges during construction (other than groundwater dewatering) would be released into the Central Contra Costa Sanitary District sewer system on site.

2.6.5 Construction and Demolition Waste Handling

Consistent with adopted WTTIP Mitigation Measures 3.12-4a and 3.12-4b, EBMUD would require construction contractors to prepare plans for recovering, reusing, and recycling 50 percent of projected solid waste through demolition, excavation, and construction activities, as feasible. The plan would identify materials to be hauled away for off-site disposal and approved receiving sites. Disposal would occur to be consistent with all applicable local, state, and federal regulations.

2.6.6 Construction Lighting

Based on the construction schedule described in Section 2.6.3 above, the need for construction lighting would be infrequent. When lighting is needed for construction

[19] Critical work may include construction activities during a full or partial Orinda WTP shutdown for new pipeline connections to minimize the water treatment plant shutdown duration.

purposes, shielded lighting would be used to reduce the potential for light trespass onto neighboring properties and sensitive receptors.

2.7 Operations and Maintenance

2.7.1 Operations

Once constructed, UV and chlorine contact disinfection processes would be added to the water treatment processes at the Orinda WTP. The new facilities at the Orinda WTP would be operated to achieve disinfection using UV light in addition to sodium hypochlorite to achieve disinfection in the CCB. The sodium hypochlorite dose at the Orinda WTP would be similar to existing conditions, but would be injected in the CCB, rather than upstream of the Orinda WTP.

Water Treatment Chemical Usage

Less than 50 gallons of phosphoric acid would be stored in the new UV Structure. Other chemicals needed for operation of the new facilities consist of chemicals currently stored in other existing facilities on site.

Power Required for Operations

The Orinda WTP currently uses approximately 5,000,000 kilowatt hours per year of electricity. Approximately 1,400,000 kilowatt hours per year of electricity would be required to operate the new components at the Orinda WTP, resulting in approximately 6,400,000 kilowatt hours per year of electricity use at the Orinda WTP. Electrical power would be provided through the existing power utility's (Pacific Gas and Electric Company [PG&E]) belowground ductbanks.

Operational Discharges

Sanitary Sewer

Operation of the Project would not require additional EBMUD staff; therefore, the Project would not result in any new, additional domestic sewer demand. Also, Orinda WTP water quality samples with reagents (a substance used in chemical analysis or other reactions) and equipment wash-down required by the new Project components that would be discharged to the sanitary sewer would not produce any new, substantial regular discharges to the existing sanitary sewer system.

Settling Ponds Discharge to San Pablo Creek

As described in WTTIP EIR Section 2.2.2, Need for the Project, backwash water used for cleaning the existing filters at the Orinda WTP is allowed to settle and is dechlorinated in two settling ponds north of Manzanita Drive before being discharged to San Pablo Creek. During operation of the Project, Orinda WTP water quality samples that are reagentless would continue to be discharged to the settling ponds, and ultimately to San Pablo Creek,

in compliance with applicable permits. Because the amount of reagentless water quality samples after Project construction would be a small fraction of the 3 to 5 MGD of backwash water that is sent to the settling ponds daily, the existing settling pond system has adequate capacity for the reagentless water quality sample discharges.

Bypass, Overflow and Maintenance Discharges from Lafayette Aqueducts to San Pablo Creek

As described above in Sections 2.5.3, Pipelines, and 2.5.8, Influent Channel Bifurcation Gates and Additional Spillway Siphons, under Project conditions, Orinda WTP bypass, overflow and maintenance discharges from the Lafayette Aqueducts would be directed to San Pablo Creek via the upper spillway siphons and/or the new Lafayette 1 Drain. The total discharge to San Pablo Creek from these operations would remain the same as under existing conditions, but would be apportioned differently between the two existing concrete outfall spillway structures at the upper spillway and the Lafayette 1 Drain.

Groundwater

To prevent groundwater intrusion to the CCB, the deepest component of the MAUVE/UV/CCB Structure, an impermeable, synthetic membrane would be wrapped around the roof and sides of the CCB. The bottom perimeter around the CCB would remain open, allowing groundwater to continue to flow as it does under existing conditions. Thus, from the outside in, multiple impermeable barriers (consisting of the approximate 3-foot thick concrete secant piles, the impermeable membrane, and the approximate 3-foot thick concrete walls of the CCB) would prevent groundwater intrusion to the structure while still allowing groundwater to flow around and below the structure. The multiple barriers would prevent all groundwater from intruding inside the CCB and all but a negligible amount of groundwater from penetrating the secant piles and impermeable membrane. As a result, operational dewatering is not reasonably foreseeable. In the unlikely event that groundwater accumulates below ground outside the CCB, and/or the need arises to dewater the exterior of the CCB for facility maintenance, EBMUD would either comply with appropriate regulatory discharge permitting requirements for discharge of groundwater to San Pablo Creek, or seek beneficial reuse alternatives for the groundwater, if reuse is determined to be feasible.

Stormwater Management

Currently, stormwater at the Orinda WTP site is routed to San Pablo Creek through existing catch basins, drain pipelines, surface swales, and direct surface run-off into the creek. The Project would create new and replace existing impervious area totaling more than one acre and would provide treatment and flow controls consistent with the Contra Costa Clean Water Program. The overall stormwater runoff after the Project would not exceed pre-project runoff and would continue to flow into San Pablo Creek over the banks and through existing outfalls as under existing conditions.

In the southern portion of the Orinda WTP site, stormwater management would not be modified substantially. In the area around the MAUVE Building, new storm drain inlets along the western side of the MAUVE Building would direct stormwater to one of the

existing wasteway pipelines that would be repurposed for stormwater conveyance and that currently outfalls to San Pablo Creek at a protected concrete discharge structure. Stormwater flows near the MAUVE Building would also be directed to a new vegetated swale and allowed to flow over the top-of-bank to the creek as stormwater does under existing conditions in this area. In the vicinity of the South Electrical Building, the Los Altos Power Building, and the South Standby Generator, stormwater runoff would continue to be directed to existing underground storm drain pipelines and an aboveground concrete swale that currently flow to San Pablo Creek.

Currently, when the capacity of the North Lane culverts to the south is exceeded, stormwater runoff flows over Camino Pablo and enters the Orinda WTP across from the North Lane intersection with Camino Pablo. Under Project conditions, stormwater would continue to follow the current path across the Orinda WTP and encounter the MAUVE building. As explained in a technical memorandum prepared for the Project by WRECO and in Section 3.10, Hydrology and Water Quality, Impact HYD-3d, during more severe storm events in which the North Lane culverts operate at half capacity (i.e., clogged) and water levels in San Pablo Creek, the receiving stream, are very high, flood water depths would increase on the Project site west of the MAUVE Building along the length of the existing Filter Gallery Building (WRECO, 2020). The maximum increase in flood water depth on the Orinda WTP site would be approximately 0.7 foot (approximately 8.5 inches) at the southwest corner of the MAUVE Building, risking inundation of the interior of the MAUVE Building and CCB. Flood water depths would also increase northwest of the South Standby Generator Building, risking interior flooding of that structure, as well.

To address the potential flooding issue, the Project includes flood protection measures for structures on site that would be affected by overland flooding. Permanent support rails would be installed at each entryway of the MAUVE Building, with removable flood shields (stop logs) stored on site. During a flood, the flood shields would be manually installed in the support rails to prevent the interior of the MAUVE Building from flooding (Carollo, 2020). All flood shields and access hatches to the CCB would be raised to a minimum of 6 inches above the maximum floodwater depth to prevent floodwater intrusion into the treated water supply. The finished floor elevations of the South Electrical Building and Los Altos Pumping Plant Power Building would be raised above the maximum floodwater depths, and access ramps and stairs would be provided accordingly.

At the site of the new Grounds Maintenance Building, stormwater runoff would need to be managed from two sources: a) off-site sources west of the Orinda WTP, and b) the new impervious areas created by the Project.

The new Grounds Maintenance Building area currently receives off-site stormwater from Camino Pablo and points west that flows across the existing vegetated area from west to northeast. The off-site stormwater drains to an existing culvert that leads to the City of Orinda's stormwater system in Manzanita Drive that discharges to San Pablo Creek at the Manzanita Drive bridge. Under future conditions, the off-site stormwater would still be allowed to enter the Orinda WTP site and flow over the vegetated area west of the new

parking area, but the stormwater would be diverted to new storm drain inlets along the northern perimeter of the site that would lead to the City of Orinda's stormwater system in Manzanita Drive. The existing culvert inlet would be removed and replaced by a new storm drain inlet.

Stormwater flow control improvements would be incorporated into the Grounds Maintenance Building and parking and designed to be consistent with the *Contra Costa Clean Water Program Stormwater C.3 Guidebook*, which sets standards to prevent increases in run-off flows from new development and redevelopment projects that are consistent with the requirements of the Municipal Regional Stormwater NPDES Permit, or MRP[20]. For stormwater management of runoff created by the new Grounds Maintenance Building and associated parking, a below-grade detention structure installed under the new parking area would attenuate flow from the new impervious surfaces. New storm drain inlets in the parking area and perimeter filtration swales (approximately 400 feet total length and 2 feet wide) would direct runoff from the new impervious surfaces to the below-grade detention structure. The detention structure would be a flow-control vault that would be sized consistent with the Contra Costa Clean Water Program guidelines for detention volume and low-flow release rate. Optimized for flow control, the detention structure would have a capacity of approximately 6,000 cubic feet and measure approximately 5,000 square feet in area and 1.5 feet deep. The detention structure would discharge to the existing Orinda WTP stormwater collection system that leads to an existing on-site stormwater outfall to San Pablo Creek. The detention structure would be designed with an open bottom so stormwater would also infiltrate into the ground below as under existing conditions for the area. Because stormwater would still be allowed to infiltrate and the detention structure would restrict release rates, post-construction flow rates would not exceed pre-construction runoff from the site. Additional stormwater management detail and figures are shown in Section 3.10, Hydrology and Water Quality.

Lighting

Project lighting would be designed and compliant with California Energy Commission Title 24 requirements and consistent with the requirements of adopted WTTIP Mitigation Measures 3.3-5b and 3.3-5c. Existing site lighting would be maintained. Additional lighting would be installed above accesses to the new facilities, and approximately 12 new light poles would be installed throughout the Orinda WTP. The new light poles would match the height and general appearance of the existing light poles (approximately 22 feet high). All light poles would have shielded light fixtures that would direct light downwards to minimize light trespass and glare. New building and pole-mounted lights would be on at low levels at nighttime, but would brighten temporarily with motion. The Effluent Weir Structure would be equipped with manually operated lighting. Refer to Section 3.2, Aesthetics, for information about potential Project impacts related to lighting.

[20] San Francisco Bay Regional Water Quality Control Board, Municipal Regional Stormwater NPDES Permit (MRP); Order R2-2015-0049, NPDES Permit No. CAS612008, as revised.

2.7.2 Maintenance

All proposed facilities would require specific maintenance and inspection activities (e.g., the UV system would require periodic changing of the UV lamps, monthly UV calibration, and maintenance of various water quality analyzers; the CCB would require maintenance of the weir gates and bypass isolation gates,) as well as general building maintenance. Long-term site maintenance would continue, and would involve vegetation management on site, keeping the site clean and free of debris, and trimming shrubbery and trees to maintain clear views into the site for both fire prevention and public safety. Maintenance activities would require the dedication of one or two Orinda WTP employees per week, which would be staffed by the existing crew. All long-term maintenance activities would be conducted by staff already on site, so monthly maintenance truck trips to and from the Orinda WTP site would not change once the Project is operational.

2.8 Changes in Easements and Rights-of-Way

No permanent property acquisition would be required for the Project. A PG&E easement traverses part of the Project site and would not affect operation of the Project. Construction activities would comply with PG&E safety and setback requirements and any required PG&E permits for deployment of construction equipment in and around the easement.

2.9 Environmental Commitments Proposed as Part of the Project

Appendix A identifies mitigation measures that apply to the Project and were adopted by the EBMUD Board of Directors in December 2006 as part of the MMRP for the WTTIP. For the purposes of this Supplemental EIR, the adopted WTTIP mitigation measures in Appendix A have been incorporated into the Project, except that, as indicated in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, in some cases, the adopted mitigation measures presented in Appendix A have been subsequently revised, replaced, or augmented in individual resource sections to reflect current conditions and to address Project-specific and site-specific impacts.

Unchanged adopted WTTIP mitigation measures, as well as revised adopted WTTIP mitigation measures and new mitigation measures from the resource sections in Chapter 3 are presented in Project's MMRP in Appendix C.

2.10 Permits and Approvals

Table 2-7 summarizes the approvals and permits that may be required for the Project.

TABLE 2-7
AGENCY-REQUIRED APPROVALS AND PERMITS

Agency/Stakeholder	Type of Jurisdiction	Type of Approval
California Department of Toxic Substances Control (DTSC)	State	Approval of location for hazardous materials and hazardous waste disposal in California.
California Air Resources Board (CARB) and Bay Area Air Quality Management District (BAAQMD)	State	Permit for portable equipment registration.
City of Orinda	Local	Road encroach permit (if necessary) pursuant to adopted WTTIP Mitigation Measure 3.8-1.
San Francisco Bay Regional Water Quality Control Board (SFBRWQCB)	State and Federal	National Pollutant Discharge Elimination System (NPDES) Construction General Permit and Waste Discharge Requirements for dewatering and work within the bed and banks of waters of the United States and state.
California Department of Fish and Wildlife	State	Lake and Streambed Alteration Agreement, Sections 1600-1616 of the California Fish and Game Code

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance.

2.11 References

Caltrans (California Department of Transportation), 1995. Transportation Permit Manual. Revisions to Chapter 5, dated February 15, 1995.

Carollo (Carollo Engineers), 2020. *Orinda WTP Disinfection Improvements Project Flood-Proofing Alternatives Analysis*, February 25, 2020.

EBMUD (East Bay Municipal Utility District), 2006. *Water Treatment and Transmission Improvements Program Final Environmental Impact Report*, SCH # 2005092019. November 2006.

EBMUD, 2018. Basis of Design Report, Draft. Prepared by Carollo Engineers. October.

EBMUD, 2016. *Urban Water Management Plan 2015*. Adopted June 28, 2016.

ESA (Environmental Science Associates), 2019. Figures created by ESA for the East Bay Municipal Utility District Orinda Water Treatment Plant Disinfection Project. 2019.

ESRI, 2019. Geographic information used for East Bay Municipal Utility District Orinda Water Treatment Plant Disinfection Project. 2019.

McMillen Jacobs Associates, 2019. Orinda Water Treatment Plant Disinfection Improvements Project, Draft Geotechnical Design Recommendations. May 2019.

Personal communication, Peter von Bucher, Carollo Engineers, Project Engineer, email correspondence on May 9, 2019, providing responses to request for project description information.

Personal communication, Chien Wang, EBMUD, Project Manager, email correspondence on May 7, 2019, providing responses to request for project description information.

WRECO, 2020. North Lane Flood Mapping Study Technical Memorandum, February 24, 2020.

CHAPTER 3
Environmental Setting, Impacts, and Mitigation Measures

3.1 Introduction to Environmental Analysis

3.1.1 Introduction

This chapter provides an analysis of the physical environmental effects of implementing the Orinda Water Treatment Plant (WTP) Disinfection Improvements Project (Project) as described in Chapter 2, *Project Description*.

As indicated in Chapter 2, this document is a supplement to the Water Treatment and Transmission Improvements Program (WTTIP) Environmental Impact Report (EIR), which evaluated the Project programmatically. Since certification of the WTTIP EIR in December 2006, the specific details of the design and operating characteristics for improvements at the Orinda WTP have been developed, and the mitigation measures provided in the adopted WTTIP Mitigation Monitoring and Reporting Program (MMRP) that were identified for improvements at the Orinda WTP have been incorporated into the Project (refer to Appendix A). The proposed changes to the Project warrant reevaluation of environmental resource areas (e.g., aesthetics, air quality) addressed in the WTTIP EIR. In addition, Energy, Greenhouse Gas Emissions, Tribal Cultural Resources, and Wildfire are also addressed to reflect amendments to Appendix G of the 2020 *California Environmental Quality Act (CEQA) Guidelines* that have occurred since certification of the WTTIP EIR and through 2019.

The impact evaluations presented in Chapter 3, as well as those related to alternatives to the Project in Chapter 4, and other CEQA considerations in Chapter 5 (i.e., growth inducement, cumulative impacts, significant and unavoidable impacts, etc.) are based on the *CEQA Guidelines* in force in 2020. Throughout this Supplemental EIR, references to the "*CEQA Guidelines*" are in fact references to the 2020 *CEQA Guidelines*.

3.1.2 Organization of Chapter 3

Chapter 3 includes an evaluation of each environmental resource area as follows:

- Section 3.2, Aesthetics
- Section 3.3, Air Quality

- Section 3.4, Biological Resources
- Section 3.5, Cultural Resources
- Section 3.6, Energy
- Section 3.7, Geology, Soils, Seismicity, and Paleontological Resources
- Section 3.8, Greenhouse Gas Emissions
- Section 3.9, Hazards and Hazardous Materials
- Section 3.10, Hydrology and Water Quality
- Section 3.11, Noise and Vibration
- Section 3.12, Recreation
- Section 3.13, Transportation
- Section 3.14, Tribal Cultural Resources
- Section 3.15, Wildfire

Based on characteristics of the Project as described in Chapter 2, *Project Description*, and the previously performed environmental impact review, no changes are expected with respect to the significance or severity of impacts in several environmental resource areas (e.g., Land Use and Public Services and Utilities). These environmental resource areas are briefly described in Section 3.16 of this Supplemental EIR.

3.1.3 Organization of Discussion of Environmental Resource Areas

For each environmental resource area, this Supplemental EIR evaluates the environmental impacts of the Project. Information presented in the WTTIP EIR is used as a basis for information about the setting of the Project site and surrounding area to the extent that that information is still accurate and remains relevant. Each environmental resource area contains the following components:

1. **Environmental Setting** describes the setting as it relates to the specific environmental resource area. The setting information covers the areas affected by the Project, including the Orinda WTP and staging areas. If information presented in the corresponding setting of the WTTIP EIR remains accurate and relevant such that no supplemental information is needed, that is so noted.

2. **Regulatory Framework** provides an overview of changes or additions since the WTTIP EIR to relevant federal, state, and local laws, regulations, ordinances, applicable to each environmental resource area. If information presented in the corresponding regulatory framework section of the WTTIP EIR remains accurate and relevant such that no supplemental information is needed, that is so noted.

3. **Impact Analysis** includes the following subsections:

   - *Methodology for Analysis,* which describes the approach used in analyzing the potential impacts.

   - *Significance Criteria* is based on those identified in Appendix G of the *CEQA Guidelines*, but are modified or supplemented as appropriate to address the Project's impacts.

   - *Adopted WTTIP Mitigation Measures* identifies mitigation measures related to each particular environmental resource area that were identified for improvements at the Orinda WTP, adopted by the EBMUD Board of Directors in December 2006 as part of the MMRP for the WTTIP, and thus have been incorporated into the Project. The mitigation measures adopted in WTTIP MMRP and incorporated into the Project are listed in Appendix A and each Supplemental EIR environmental resource area, as applicable. The adopted WTTIP mitigation measures discussed in this Supplemental EIR are referred to using the same numeric labeling used in the WTTIP EIR.

   - *Impacts and Mitigation Measures* provide an evaluation of impacts and, where necessary, identify additional mitigation measures beyond the adopted WTTIP mitigation measures that have been incorporated into the Project. The impact analysis is presented by a numbered impact summary statement that corresponds to the environmental resource area (e.g., Impact AES-1 for the first impact of the Aesthetics resource area section). New Project mitigation measures are numbered using the same alphanumeric format as impact statements (e.g., Mitigation Measure AES-1).

     In this Supplemental EIR, adopted WTTIP mitigation measures that have been revised to address Project impacts are identified using the WTTIP EIR's numeric identifiers, followed by the tag "ORWTPDI" (e.g., Mitigation Measure 3.6-1b-ORWTPDI in Section 3.4, Biological Resources). This nomenclature indicates that the adopted WTTIP mitigation measure in question has been revised based on the analyses presented in this Supplemental EIR. Text that has been revised in adopted WTTIP mitigation measures is indicated with underlining (<u>underlining</u>) where text has been added, and strikethrough (~~strikethrough~~) where text has been deleted.

     For each impact significance threshold included in this Supplemental EIR, the impact analysis includes a conclusion regarding whether implementation of adopted WTTIP mitigation measures would reduce impacts to less-than-significant levels, and consequently, whether any additional Project-specific mitigation measures would be required to minimize project impacts. All required mitigation measures are then listed, including adopted WTTIP mitigation measures, followed by a determination of whether impacts would be significant even with implementation of new Project-specific mitigation measures identified in the analysis. Impacts that exceed identified significance thresholds would be

considered significant. In describing the significance of impacts, the following categories of significance are used:

- **Significant and Unavoidable.** Adverse environmental consequences that exceed the significance criteria identified for the environmental resource area, even after feasible mitigation measures are applied and/or an adverse effect that could be significant and for which no feasible mitigation measure has been identified.

- **Less than Significant with Implementation of Mitigation Measures.** Adverse environmental consequences with the potential to be significant, but that can be reduced to less-than-significant levels through the application of identified mitigation measures (that is, new mitigation measures identified in this Supplemental EIR or revisions to mitigation measures adopted as part of the WTTIP MMRP) for the relevant alternative.

- **Less than Significant.** Potential adverse environmental consequences have been identified. However, they are not so adverse as to exceed the significance criteria for an environmental resource area and no mitigation measures are required; or, adopted WTTIP mitigation measures that have been incorporated into the Project reduce potential adverse environmental consequences to less than significant levels and, therefore, no new mitigation measures are required.

- **No Impact.** No adverse environmental consequences have been identified for the environmental resource area, or the consequences are negligible or undetectable. Therefore, no mitigation measures are required.

3.2 Aesthetics

This section describes the physical environmental and regulatory setting for aesthetic resources, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts on aesthetic resources (including light and glare effects) that could result from construction and operation of the Project. Also provided in this section are photographs to show existing visual conditions in the Project area from various public vantage perspectives and visual simulations of visual conditions with implementation of the Project.

3.2.1 Environmental Setting

Existing aesthetic resources and the applicable environmental setting on the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.3, Visual Quality (EBMUD, 2006). The environmental setting in the WTTIP EIR was based on an archival review and field surveys. Aesthetic resources and conditions remain largely the same as those described in the WTTIP EIR. The Project site and surrounding area are representative of the East Bay and city of Orinda. The city of Orinda contains a semi-rural residential character[1] and downtown village character.[2] As indicated in the WTTIP EIR, Camino Pablo is designated by the City of Orinda as a Scenic Corridor.

Site reconnaissance of the Project area was performed in May 2019 to identify the visual Project study area and take representative photographs of existing visual conditions. Figure 3.2-1 provides an overview of nine viewpoints selected to support the analysis. Figure 3.2-2 through Figure 3.2-6 document the existing visual conditions of the Project site and adjacent areas (viewpoints 1 through 9). Figure 3.2-7 through Figure 3.2-10, provided in Section 3.2.3 below, include visual simulations at four representative viewpoints showing the existing view of the site and the site five years after construction with additional vegetation.

1 "Semi-rural character" is defined in the Land Use Element of the *City of Orinda General Plan* as "consisting of the following characteristics: major visible undeveloped ridgelines and hillsides; most houses small in relation to their lots; heavy tree cover and other vegetation dominating most lots; limited grading and disturbance of existing land contours; undisturbed creeks and creek beds; diversity of house placement; visible vacant land within and adjacent to residential areas; winding streets with limited traffic; few sidewalks and street lights; protected open space to the north and west of the City" (City of Orinda, 1987).

2 "Village character" is defined in the Land Use Element of the *City of Orinda General Plan* as a "commercial area of relatively low density with a predominance of small-scale, low-lying buildings of varying architectural styles (generally not exceeding two stories) fronting on streets or landscaped, plaza-like spaces" (City of Orinda, 1987).



SFO\17xxxx\D1710400 - EBMUD Orinda WTP Project\05 Graphics-GIS-Modeling\Illustrator

SOURCE: ESA, 2019; Environmental Vision, 2019; ESRI, 2019.

NOTE: For pipes and other below-grade project components, refer to Figure 2-6.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.2-1
Photography and Simulation Viewpoint Locations

ESA



Viewpoint 1: Camino Pablo at Orinda WTP south entrance looking northwest



Viewpoint 2: Camino Pablo between Orinda WTP south entrance and North Lane, looking north-northeast

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SOURCE: Environmental Vision, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.2-2
Viewpoints 1 & 2

ESA



Viewpoint 3: North Lane at Camino Pablo looking northeast



Viewpoint 4: Claremont Avenue at Camino Pablo looking north-northeast

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SOURCE: Environmental Vision, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.2-3
Viewpoints 3 & 4

ESA



Viewpoint 5: Camino Pablo at Manzanita Drive looking east



Viewpoint 6: Manzanita Drive approximately 85 feet northeast of Camino Pablo looking east-southeast

SOURCE: Environmental Vision, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.2-4
Viewpoints 5 & 6

ESA

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Viewpoint 7: Manzanita Drive at Orinda WTP north entrance looking east-southeast



Viewpoint 8: Hacienda Circle looking southwest

SOURCE: Environmental Vision, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.2-5
Viewpoints 7 & 8

ESA

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Viewpoint 9: View from Tilden Regional Park near Vollmer Peak looking northeast

SOURCE: Environmental Vision, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.2-6
Viewpoint 9

ESA

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3.2.2 Regulatory Framework

The regulatory framework for aesthetic resources in the vicinity of the Orinda WTP is described in Section 3.3.2 and Appendix D of the WTTIP EIR. This Supplemental EIR highlights changes in implementation of those laws and regulations that have occurred since certification of the WTTIP EIR in December 2006. Elements of the regulatory framework for visual quality (aesthetics) identified in the WTTIP EIR that are not described below have not notably changed since 2006.

The *East Bay Watershed Master Plan* (EBMUD, 1996), noted on page 3.3-17 and in Appendix D (Table D-7) of the WTTIP EIR, was updated in 2018 after certification of the WTTIP EIR in 2006 (EBMUD, 2018a). The goals, objectives, and guidelines in the 2018 Visual Resources Element of the *East Bay Watershed Master Plan* that are applicable to the Project remain the same as those in the 1996 *East Bay Watershed Master Plan*, with the exception of guidelines VR.4 and VR.5, which have been updated as follows:

- **VR.4:** Ensure that all facility construction or modifications meet District design standards, or an acceptable alternative, and all regulatory requirements.
- **VR.5:** Specify the use of natives in plant restoration standards, where available and appropriate.

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance. As such, the *City of Orinda General Plan* policies noted on page 3.3-17 and in Appendix D of the WTTIP EIR remain relevant to the Project.

3.2.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to aesthetics and evaluates whether there would be a new significant environmental impact, or a substantial increase in the severity of a significant impact identified in the WTTIP EIR, given: (a) the proposed design and operating characteristics of the Project, and (b) changes in significance criteria.

For purposes of the analysis, visual resources are generally defined as the natural and built landscape features that can be seen from public views. The overall visual character of a given area results from the combination of natural landscape features, including landform, water, and vegetation patterns, as well as the presence of built features such as buildings, roads, and other structures.

The visual quality impact analysis is based on field observations conducted by ESA in May 2019, review of Project maps and drawings, aerial and ground-level photographs, computer-generated visual simulations of the Project, and review of a variety of data in the record, such as local planning documents. The analysis identifies potential temporary (short-term) and permanent (long-term) impacts on scenic vistas or the visual character and quality of a site as seen from publicly accessible viewpoints in the Project study area. For purposes of the aesthetics analysis, the Project study area is defined as those areas from which the interior of the Orinda WTP site may be seen. These areas include public roadways adjacent to the Orinda WTP and other public roadways in nearby neighborhoods. The Project study area includes publicly accessible areas from which the Project staging areas may be seen. A viewpoint from Tilden Regional Park is also included in the Project study area, as the Orinda WTP can be seen from public trails in the park.

Within the Project study area, photos representing public views of the Project site were taken from nine viewpoints, shown in Figure 3.2-2 through Figure 3.2-6. The direction and location of these viewpoints are shown on Figure 3.2-1 and include the following:

- **Viewpoint 1**: Camino Pablo at the Orinda WTP south entrance looking northwest
- **Viewpoint 2:** Camino Pablo between the Orinda WTP south entrance and North Lane looking north-northeast
- **Viewpoint 3:** North Lane at Camino Pablo looking northeast
- **Viewpoint 4:** Claremont Avenue at Camino Pablo looking north-northeast
- **Viewpoint 5:** Camino Pablo at Manzanita Drive looking east
- **Viewpoint 6:** Manzanita Drive approximately 85 feet northeast of Camino Pablo looking east-southeast
- **Viewpoint 7:** Manzanita Drive at the Orinda WTP north entrance looking east-southeast
- **Viewpoint 8:** Hacienda Circle looking southwest
- **Viewpoint 9:** Seaview Trail/Vollmer Peak in Tilden Regional Park looking northeast

Viewpoints 1 through 5 represent views of the Orinda WTP experienced by motorists and pedestrians on Camino Pablo. Also, Viewpoints 3 and 4 represent views from the residential neighborhood west of Camino Pablo toward the Orinda WTP. Viewpoints 6 and 7 represent views of the Orinda WTP experienced by motorists and pedestrians on Manzanita Drive. Viewpoint 8 is taken from the public roadway (Hacienda Circle) in the residential neighborhood to the east of and uphill from the Orinda WTP. Viewpoint 9 is a representative view from Seaview Trail in Tilden Regional Park near Vollmer Peak, approximately 1.2 miles west of the Orinda WTP.

For the aesthetics analysis, computer-generated visual simulations were produced to illustrate conceptual “before” and “after” visual conditions as seen of the Project site

from the viewpoints where the Project components would be most visible. Visual simulations are provided for Viewpoints 1, 2, 5, and 6 and are included in the impact analysis as Figures 3.2-7 to 3.2-10.

Viewpoint 9 is included in the impact analysis because the viewpoint is from a designated Contra Costa County ridgeline.

Viewpoints 3, 4, 7, and 8 did not have discernible views of Project components. From Viewpoint 3, public views of the Orinda WTP are largely obstructed by existing mature trees and other vegetation. From Viewpoint 4, public views of the Orinda WTP are obstructed by existing vegetation as well as existing power boxes on Camino Pablo. Views from Viewpoint 7 would remain similar to those that are currently seen from Manzanita Drive at the Orinda WTP north entrance. From Viewpoint 8 at Hacienda Circle, existing views from the public road are blocked by an existing fence. Views of the MAUVE Building would be filtered by existing vegetation and the steepness of the view due to the higher elevation of Viewpoint 8. Because Viewpoints 3, 4, 7, and 8 do not have discernible views of the Project, they are not discussed further in the impacts analysis below.

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines,* an impact would be considered significant if the Project would:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
3. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage points), or in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.
4. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Adopted WTTIP Mitigation Measures

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. Table 3.2-1 presents adopted mitigation measures from the WTTIP EIR that relate to aesthetic resources at and in the vicinity of the Orinda WTP.

TABLE 3.2-1
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR AESTHETICS FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.3-1	For stationary (non-pipeline) projects expected to be constructed over a period of one year or more, the District will require the contractor to ensure that construction-related activity is as clean and inconspicuous as practical by storing building materials and equipment within the proposed construction staging areas or in areas that are generally away from public view and by removing construction debris promptly at regular intervals and placing black fabric fence screening on fences where feasible.
3.3-2a	The District will implement landscaping plans prepared for the ~~following WTTIP projects: Lafayette WTP (Alternative 1),~~ Orinda WTP ~~(Alternative 1 or 2), Walnut Creek WTP (Alternative 1 or 2), Sobrante WTP (Alternative 1or 2), Ardith Reservoir and Donald Pumping Plant, Happy Valley Pumping Plant, Highland Reservoir, Sunnyside Pumping Plant, Tice Pumping Plant, and Withers Pumping Plant~~. • ~~For each project (with the exception of the Fay Hill Pumping Plant),~~ the District will plant native vegetation and/or construct earth berms around all proposed above-ground facilities to provide screening, consistent with the requirements set forth in adopted WTTIP Mitigation Measures 3.6-1a, c, and d, and Mitigation Measure 3.6-1b-ORWTPDI in Section 3.4, Biological Resources (see Impact BIO-4). Landscaping will include revegetation of disturbed areas to minimize textural contrasts with the surrounding vegetation. • The District will replace any landscaping ~~at the WTTIP project sites~~ that is removed or destroyed during construction consistent with landscape plans. New plants would include grasses, shrubs, and trees typical of the surrounding area. The District will consult with the appropriate jurisdiction when developing final landscaping plans. For disturbance of natural, non-landscaped areas, see adopted WTTIP Mitigation Measure 3.6-3c in Section 3.4~~6~~, Biological Resources (see Impact BIO-1). • The District will also install additional landscaping~~: (1)~~ north of Manzanita Drive at the Orinda WTP to provide additional screening of existing ponds or new above-ground facilities~~, and (2) along Mt. Diablo Boulevard at the southeastern edge of the Lafayette WTP under Alternative 2 near the exit drive~~. • Implement Mitigation Measure 3.6-1b-ORWTPDI in Section 3.4~~6~~, Biological Resources, regarding pruning (see Impact BIO-4). • ~~For each project listed in the first bullet (with the exception of Highland Reservoir)~~, the District will coordinate with and involve neighborhood representatives during the development of final landscaping plans. • The contractor will be required to warrant landscape plantings for one year after project completion. • ~~The District will landscape areas that will not be disturbed by construction before construction begins in order to assist in preservation of views at the Walnut Creek WTP and proposed Ardith Reservoir site~~.
3.3-2b	~~For each project (with the exception of the Fay Hill Pumping Plant and pipelines in roadways)~~, the District will ensure that its contractors restore disturbed, graded areas to a natural-appearing landform.
3.3-2c	The District will use design elements to enhance the aesthetic appearance of proposed facilities and to integrate them with the existing visual environment. Proposed facilities will be painted or include appropriate concrete admixtures to achieve low-glare, earth-tone colors that blend with the surrounding terrain and visual setting. For each project, colors will be selected based on site-specific conditions with the goal of (1) reducing the visual contrast between new facilities and the surrounding natural landscape setting and/or (2) integrating the facility appearance with the neighboring built environment. Concrete structures need not be painted; however, integral coloring should be employed, as noted above, where structures are seen from sensitive community viewpoints. • ~~At the Lafayette WTP, landscaped berms may be incorporated into the final site and landscape plans at proposed clearwell sites in order to screen views from the Walter Costa Trail.~~ • ~~At the Orinda WTP backwash water facility~~ use textures, colors and materials that will blend with existing filter plant buildings. • ~~For the Tice, Withers, Happy Valley, and Sunnyside Pumping Plants, new pump structures and buildings will include architectural treatment and design elements (such as pitched roofs, roof overhangs, or ornamental window or trim detail) to enhance the appearance of new facilities.~~ • For the ~~Lafayette WTP,~~ Orinda WTP~~, Happy Valley and Tice Pumping Plants~~, the design of new walls, gates, and fencing will include aesthetic architectural treatment where facilities are located near public trails, residences, or scenic roadways.

TABLE 3.2-1 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR AESTHETICS FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.3-2c (cont.)	• ~~For the Walnut Creek WTP, EBMUD will meet with the City to discuss integration of the design of the new Leland Pumping Plant to be consistent with the surrounding neighborhood environment and the existing WTP.~~
3.3-3	Implement adopted WTTIP Mitigation Measures 3.3-2a through 3.3-2c, as detailed above.
3.3-5b	The District will ensure that new lighting utilizes cutoff shields and nonglare fixture design.
3.3-5c	To the extent possible, the District will ensure that all permanent exterior lighting is directed onsite and downward. In addition, new lighting will be oriented to ensure that no light source is directly visible from neighboring residential areas and will be installed with motion-sensor activation. In addition, highly reflective building materials and/or finishes will not be used in the designs for proposed structures, including fencing and light poles. In accordance with adopted WTTIP Mitigation Measure 3.3-2a, above, landscaping will be provided around proposed facilities. This vegetation will be selected, placed, and maintained to minimize offsite light and glare in surrounding areas.

NOTE: Strikethrough text indicates text in the adopted WTTIP Mitigation Measures that does not relate to the Project. Text that is underlined is included to address typographical errors in the original mitigation language or to add clarifying language to the adopted WTTIP Mitigation Measures.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact AES-1: Have a substantial adverse effect on a scenic vista. (Criterion 1)

The WTTIP EIR stated that WTTIP projects at the Orinda WTP would not be seen within the context of a scenic vista (i.e., a distant view encompassing valued natural or built landscape features such as ridgelines, water bodies, or landmark structures). During the May 2019 site reconnaissance conducted for the aesthetics analysis, long-range vista views were observed from publicly accessible trails in Tilden Regional Park approximately 1.2 miles to the west of the Project site near Vollmer Peak. The view of the Orinda WTP from Vollmer Peak (Viewpoint 9) is shown on Figure 3.2-6. The ridgeline within Tilden Regional Park is designated by the *Contra Costa County General Plan* as a scenic ridgeline (Contra Costa County, 2005). The view from Vollmer Peak is dominated by a relatively uniform coverage of trees, interspersed with development, primarily residential in nature. The Orinda Country Club golf course is in the center of the view. The Orinda WTP can be seen just below and left of the golf course in the view. While construction activities at portions of the Project site and staging areas may be visible in this view due to the movement of equipment, construction would not dominate or create a substantial visual contrast in the view due to the distance of the Project site from Vollmer Peak, and because vehicle movement is already seen within the Orinda WTP and on surrounding streets. Implementation of adopted WTTIP Mitigation Measure 3.3-2c would reduce impacts to a less-than-significant level by requiring visual integration of proposed facilities with the existing visual environment by using low-glare, earth-tone exterior finishes. Refer to Table 3.2-1 for the full text of adopted WTTIP Mitigation Measure 3.3-2c. Because adopted WTTIP Mitigation Measure 3.3-2c is included as part of the Project and the visible Project components would be visually consistent with the existing structures at the Orinda WTP, the Project would not create a

substantial change in visual contrast in the view from this vista and the impact on scenic vistas would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

> **Adopted WTTIP Mitigation Measures:** 3.3-2c (Refer to Table 3.2-1 for the full text of adopted mitigation measures).

Impact AES-2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. (Criterion 2)

As identified in the WTTIP EIR, Highway 24 is designated as a California Scenic Highway within the Orinda city limits. No part of the Orinda WTP, nor any of the staging areas, is visible from Highway 24. Therefore, the Project would not impact or damage scenic resources within a state scenic highway.

Significance Determination Before Mitigation

No impact. No mitigation measures required.

Mitigation Measures

None required.

Impact AES-3: In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage points), or in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality. (Criterion 3)

As determined in the WTTIP EIR, publicly accessible views of the Orinda WTP from some locations in the surrounding area would be altered.

The Orinda WTP and three of the four proposed staging areas[3] are located in an urbanized area, as defined in *CEQA Guidelines* Section 15387, and as mapped by the United States Census Bureau (U.S. Census Bureau, 2010); thus, impacts related to these Project sites are considered in the context of the potential to conflict with applicable zoning and other regulations governing scenic quality. The San Pablo Reservoir Overflow Parking Lots staging area is in unincorporated Contra Costa County, and is in a

[3] The Orinda WTP, North Orinda Sports Field, and Manzanita East staging areas are in an urbanized area.

non-urbanized area (U.S. Census Bureau, 2010); thus, impacts related to the San Pablo Reservoir Overflow Parking Lots staging area are considered in the context of substantially degrading the existing visual character or quality of public views of the site and its surroundings.

The following sections are guiding and implementing policies from the *City of Orinda General Plan* (City of Orinda, 1987) and are included in Section 3.2.2 and Appendix D of the WTTIP EIR and remain applicable to the Project.

Section 2.3.1, Circulation: Guiding Policies

G. It is the goal of the City of Orinda to preserve and retain, in the most natural condition possible, scenic vehicular entryways, routes and corridors in the community.

Section 2.3.2, Circulation: Implementing Policies

P. The following routes are designated Scenic Corridors on the General Plan:

   1. Moraga Way from its intersection with Camino Pablo south to the City limits;
   2. Camino Pablo from its intersection with Santa Maria Way north to the City limits;
   3. Highway 24, designated as a California Scenic Highway within Orinda City limits.

Q. Special care shall be taken to provide a well landscaped and open feeling along Scenic Corridors, especially at the entrance to the City, utilizing such techniques as generous landscaped setbacks and open-space acquisition, where appropriate.

R. Any proposed development or subdivision along a Scenic Corridor or Scenic Highway shall be designed to blend with and permit the natural environment to be maintained as the dominant visual element. It shall not lessen the scenic value of existing visual element.

S. Where structures are permitted, they shall be designed to blend with and permit the natural environment to be maintained as the dominant visual element.

Construction

Project construction activities, described in Section 2.6, Project Construction, of this Supplemental EIR would occur within the existing footprint of the Orinda WTP or other EBMUD-owned staging areas. Construction equipment and temporary facilities at the staging areas would not be permanent structures and would be removed after construction is complete.

The degree to which construction activities at the Orinda WTP would be noticeable would vary, but activities would mostly be screened by existing vegetation and structures at the Orinda WTP. Views of construction activities and equipment through the intervening vegetation would be fleeting as seen by public viewers traveling along Camino Pablo (a City-designated Scenic Corridor) and Manzanita Drive. Additionally, as stated in the

preceding paragraph, construction equipment and temporary facilities at the Project site would be removed after construction is complete, and would not be permanent structures that would conflict with zoning and other regulations governing scenic quality.

Potential staging areas that would be used during Project construction are shown on Figure 2-10. With the exception of the San Pablo Reservoir Overflow Parking Lots staging area (which is in unincorporated Contra Costa County), all of the staging areas are within the city of Orinda.

Orinda WTP Staging Area. The Orinda WTP staging area is in the northwestern corner of the Orinda WTP site and would be used for contractor parking, office trailers, and equipment laydown until construction begins on the Grounds Maintenance Building and parking. Viewpoints 5 and 6 on Figure 3.2-4 show views from Camino Pablo and Manzanita Drive, respectively, toward this staging area site. As shown on Figure 3.2-4, although this staging area is somewhat visible, public views would be obscured by existing landscaping. As this staging area is within the existing active work area of the Orinda WTP, the presence of vehicles and equipment parked on this site would not substantially change the existing visual character or quality of existing public views of the site. Adopted WTTIP Mitigation Measure 3.3-1, which would ensure that construction-related activity is as clean and inconspicuous as practical, would also be implemented at this staging area. Refer to Table 3.2-1 for the full text of adopted WTTIP Mitigation Measure 3.3-1. Construction vehicles and equipment at the Orinda WTP staging area would be removed after construction is complete and would not conflict with zoning and other regulations governing scenic quality. Use of the Orinda WTP staging area for storage of construction vehicles and equipment would cease once construction of the proposed Grounds Maintenance Building and parking lot begins. At the Orinda WTP staging area, temporary 8-foot high chain-link construction security fencing would be installed for site security during construction. Discussion of visual resources concerning the permanent Grounds Maintenance Building and parking lot at the same location is below under the "Operations" impacts analysis.

North Orinda Sports Field Staging Area. The North Orinda Sports Field staging area, located south of the ballfields parking, would be used to temporarily relocate EBMUD Grounds and Mechanical Maintenance staff, equipment, and fleet vehicles during Project construction. From Camino Pablo, this approximately 0.5-acre staging area is screened from view by existing intervening vegetation (i.e., trees) and an existing perimeter security fence. Fleeting views would be available for motorists and pedestrians traveling south along Camino Pablo. The North Orinda Sports Field staging area was previously used by the City of Orinda for public works staging and is currently used for construction staging for other EBMUD projects; therefore, use of this site for construction staging for the Project would not substantially change the existing visual character or quality of existing public views of the site. Adopted WTTIP Mitigation Measure 3.3-1, which would ensure that construction-related activity is as clean and inconspicuous as practical, would also be implemented at this staging area. Project temporary facilities at the North Orinda Sports Field staging area would be removed after construction is complete and would not be permanent structures that would conflict with zoning and other regulations governing scenic quality. After construction is complete, security fencing would remain and the area may be used for construction staging for future EBMUD projects.

Manzanita East Staging Area. The Manzanita East staging area is located on the southern corner of Manzanita Drive and Acacia Drive, north of the Orinda WTP. The Manzanita East staging area is a wooded, undeveloped area that is owned by EBMUD and fenced off from public access. Activities at the Manzanita East staging area would be limited to the upland areas of the property outside the riparian corridor. The Manzanita East staging area would be used for two construction office trailers and worker parking accommodating five vehicles during the construction period. No healthy trees would be removed at this site; if needed, dead or dying trees would be removed or limbed. At the Manzanita East staging area, temporary 8-foot high chain-link construction security fencing would be installed for site security and, after the Project is completed, the staging area would be restored to pre-construction conditions.

Although the staging area would be used temporarily and the public does not have access to the site, public views of the site are readily accessible from vehicles and pedestrians traveling on Manzanita Drive and Acacia Drive. Even with implementation of adopted WTTIP Mitigation Measure 3.3-1, which would ensure that construction-related activity is as clean and inconspicuous as practical at the Manzanita East staging area, use of this staging area during Project construction would have an effect on the current aesthetics. At the conclusion of construction, implementation of adopted WTTIP Mitigation Measure 3.3-2b would require the contractor to restore disturbed and graded land areas back to their natural form. Refer to Table 3.2-1 for the full text of adopted WTTIP Mitigation Measures 3.3-1 and 3.3-2b.

San Pablo Reservoir Overflow Parking Lots Staging Area. The San Pablo Reservoir Overflow Parking Lots staging area is not in an urbanized area, as described above. Comprised of two paved parking areas along Old San Pablo Dam Road, it would be used for parking, equipment, and materials storage during Project construction. Both San Pablo Dam Road and Inspiration Trail run parallel to Old San Pablo Dam Road, but public views of the staging areas from these viewpoints are obstructed by intervening vegetation and topography. The staging area may be seen from boaters using San Pablo Reservoir for recreational purposes, but these parking lots are currently paved areas that are used for parking cars and storing materials, so use during Project construction would not substantially alter existing public views of the site, nor create substantial visual contrast to its visual character and quality. At the San Pablo Reservoir Recreation Area overflow parking lots, temporary 8-foot high chain-link construction security fencing would be installed for site security and, after the Project is completed, the staging area would be restored to pre-construction conditions.

Implementation of adopted WTTIP Mitigation Measure 3.3-1 would ensure that construction-related activity at the San Pablo Reservoir Overflow Parking Lots staging area is as clean and inconspicuous as practical by storing building materials and equipment within the proposed construction staging areas or in areas that are generally away from public view, and by removing construction debris promptly at regular intervals and placing black fabric fence screening on fences where feasible. Refer to Table 3.2-1 for the full text of adopted WTTIP Mitigation Measure 3.3-1. For these reasons, use of the San Pablo Reservoir Overflow Parking Lots as a construction staging area for the Project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings.

Because adopted WTTIP Mitigation Measure 3.3-1 would require the contractor to ensure that construction-related activity is as clean and inconspicuous as practical, and adopted WTTIP Mitigation Measure 3.3-2b would require restoration of disturbed, graded areas to a natural-appearing landform, the construction impact related to substantial degradation of the existing visual character or quality of public views of the site and its surroundings or, in an urbanized area, conflicting with applicable zoning and other regulations governing scenic quality would be less than significant.

Operation

To inform this evaluation of permanent aesthetics impacts attributable to the Project, four computer-generated visual simulations were prepared for key viewpoints around the Orinda WTP. As indicated in Chapter 2, *Project Description* and pursuant to adopted WTTIP Mitigation Measure 3.3-2a (refer to Table 3.2-1), after construction, additional native vegetation (including trees and shrubs) would be planted as part of the Project to further screen the existing and proposed facilities (refer to Figure 2-9 for a conceptual planting plan). Trees and shrubs would be planted along Camino Pablo and Manzanita Drive and placed on the Orinda WTP property in a layout that maintains a naturalized pattern and slope compatibility, as well as further screening views into the Orinda WTP. Additionally, the exterior color and architectural design of new buildings constructed as part of the Project would match those of the existing buildings at the Orinda WTP, as required in adopted WTTIP Mitigation Measure 3.3-2c (refer to Table 3.2-1) and shown on Figure 2-8. These features have been included in the four visual simulations, which show the existing view in the upper portion of each figure and the simulated view with the Project and landscaping in place (showing 5 years' maturity) in the lower portion of each figure. As noted above, visual simulations were developed for Viewpoints 1, 2, 5, and 6, and are described as follows.

Views from Camino Pablo (Southern End of Project Site)

The existing and simulated views of Viewpoint 1 are shown in Figure 3.2-7. Viewpoint 1 looks northwest into the Orinda WTP through the south entry gate off Camino Pablo. Visible components of the Orinda WTP in the existing view include the perimeter fence, the Filter Gallery Building in the distant center view, and a green electrical transformer in the right center of the view. In the bottom simulated view, the trees overhanging the entry drive are shown to be trimmed back, opening up the view of the Filter Gallery Building in the center of the image; the trimming would be necessary to accommodate the South Standby Generator that would be installed to the right of the entry drive, which is not visible in this simulation. Additional landscaping, required by adopted WTTIP Mitigation Measure 3.3-2a (refer to Table 3.2-1) and shown at 5-years' maturity in this simulation, would be planted behind the perimeter fence on both sides of the gate. Although the tree trimming is visible in this simulation, the visual effect would be limited considering the amount of existing tree coverage in this portion of the Orinda WTP. Primary viewers would be motorists traveling north on Camino Pablo, as well as pedestrians. This view would be fleeting. The Project would not substantially change the visual character or quality of this viewpoint along Camino Pablo.



Viewpoint 1: Existing View



Viewpoint 1: With Project - 5 Years after Construction

SOURCE: Environmental Vision, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.2-7
Visual Simulation - Viewpoint 1
Camino Pablo at Orinda WTP South Entrance

ESA

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The existing and simulated views of Viewpoint 2 are shown in Figure 3.2-8. Viewpoint 2 looks north-northeast into the Orinda WTP from Camino Pablo. Visible components of the Orinda WTP include the perimeter fence in the foreground, with the front portion of the Lime Tower visible through the vegetation in the left center of the view. The Effluent 1 Discharge structure is also visible through the vegetation just right of center.

In the simulated view, the Project's screening shrubbery, required by adopted WTTIP Mitigation Measure 3.3-2a (refer to Table 3.2-1) and shown at 5-years' maturity in this simulation, obscures views of the perimeter fence, most of the Lime Tower, and all of the Effluent 1 Discharge structure. The top of the proposed MAUVE/UV/CCB Structure would be visible from Camino Pablo after Project construction. The roof of the MAUVE/UV/CCB Structure is visible above the top of the perimeter fence and vegetative screening, but would be further obscured as the landscaping grows beyond 5 years' maturity. As per adopted WTTIP Mitigation Measure 3.3-2c (refer to Table 3.2-1), the MAUVE/UV/CCB Structure would be built to match the existing buildings. The visual effect would be limited considering the amount of screening coverage proposed along this portion of the Orinda WTP perimeter. Primary viewers would be motorists traveling along Camino Pablo, as well as pedestrians. This view would be fleeting. The Project would not substantially change the visual character or quality of the Orinda WTP from this viewpoint along Camino Pablo.

Views from Camino Pablo and Manzanita Drive (Northern End of Project Site)

The Orinda WTP Staging Area would no longer be in use as a staging area once construction of the Grounds Maintenance Building and parking begins. The Grounds Maintenance Building exterior would match existing buildings on the Orinda WTP site. EBMUD's standard 8-foot high security fencing would be installed permanently around the perimeter of the Grounds Maintenance Building and parking. The existing and simulated views of Viewpoint 5 are shown on Figure 3.2-9. Viewpoint 5 looks east from the intersection of Camino Pablo with Manzanita Drive into the northwestern corner of the Orinda WTP property. Limited portions of the Orinda WTP are visible in the center of the view under existing tree canopy, as shown on the existing view on Figure 3.2-9. The additional screening required by adopted WTTIP Mitigation Measure 3.3-2a (refer to Table 3.2-1), primarily shrubs shown at 5-years' maturity in this simulation, would fully block views into the Orinda WTP and of the Grounds Maintenance Building and parking. Primary viewers at this viewpoint would be motorists traveling along Camino Pablo and Manzanita Drive, as well as pedestrians. This view would be fleeting, and even if temporarily stopped at the traffic light, the visual simulation on Figure 3.2-9 shows that views of the Project, and into the Orinda WTP property, would be blocked by vegetative screening. Following the establishment of the proposed landscaping, the Project would have a slight, but improved, change in the visual character and quality of the Orinda WTP from this viewpoint.



Viewpoint 2: Existing View



Viewpoint 2: With Project - 5 Years after Construction

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SOURCE: Environmental Vision, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.2-8
Visual Simulation - Viewpoint 2
Camino Pablo near North Lane

ESA



Viewpoint 5: Existing View



Viewpoint 5: With Project - 5 Years after Construction

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SOURCE: Environmental Vision, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.2-9
Visual Simulation - Viewpoint 5
Camino Pablo at Manzanita Drive

ESA

The existing and simulated views of Viewpoint 6 are shown in Figure 3.2-10. Viewpoint 6 looks east-southeast into the Orinda WTP property and is located approximately 85 feet east of Camino Pablo on Manzanita Drive which is representative of a view available to pedestrians along Manzanita Drive. The Chemical Building is visible in the background beyond the perimeter fence at this location. As part of the Project, the additional screening required by adopted WTTIP Mitigation Measure 3.3-2a (refer to Table 3.2-1), primarily trees and shrubs shown at 5-years' maturity in this simulation, would block views into the Orinda WTP and of the Grounds Maintenance Building and parking. Therefore, the Project would have a slight, but improved, change in the visual character and quality of the Orinda WTP from this viewpoint.

Adopted WTTIP Mitigation Measure 3.3-3, which requires implementation of adopted WTTIP Mitigation Measures 3.3-2a through 3.3-2c, as previously discussed in this impact, would also be implemented.

Due to Project landscaping, which would block views into the Orinda WTP and fill in existing gaps in the landscaping with native vegetation of varying heights and colors, and because adopted WTTIP Mitigation Measures 3.3-1, 3.3-2a, 3.3-2b, 3.3-2c, and 3.3-3 would require the contractor to ensure that construction-related activity is as clean and inconspicuous as practical; restoration of disturbed, graded areas to a natural-appearing landform; the preparation of landscaping plans, Project screening, and the warranty of landscape plantings; and integration of proposed facilities with the existing visual environment by using low-glare, earth-tone exterior finishes, operation of the Project (in an urbanized site) would not conflict with applicable zoning and other regulations governing scenic quality (including those listed above), and the impact would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

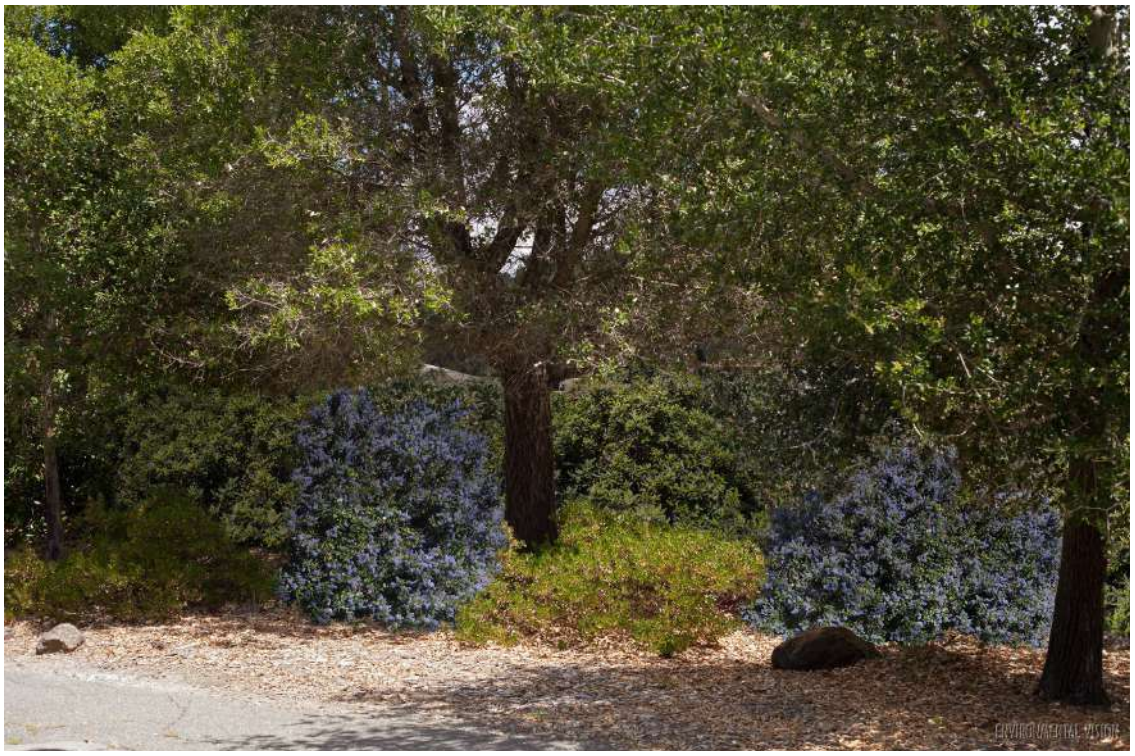
Adopted WTTIP Mitigation Measures: 3.3-1, 3.3-2a, 3.3-2b, 3.3-2c, and 3.3-3 (Refer to Table 3.2-1 for the full text of adopted mitigation measures).

Impact AES-4: Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. (Criterion 4)

The WTTIP EIR found that the potential for creation of new sources of light and glare from construction and operation activities existed at the Orinda WTP. Based on the construction schedule described in Section 2.6.3 and as noted in Section 2.6.6, the need for nighttime lighting would be infrequent. Construction activities would generally be limited to the daytime hours of 8:00 a.m. to 6:00 p.m. Monday through Friday, and 10:00 a.m. to 5:00 p.m. on Saturdays. When lighting is needed for construction purposes, shielded lighting would be used to reduce the potential for light trespass onto neighboring properties and sensitive receptors.



Viewpoint 6: Existing View



Viewpoint 6: With Project - 5 Years after Construction

SOURCE: Environmental Vision, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.2-10
Visual Simulation - Viewpoint 6
Manzanita Drive near Camino Pablo

ESA

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During Project operations, Project lighting would be designed to comply with California Energy Commission Title 24 requirements and consistent with the requirements of adopted WTTIP Mitigation Measures 3.3-5b and 3.3-5c (refer to Table 3.2-1). New lighting would be controlled by motion-sensors, lighting controllers, and photocells (EBMUD, 2018b). Exterior lighting would be focused on specific areas to minimize or avoid light spill onto adjoining properties. With these Title 24-compliant features and adherence to adopted WTTIP Mitigation Measures 3.3-5b and 3.3-5c, new lighting proposed for the Project would not create substantial new sources of light and glare. Adopted WTTIP Mitigation Measures 3.3-5b and 3.3-5c require that cutoff shields and nonglare fixture designs are used, permanent exterior lighting onsite is directed downward and has motion-sensor activation, no light source is directly visible from neighboring residential areas, no highly reflective building materials are used, and landscaping around proposed facilities is provided. Refer to Table 3.2-1 for the full text of adopted WTTIP Mitigation Measures 3.3-5b and 3.3-5c. Because adopted WTTIP Mitigation Measures 3.3-5b and 3.3-5c are included as part of the Project, the impact related to new sources of light and glare would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

> **Adopted WTTIP Mitigation Measures:** 3.3-5b and 3.3-5c (Refer to Table 3.2-1 for the full text of adopted mitigation measures).

3.2.4 References

City of Orinda, 1987. *City of Orinda General Plan*, Circulation Element. Adopted May 20, 1987.

Contra Costa County, 2005. *Contra Costa County General Plan*, 2005 – 2020. January 18, 2005 (Reprint July 2010).

EBMUD (East Bay Municipal Utility District), 1996. *East Bay Watershed Master Plan*. 1996.

EBMUD, 2006. *Water Treatment and Transmission Improvements Program Final Environmental Impact Report*, SCH # 2005092019. November 2006.

EBMUD, 2018a. *East Bay Watershed Master Plan*. 2018.

EBMUD, 2018b. *Basis of Design Report, Orinda Water Treatment Plant UV/Chlorine Disinfection Project*. Prepared by Carollo Engineers. October 2018.

Environmental Vision, 2019. Photos taken and visual simulations created for the EBMUD Orinda Water Treatment Plant Disinfection Improvements Project.

U.S. Census Bureau, 2010. 2010 Census – Urbanized Area Reference Map, San Francisco – Oakland, CA. January 1, 2010.

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3.3 Air Quality

This section describes the physical environmental and regulatory setting for air quality, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts on air quality that could result from construction and operation of the Project. Refer to Appendix E for supporting information, including air quality and greenhouse gases modeling outputs.

3.3.1 Environmental Setting

The Project is located within the San Francisco Bay Area Air Basin (SFBAAB) under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The environmental setting for air quality in the vicinity of the Orinda WTP was identified in the WTTIP EIR, Section 3.9, Air Quality, (EBMUD, 2006). Meteorological information for the Project area, information related to criteria air pollutants and toxic air contaminants (TACs), and their effects presented in the WTTIP EIR remain relevant. Table 3.9-2 of the WTTIP EIR presents ambient air quality data monitored at the BAAQMD's Oakland and Concord stations for six years from 1999 to 2005.

BAAQMD operates a regional monitoring network of air quality monitoring stations that measure the ambient concentrations of criteria air pollutants. Existing and probable future levels of air quality in the Project area can generally be inferred from data collected at nearby monitoring stations. The Project site is located approximately 10 miles west of the Concord station, approximately 10.5 miles north of the International Boulevard Oakland station, and approximately 7 miles northeast of the West Oakland monitoring station. While none of these monitoring stations are located in the immediate vicinity of the Project site, air quality conditions in the general area can be inferred from data collected at the West Oakland monitoring station, located closest to the Project and at the Concord station, which though located farther away, is within the same climatological subregion as the Project. Table 3.3-1 shows a 5-year summary of monitoring data (2014 through 2018) for ozone, particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), nitrogen dioxide (NO_2), and carbon monoxide (CO) from the West Oakland and Concord monitoring stations. (Note: The West Oakland monitoring station does not monitor concentrations of particulate matter less than 10 microns [PM_{10}]).

Sensitive receptors in the vicinity of the Project include single-family homes to the north and south of the Orinda WTP site, with buffers between the homes and the Project site provided by San Pablo Creek to the north, and Camino Pablo to the south and west. The Orinda Country Club is adjacent to the eastern boundary of the Orinda WTP site, and the North Orinda Sports Field and Wagner Ranch Elementary School are located approximately 1,000 feet and 1,800 feet, respectively, to the north-northwest.

TABLE 3.3-1
AIR QUALITY DATA SUMMARY (2014–2018) FOR THE PROJECT AREA

Pollutant	Standard[a]	Monitoring Data by Year[b]				
		2014	2015	2016	2017	2018[c]
West Oakland Monitoring Station						
Ozone						
Highest 1-Hour Average (ppm)	0.090 ppm	0.072	0.091[d]	0.065	0.087	0.063
State Standards Exceedance Days		0	0	0	0	0
Highest 8-Hour Average (ppm)	0.070 ppm	0.059	0.064	0.052	0.068	0.050
State Standard Exceedance Days		0	0	0	0	0
National Standard Exceedance Days	0.070 ppm	0	0	0	0	0
Fine Particulate Matter ($PM_{2.5}$)						
Highest 24-Hour Average (µg/m^3)	35 µg/m^3	38.8	38.7	23.9	56.0	169.2
Measured Days Over National Standard Exceedances/Samples		1	3	0	7	15
State Annual Average (µg/m^3)	12 µg/m^3	9.5	10.2	8.7	12.9	14.4
National Annual Average (µg/m^3)	12.0 µg/m^3	9.5	10.1	8.6	12.8	14.3
Nitrogen Dioxide (NO_2)						
Highest Hourly Average (ppm)	0.18 ppm	0.056	0.057	0.049	0.052	0.076
Measured Days Over State Standard Exceedances/Samples		0	0	0	0	0
Carbon Monoxide (CO)						
Highest 8-Hour Average (ppm)	9.0 ppm	2.6	2.6	2.2	2.1	3.1
Measured Days Over State Standard		0	0	0	0	0
Concord Monitoring Station						
Ozone						
Highest 1-Hour Average (ppm)	0.090 ppm	0.095	0.088	0.095	0.082	0.077
State Standards Exceedance Days		1	0	1	0	0
Highest 8-Hour Average (ppm)	0.070 ppm	0.080	0.073	0.074	0.070	0.061
State Standard Exceedance Days		2	4	2	0	0
National Standard Exceedance Days	0.070 ppm	2	2	2	0	0
Particulate Matter (PM_{10})						
State/National Highest 24-hour Average (µg/m^3)	50/150 µg/m^3	42.5/40.8	24/22.5	19/18.7	41/41.2	105/99.3
Estimated Days Over State Standard		0	0	0	0	1
Estimated Days Over National Standard		0	0	0	0	0
State Annual Average (µg/m^3)	20 µg/m^3	14.2	13.1	11.5	13.3	16.2
Fine Particulate Matter ($PM_{2.5}$)						
National Highest 24-Hour Average (µg/m^3)	35 µg/m^3	30.6	31.0	20.7	89.4	180
Measured Days Over National Standard Exceedances/Samples		0	0	0	6	14
Annual Average (µg/m^3)	12.0 µg/m^3	6.6	8.8	5.9	12	13.4

TABLE 3.3-1 (CONTINUED)
AIR QUALITY DATA SUMMARY (2014–2018) FOR THE PROJECT AREA

Pollutant	Standard[a]	Monitoring Data by Year[b]				
		2014	2015	2016	2017	2018[c]
Concord Monitoring Station (cont.)						
Nitrogen Dioxide (NO_2)						
Highest Hourly Average (ppm)	0.18 ppm	0.048	0.033	0.034	0.041	0.038
Measured Days Over State Standard Exceedances/Samples		0	0	0	0	0
Carbon Monoxide (CO)						
Highest 8-Hour Average (ppm)	9.0 ppm	1.1	1.3	1.0	1.3	1.6
Measured Days Over State Standard		0	0	0	0	0

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

[a] Generally, state standards and national standards are not to be exceeded more than once per year.
[b] "—" indicates that data are not available. Measurements are from the West Oakland monitoring station in Oakland.
[c] According to the California Air Resources Board (CARB), data after 2017 may be preliminary.
[d] A violation occurs only if the standard is exceeded. Because 0.091 rounds to 0.09, it is not considered a violation. A recorded concentration of 0.095 or greater would constitute a violation of the state standard.

SOURCES: CARB, 2020; BAAQMD, 2018; BAAQMD, 2017; BAAQMD, 2016; BAAQMD, 2015; BAAQMD, 2014.

3.3.2 Regulatory Framework

The regulatory framework for air quality in the vicinity of the Orinda WTP site is described in Section 3.9.2 and Appendix D of the WTTIP EIR. This Supplemental EIR highlights changes in implementation of those laws and regulations that have occurred since the release of the WTTIP EIR in December 2006. Elements of the regulatory framework for air quality identified in the WTTIP EIR that are not described below have not notably changed since 2006.

Federal and State Regulations

The United States Environmental Protection Agency (U.S. EPA) is responsible for implementing the programs established under the federal Clean Air Act, such as establishing and reviewing the National Ambient Air Quality Standards (NAAQS) and reviewing State Implementation Plans (SIPs). While the U.S. EPA has delegated the authority to implement many of the federal programs to the states, it retains an oversight role to ensure that the programs continue to be implemented.

In California, the California Air Resources Board (CARB) is responsible for establishing and reviewing the California Ambient Air Quality Standards (CAAQS), developing and managing the California SIP, securing approval of this plan from the U.S. EPA, and identifying TACs. CARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of air quality management districts, which are organized at the county or regional level.

Updates to the regulatory context at the federal and state level include changes in the NAAQS and CAAQS for criteria air pollutants and the attainment status of the SFBAAB with respect to them. NAAQS and CAAQS in place as of the publication of the WTTIP EIR, and the SFBAAB's attainment status with respect to them, are presented in Table 3.9-1 of the WTTIP EIR. Table 3.3-2 presents the current standards and the SFBAAB's attainment status; the most relevant criteria air pollutants in Table 3.3-2 are discussed in Section 3.9.2 of the WTTIP EIR.

TABLE 3.3-2
AMBIENT AIR QUALITY STANDARDS AND SAN FRANCISCO BAY AREA AIR BASIN ATTAINMENT STATUS

Pollutant	Averaging Time	State Standard	SFBAAB Attainment Status for California Standard	Federal Primary Standard	SFBAAB Attainment Status for Federal Standard
Ozone	8-Hour	0.070 ppm	Non-Attainment	0.070 ppm	Non-Attainment
	1- Hour	0.090 ppm	Non-Attainment	---	---
Carbon Monoxide	8-Hour	9.0 ppm	Attainment	9 ppm	Attainment
	1-Hour	20 ppm	Attainment	35 ppm	Attainment
Nitrogen Dioxide	Annual Average	0.030 ppm	---	0.053 ppm	Attainment
	1-Hour	0.18 ppm	Attainment	0.100 ppm	Unclassified
Sulfur Dioxide	Annual Average	---	---	0.030 ppm	Attainment
	24-Hour	0.04 ppm	Attainment	0.14 ppm	Attainment
	1-Hour	0.25 ppm	Attainment	0.075 ppm	Attainment
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	Non-Attainment	---	---
	24-Hour	50 $\mu g/m^3$	Non-Attainment	150 $\mu g/m^3$	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	Non-Attainment	12.0 $\mu g/m^3$	Unclassified/Attainment
	24-Hour	---	---	35 $\mu g/m^3$	Non-Attainment
Sulfates	24-Hour	25 $\mu g/m^3$	Attainment	---	---
Lead	Calendar Quarter	---	---	1.5 $\mu g/m^3$	Attainment
	30-Day Average	1.5 $\mu g/m^3$	Attainment	---	---
	3-Month Rolling Average	---	---	0.15 $\mu g/m^3$	Unclassified
Hydrogen Sulfide	1-Hour	0.03 ppm	Unclassified	No Federal Standard	---
Vinyl Chloride	24-Hour	0.010 ppm	No information available	---	---
Visibility Reducing Particles	8-Hour	Extinction of 0.23/km; visibility of 10 miles or more	Unclassified	No Federal Standard	---

NOTES:
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
Shaded cells indicate where the data differ from information in the WTTIP EIR.

SOURCE: BAAQMD, 2017a.

Regional and Local Regulations

The regional agency responsible for developing air quality plans for the Bay Area is BAAQMD, the agency with permit authority over stationary emissions sources of air pollutants in the Bay Area and broad responsibility for air quality conditions in the region. BAAQMD is also responsible for preparing the regional air quality plans that are required under the federal Clean Air Act and the California Clean Air Act.

Bay Area Air Quality Management District

Under the California Clean Air Act, BAAQMD is required to develop an air quality attainment plan for criteria pollutants that are designated as non-attainment within its jurisdiction. For state air quality planning purposes, the SFBAAB is classified as a serious non-attainment area for the 1-hour ozone standard. To address this, BAAQMD has adopted the *2017 Clean Air Plan* (2017 CAP), whose primary goals are to protect public health and to protect the climate (BAAQMD, 2017b). The 2017 CAP includes a wide range of control measures proposed to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent greenhouse gases (GHGs).[1] The 2017 CAP updates the *Bay Area 2010 Clean Air Plan* and complies with state air quality planning requirements as codified in the California Health and Safety Code Section 40924.

The 2017 CAP contains 85 measures to address the reduction of several pollutants: ozone precursors, particulate matter, air toxics, and GHGs. These control strategies are grouped into the following categories:

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

Project components may be subject to BAAQMD rules and regulations governing criteria pollutants, toxic air contaminants, and odorous compounds, even though permits may not be required. Stationary sources, such as the proposed emergency generator, are required to have permits from BAAQMD. Project sources would need to comply with BAAQMD Regulation 2 and proceed through the two-stage permitting process. BAAQMD

[1] Potent GHGs refer to gases with high global warming potential (GWP) such as methane, nitrous oxide and chlorofluorocarbons. GWP is a measure of how much heat a GHGs traps in the atmosphere up to a specific time horizon, relative to carbon dioxide. It compares the amount of heat trapped by a certain mass of the gas in question to the amount of heat trapped by a similar mass of carbon dioxide and is expressed as a factor of carbon dioxide (whose GWP is standardized to 1).

Regulation 2 requires all new and modified sources installed within the SFBAAB that may cause, reduce, or control the emission of air contaminants to:

1. Secure written authorization from the Air Pollution Control Officer (APCO) in the form of an Authority to Construct prior to construction; and
2. Secure written authorization from the APCO in the form of a Permit to Operate prior to operation.

BAAQMD CEQA Guidelines *and Thresholds of Significance*

The BAAQMD *CEQA Air Quality Guidelines* (BAAQMD Guidelines) serve as a guidance document to provide lead agencies, consultants, and project proponents with uniform procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects and plans subject to CEQA. The BAAQMD Guidelines were first adopted in December 1999, and were updated in 2011 and most recently in May 2017.

The analysis in the WTTIP EIR relied on the 1999 BAAQMD Guidelines, which were in place at the time of the publication of the EIR. The 1999 BAAQMD Guidelines did not include quantitative thresholds for the evaluation of construction air quality impacts. Instead, the 1999 BAAQMD Guidelines contained a list of feasible control measures for construction-related PM_{10} emissions, implementation of which was considered to reduce construction impacts to a less-than-significant level. The 1999 BAAQMD Guidelines recommended an operational threshold of 80 pounds per day for the evaluation of emissions of reactive organic gases (ROG), nitrogen oxides (NO_x), and PM_{10}. The 2011 BAAQMD Guidelines revised the operational thresholds and added quantitative thresholds for construction emissions.

The current 2017 BAAQMD Guidelines (BAAQMD, 2017c) continue to provide direction on recommended analytical methodologies but no longer recommend quantitative significance thresholds, instead recommending that lead agencies develop their own thresholds of significance. BAAQMD offers, as possibilities, its previous 1999 BAAQMD Guidelines thresholds and also presents a table of thresholds promulgated by other California air districts, as well as a reference to California Air Pollution Control Officers Association (CAPCOA) and CARB guidance. Lead agencies may also reference the BAAQMD CEQA Thresholds Options and Justification Report developed by the BAAQMD staff in 2009 (BAAQMD, 2009). This latter option provides lead agencies with a justification for continuing to rely on the BAAQMD 2011 thresholds, which are used as the significance thresholds for the analysis presented below for the Project.

City of Orinda General Plan

The *City of Orinda General Plan* does not contain any policies that address air quality emissions or protection within the city (City of Orinda, 1987).

3.3.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to air quality and evaluates whether there would be a new significant environmental impact or a substantial increase in the severity of a significant impact identified in the WTTIP EIR, given: (a) the proposed design and operating characteristics of the Project, and (b) changes in significance criteria.

The air quality analysis uses emission factors, models, and tools provided by agencies with jurisdiction and management authority for air quality in the Project area including CARB, CAPCOA, the California Office of Environmental Health Hazard Assessment (OEHHA), and U.S. EPA. The analysis also includes methods identified in the BAAQMD Guidelines (BAAQMD, 2017c).

Construction

The analysis of potential air quality construction impacts uses the project-level analysis methodology identified in the BAAQMD Guidelines (BAAQMD, 2017c). Emissions from construction equipment were estimated using the California Emissions Estimator Model (CalEEMod, version 2016.3.2) using Project-specific data on construction phase durations; equipment mix and activity; and vehicle trips associated with worker commutes, material deliveries, and haul trips. CalEEMod defaults were used when Project-specific data were not available.

Project-specific assumptions and default CalEEMod settings used to estimate emissions can be found in the CalEEMod outputs included in Appendix E. Estimated average daily construction-related emissions of criteria air pollutants were then compared to BAAQMD's significance thresholds for construction to determine significance of impacts.

Construction Health Risk

A health risk assessment (HRA) was completed to evaluate the risks to nearby receptors from exposure to TACs associated with the Project. The HRA focused on construction emissions at the Project site, which is considered a new but temporary source. Consistent with BAAQMD Guidelines, the construction HRA focused on cancer risks and chronic health hazards at sensitive receptors located within 1,000 feet of the Project area.

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

non-cancer effects of DPM inhalation. The potential health risk and hazard impacts were analyzed at the receptor that would be exposed to the maximum risk and hazard.

A three-step process was used to estimate cancer risks and chronic health hazards of DPM exposure. The first step involved using the CalEEMod (described above) to estimate the average annual diesel exhaust emissions during Project construction. The second step involved using the U.S. EPA's Regulatory Model (AERMOD) dispersion model to convert construction DPM emissions derived from CalEEMod to maximum annual DPM concentrations. The dispersion modeling used the average annual DPM emissions, sensitive receptor grids, construction emission sources, site-specific terrain data, and meteorological data from the Metropolitan International Oakland Airport.

Project construction areas were modeled as five polygon area sources with a release height of 5 meters to determine the maximum annual PM_{10} concentration from Project DPM emissions occurring at sensitive receptors within a 1,000-foot radius of the Project site. AERMOD outputs are included in Appendix E. The third and final step was to apply the calculated maximum DPM concentration for each construction year to the OEHHA unit risk methodologies to calculate the potential cancer risk from the Project's construction activities over the construction duration (OEHHA, 2015). OEHHA equations and the health impact calculations are detailed in Appendix E. The estimated health risks were compared to the BAAQMD thresholds.

Operation

The Project would not produce any operational emissions other than the emissions generated by the testing of the emergency generator. Operation of the emergency generator for maintenance and testing would be restricted a maximum of 1 hour per day and 50 hours per year. The emergency generator would be required to comply with BAAQMD's permit requirements for a stationary source under BAAQMD Regulation 2. BAAQMD would not approve an Authority to Construct or a Permit to Operate any new or modified source of TACs that would exceed a cancer risk of 10 in 1 million or a chronic or acute hazard index of 1.0. Therefore, the health risk impact of the backup generator would be less than significant. Operation and maintenance activities associated with Project facilities would generate minimal vehicle traffic of approximately one trip per month and the associated emissions are not quantified in this analysis.

Cumulative

Regarding the assessment of cumulative impacts, the BAAQMD Guidelines consider a project's contribution to cumulative impacts on regional air quality to be significant if the project's impact individually would be significant (i.e., exceeds the BAAQMD's quantitative thresholds) (BAAQMD, 2017c). For a project that would not result in a significant impact individually, the project's contribution to any cumulative impact would be considered less than significant if the project is consistent with the local general plan and the local general plan is consistent with the applicable regional air quality plan. In this case, the applicable regional air quality plan is the 2017 CAP (BAAQMD, 2017b).

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines*, an impact on air quality would be considered significant if the Project would:

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

Criteria Requiring No Further Evaluation

- ***Criterion 4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number or people.*** Construction activities associated with the Project could result in temporary odors from the use of diesel-fueled equipment. These odors would be temporary, would dissipate quickly, and would be unlikely to create objectionable odors that would affect a substantial number of people. There would be no operational sources of odor associated with the Project. Therefore, impacts related to odors would be less than significant.

BAAQMD Significance Thresholds

Impacts from Project construction are evaluated by comparing estimated construction emissions to the BAAQMD significance thresholds for construction, which are average daily emissions of 54 pounds per day for ROG, NO_X, and $PM_{2.5}$; and 82 pounds per day for PM_{10}. Only the exhaust portion of $PM_{2.5}$ and PM_{10} emissions are compared against the construction thresholds. The BAAQMD recommends that analyses focus on the implementation of dust control measures rather than comparing estimated levels of fugitive dust to a quantitative significance threshold. The BAAQMD considers implementation of the BAAQMD-recommended mitigation measures for fugitive dust sufficient to ensure that construction-related fugitive dust is reduced to a less-than-significant level. The BAAQMD Guidelines provide feasible control measures for construction emission of PM_{10}. If the appropriate construction controls are implemented, air pollutant emissions for construction activities would be considered mitigated to a less-than-significant level.

For long-term operations, BAAQMD has two sets of significance thresholds, including average daily thresholds that are the same as the construction thresholds, and annual thresholds that are 10 tons per year for ROG, NO_X, and $PM_{2.5}$; and 15 tons per year for PM_{10}.

For the evaluation of health risk impacts from exposure to TACs, during either Project construction or Project operation, the Project would be considered to have a significant

impact if it would expose sensitive receptors to: (a) an excess cancer risk of more than 10 in 1 million, (b) an excess non-cancer risk hazard index greater than 1.0, or (c) an incremental increase of annual average $PM_{2.5}$ concentration of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$).

Adopted WTTIP Mitigation Measures

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. Table 3.3-3 presents mitigation measures from the WTTIP EIR that relate to air quality at and in the vicinity of the Orinda WTP site.

TABLE 3.3-3
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR AIR QUALITY FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.9-1a	The District will incorporate into the contract specifications the following requirements: *BAAQMD Basic Control Measures* • Maintain dust control within the site and provide adequate measures to prevent a dust problem for neighbors. Use water sprinkling, temporary enclosures, and other suitable methods to limit the rising of dust and dirt. Dust control will be adequate to ensure that no visible dust clouds extend beyond the project boundaries or extend more than 50 feet from the source of any onsite project construction activities. • Load trucks in a manner that will prevent materials or debris from dropping on streets. Trim loads and remove all material from shelf areas of vehicles to prevent spillage. Take precautions when necessary to avoid cresting dust and littering by watering the load after trimming and by promptly sweeping the pavement to remove dirt and dust. • Cover all trucks hauling soil, sand, and other loose materials. • Pave, apply water, or apply nontoxic soil stabilizers or rock on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep daily with water sweepers all paved access roads, parking areas, and staging areas at construction sites. • Sweep streets daily with water sweepers if visible soil material is carried onto adjacent public streets.
3.9-1b	The District will incorporate into the contract specifications the following requirements: *BAAQMD Enhanced Control Measures* • Hydroseed or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more). • Enclose, cover, water, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.) • Limit traffic speeds on unpaved roads to 15 miles per hour. • Install sandbags or other erosion control measures to prevent silt runoff to public roadways. • Replant vegetation in disturbed areas as quickly as possible.

TABLE 3.3-3 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR AIR QUALITY FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.9-1c	To limit exhaust emissions, the District will incorporate into the contract specifications the following requirements: *BAAQMD Exhaust Controls* • Use line power instead of diesel generators at all construction sites where line power is available. ~~Line power will be used at the tunnel entry and exit shafts for the Orinda-Lafayette Aqueduct project.~~ • As specified in EBMUD Policy 7.05, limit the idling of all mobile and stationary construction equipment to five minutes; as specified in Sections 2480 and 2485, Title 13, California Code of Regulations, limit the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds, both California- or non-California-based trucks) to 30 seconds at a school or five minutes at any location. In addition, limit the use of diesel auxiliary power systems and main engines to five minutes when within 100 feet of homes or schools while driver is resting. • For operation of any stationary, diesel-fueled, compression-ignition engines ~~as part of construction of WTTIP facilities~~, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards. • If stationary equipment (such as generators for ventilation fans) must be operated continuously, locate such equipment at least 100 feet from homes or schools where possible. • Require low-emissions tuneups and perform such tuneups regularly for all equipment, particularly for haul and delivery trucks. Submit a log of required tuneups to EBMUD on a quarterly basis for review.

NOTE: Strikethrough text indicates text in the adopted WTTIP Mitigation Measures that does not relate to the Project.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact AIR-1: Conflict with or obstruct implementation of the applicable air quality plan. (Criterion 1)

The WTTIP EIR determined that while projected average daily construction emissions associated with the Project alone would not exceed the BAAQMD operational significance criteria, construction emissions would still be considered significant because they would contribute to significant combined emissions when considered with other projects analyzed in the WTTIP EIR. There were no BAAQMD recommended thresholds of significance for construction at the time the WTTIP EIR was published, and hence estimated emissions were compared to the operational thresholds. Implementation of adopted WTTIP Mitigation Measures 3.9-1a (standard dust controls), 3.9-1b (enhanced dust controls), and 3.9-1c (exhaust controls) was found to reduce impacts to a less-than-significant level.

The BAAQMD Guidelines recommend that a project's consistency with the current air quality plan be evaluated using the following three criteria:

a. The project supports the goals of the applicable air quality plan.

b. The project includes applicable control measures from the air quality plan.

c. The project does not disrupt or hinder implementation of any control measures from the air quality plan.

If it can be concluded with substantial evidence that a project would be consistent with the above three criteria, then BAAQMD considers the project to be consistent with air quality plans prepared for the SFBAAB (BAAQMD, 2017c).

The most recently adopted air quality plan for the SFBAAB is the BAAQMD's 2017 CAP, whose primary goals are to attain air quality standards, reduce population exposure and protect public health in the SFBAAB, and reduce GHG emissions and protect the climate. As discussed under Section 3.3.2, Regulatory Framework, the 2017 CAP includes a range of control measures, which consist of actions to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. Projects that incorporate all feasible control measures are considered consistent with the CAP.

The BAAQMD-recommended guidance for determining if a project supports the goals in the current clean air plan, the 2017 CAP in this case, is to compare project-estimated emissions with BAAQMD thresholds of significance. If project emissions would not exceed the thresholds of significance after the application of all feasible mitigation measures, the project would be consistent with the goals of the 2017 CAP. Construction and operational impacts of the Project are discussed below, which were then used to evaluate consistency with the 2017 CAP.

Construction

Construction activities result in emissions of ozone precursors and particulate matter (PM) in the form of dust (fugitive dust) and exhaust (e.g., vehicle tailpipe) emissions. The Project involves incorporation of existing uses at the site into new facilities, construction and operation of new facilities, and changes in existing facilities to accommodate disinfection at the Orinda WTP. Pollutant emissions associated with Project construction would be generated from the following general construction activities:

(1) Grading, excavation, and construction

(2) Vehicle trips from workers traveling to and from the construction areas

(3) Trips associated with delivery and hauling of construction supplies to, and debris from, the construction areas

(4) Fuel combustion by on-site equipment used for demolition and construction

(5) Paving and architectural coatings (paints, varnishes, lacquers, and other coatings used in interior and exterior finishing of buildings)

These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air pollutants. Overall, the Project's construction activities would occur over a period of approximately 4.5 years. Chapter 2, *Project Description*, provides a detailed description of Project components, activities associated with their construction, and the schedule for construction activities.

Although construction emissions are considered temporary, they have the potential to represent a significant impact with respect to air quality, particularly when construction extends over a long period of time and/or when sensitive receptors are located close by. Particulate matter (i.e., PM_{10} and $PM_{2.5}$) is among the pollutants of greatest localized concern with respect to construction activities. Particulate emissions from construction activities can lead to adverse health effects and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. Particulate emissions can result from a variety of construction activities, including excavation, grading, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction emissions of PM can vary greatly depending on the level of activity, the specific operations taking place, the number and types of equipment operated, local soil conditions, weather conditions, and the amount of earth disturbance.

Emissions of the ozone precursors ROG and NO_X are primarily generated from construction equipment exhaust and mobile sources, and vary as a function of the number of daily vehicle trips, the types and number of heavy-duty off-road equipment used, and the intensity and frequency of their operation. Construction-related ROG emissions would also result from the application of asphalt and architectural coatings (e.g., paint, varnishes, etc.), and the amount of these emissions would vary depending on the amount of paving or coating that would occur each day.

Table 3.3-4 summarizes the construction emissions as estimated using CalEEMod (version 2016.3.2). The table shows daily emissions of criteria air pollutants as averaged over the entire duration of construction (approximately 1,120 workdays accounting for overlapping construction), compared to the BAAQMD significance thresholds. As shown in the table, emissions of all evaluated pollutants would be below BAAQMD significance thresholds.

TABLE 3.3-4
UNMITIGATED AVERAGE DAILY CONSTRUCTION EMISSIONS

	Construction Emissions (pounds/day)			
	ROG	**NO_X**	**Exhaust PM_{10}**	**Exhaust $PM_{2.5}$**
Project Construction Emissions	2.4	24.0	0.6	0.6
BAAQMD Threshold	54	54	82	54
Exceed Threshold?	No	No	No	No

NOTE: Refer to Appendix E for project-specific assumptions and default CalEEMod settings used to estimate emissions, AERMOD outputs, and OEHHA equations and health impact calculations.

SOURCE: Calculations by ESA using CalEEMod Modeling, January 2020

Whether or not a project's emissions exceed the BAAQMD significance thresholds, BAAQMD recommends that all projects implement the Basic Construction Mitigation Measures that primarily address dust control. BAAQMD considers implementation of the BAAQMD-recommended mitigation measures for fugitive dust sufficient to ensure that construction-related fugitive dust is reduced to a less-than-significant level. The Basic Construction Mitigation Measures are included in adopted WTTIP Mitigation Measures 3.9-1a, 3.9-1b, and 3.9-1c (refer to Table 3.3-3) with the exception of two

measures: the application of water to control dust and the identification of a contact person to address Project-related dust complaints. These actions have been added to BAAQMD's Basic Construction Mitigation Measures since adoption of the WTTIP MMRP. Therefore, adopted WTTIP Mitigation Measure 3.9-1a has been revised to include water application for dust control and contact information for dust complaints. Mitigation Measure 3.9-1a-ORWTPDI would require EBMUD construction contractors to water exposed surfaces twice daily and post in a publicly-visible location the contact information of a Lead Agency representative to respond to Project-related dust complaints. Implementation of these measures would implement all BAAQMD's Basic Construction Mitigation Measures and reduce the Project's impacts from fugitive dust emissions to a less-than-significant level.

Operation

Once operational, the Project would not include any major sources of air quality emissions. The Project includes an emergency generator that would need to be tested regularly as part of maintenance activities. Testing and operation of the emergency generator would be regulated by BAAQMD. Stationary sources, such as generators, are required to have permits from BAAQMD before constructing, changing, or operating the source and would need to comply with BAAQMD Regulation 2 and the two-stage Authority to Construct and Permit to Operate process. BAAQMD permit requirements for the emergency generator limit testing for maintenance activities to a maximum of 1 hour per day and 50 hours per year. Other maintenance activities associated with the Project would require one or two Orinda WTP employees per day, which would be staffed by the existing crew. Approximately one truck trip per month on average is anticipated for operation and maintenance of Project facilities.

Emissions from these operation and maintenance activities would be minimal and well below the BAAQMD's operational significance thresholds.

The Project would primarily generate temporary construction emissions and associated emissions. The Project's construction and operation emissions would be less than the recommended BAAQMD significance thresholds with mitigation. In addition, the Project would be consistent with all applicable control strategies in the 2017 CAP and would support the goals of the Clean Air Plan (BAAQMD, 2017b). Therefore, the Project would be consistent with all three criteria listed above to evaluate consistency with the 2017 CAP and hence be considered consistent with the 2017 CAP, and the impact would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

> **Adopted WTTIP Mitigation Measures:** 3.9-1b and 3.9-1c (Refer to Table 3.3-3 for the full text of the adopted WTTIP mitigation measures).

Mitigation Measure 3.9-1a-ORWTPDI: BAAQMD Basic Construction Mitigation Measures with Water Application and Lead Agency Contact.

EBMUD ~~The District~~ will incorporate into the contract specifications the following requirements:

BAAQMD Basic Control Measures

- Maintain dust control within the site and provide adequate measures to prevent a dust problem for neighbors. Use water sprinkling, temporary enclosures, and other suitable methods to limit the rising of dust and dirt. Dust control will be adequate to ensure that no visible dust clouds extend beyond the project boundaries or extend more than 50 feet from the source of any onsite project construction activities.

- Load trucks in a manner that will prevent materials or debris from dropping on streets. Trim loads and remove all material from shelf areas of vehicles to prevent spillage. Take precautions when necessary to avoid cresting dust and littering by watering the load after trimming and by promptly sweeping the pavement to remove dirt and dust.

- Cover all trucks hauling soil, sand, and other loose materials.

- Pave, apply water, or apply nontoxic soil stabilizers or rock on all unpaved access roads, parking areas, and staging areas at construction sites.

- Sweep daily with water sweepers all paved access roads, parking areas, and staging areas at construction sites.

- Sweep streets daily with water sweepers if visible soil material is carried onto adjacent public streets.

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

- Post a publicly visible sign 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 BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Significance Determination after Mitigation

Less than significant.

Impact AIR-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard. (Criterion 2)

The WTTIP EIR found that all potential air quality impacts associated with WTTIP facilities would be less than significant or would be mitigated to a less-than-significant level, based on criteria developed by BAAQMD and guidelines established in the Clean Air Plan at the time. Therefore, with the implementation of adopted WTTIP Mitigation Measures 3.9-1b and 3.9-1c, as well as Mitigation Measure 3.9-1a-ORWTPDI, air quality impacts would be less than significant, and therefore impacts would not be cumulatively considerable. In addition, all planned and proposed projects in the region would be subject to BAAQMD regulations and the Clean Air Plan guidelines, assuming implementation of appropriate mitigation measures for all projects in the region, cumulative air quality impacts would be less than significant.

By definition, regional air pollution is largely a cumulative impact. Emissions from present and future projects contribute to the region's adverse air quality on a cumulative basis. No single project by itself would be sufficient in size to result in non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality conditions (BAAQMD, 2017c). The project-level thresholds for criteria air pollutants are based on levels at which new sources are not anticipated to contribute to an air quality violation and would be consistent with the assumptions in the regional air quality management plan. Stationary sources such as standby generators would be subject to permit requirements of BAAQMD and would be considered consistent with regional air quality planning assumptions as the emission source complies with all applicable BAAQMD rules and regulations, including emissions offset and emissions control requirements, and/or whether or not project emissions are accommodated in the 2017 CAP. The Project would not cause an increase in population-related emissions. Therefore, as the Project's emissions would not exceed the project-level thresholds as explained under Impact AIR-1, and because the Project would comply with all applicable BAAQMD permitting requirements and adopted WTTIP Mitigation Measures 3.9-1b and 3.9-1c, and Mitigation Measure 3.9-1a-ORWTPDI, the Project would not result in a considerable contribution to cumulative regional air quality impacts, and the impact would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.9-1b and 3.9-1c (Refer to Table 3.3-3 for the full text of the adopted WTTIP mitigation measures.)

Mitigation Measure 3.9-1a-ORWTPDI: BAAQMD Basic Construction Mitigation Measures with Water Application and Lead Agency Contact. (Refer to Impact AIR-1 above for the full text of Mitigation Measure 3.9-1a-ORWTPDI.)

Significance Determination after Mitigation

Less than significant.

Impact AIR-3: Expose sensitive receptors to substantial pollutant concentrations. (Criterion 3)

The WTTIP EIR determined that exposure of sensitive receptors to temporary increases in DPM along truck haul routes during Project construction would constitute a less-than-significant impact because the maximum truck trip estimates for the Orinda WTP project analyzed under the WTTIP EIR, even in combination with other WTTIP projects proposed to occur concurrently, would not generate DPM emissions that would exceed the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) for DPM measured as elemental carbon. The WTTIP EIR did not analyze cancer and non-cancer health risk impacts to sensitive receptors from exposure to DPM emissions from construction equipment or truck traffic because the BAAQMD Guidelines at the time did not require a quantitative analysis of construction air quality and health risk impacts.

Toxic Air Contaminants

Construction

Project construction activities over the approximately 4.5-year construction period would produce TACs (primarily as DPM) and $PM_{2.5}$ emissions from the exhaust of diesel-fueled construction equipment such as loaders, backhoes, cranes, etc., as well as heavy-duty truck trips. These TAC and $PM_{2.5}$ emissions could result in elevated concentrations of DPM and $PM_{2.5}$ at nearby receptors. Exposure of sensitive receptors in the vicinity of the Project site to these elevated concentrations could lead to an increase in the risk of cancer or other health impacts.

The Project site is surrounded by residential uses both to the south and north. BAAQMD considers a 1,000-foot radius around the source as the zone of influence with respect to health risk impacts. Therefore, BAAQMD recommends that receptors located within a 1,000-foot radius of a project's fence line be assessed for potentially significant impacts from the incremental increase in risks or hazards from a proposed new source. The nearest school, Wagner Ranch Elementary School, is located over 1,800 feet away from the Project site and hence not evaluated as a sensitive receptor in this analysis. The school is located approximately 220 feet east of Camino Pablo, the haul route for construction truck traffic for the Project. However, as DPM emissions from Project construction related truck traffic along this segment of the route adjacent to the school would

constitute less than 1 percent of the total construction DPM emissions, this analysis focuses on sensitive receptors located closer to construction activities. The North Orinda Sports Field is located approximately 1,000 feet northwest of the Orinda WTP, but the receptors using this facility would be intermittent as they would not spend extended periods of time at the location. Given the Project's construction duration and proximity to residential uses, there is the potential for the Project's construction-related DPM emissions to exceed the BAAQMD's risk and hazard significance thresholds of 10 excess cancer cases in 1 million, a hazard index of 1.0 for chronic and acute non-cancer risks, and an annual $PM_{2.5}$ concentration of 0.3 $\mu g/m^3$. Consequently, an HRA was conducted to determine the level of risk generated by construction-related TACs at nearby receptors.

Maximum DPM concentrations at existing nearby receptors were modeled with the U.S. EPA's AERMOD dispersion model using site-specific terrain data and meteorological data from the Oakland International Airport meteorological station, the nearest meteorological station. Cancer and non-cancer health risks to existing nearby receptors were evaluated based on OEHHA exposure parameters. The residential receptors at 20 Hacienda Circle, located approximately 230 feet northeast and closest to the proposed Maintenance and UV Electrical (MAUVE) Building, would experience the maximum health risks from construction activities associated with the Project and would be considered the Maximum Exposed Individual Receptor (MEIR) for the Project. Estimated health risks at the MEIR are presented in Table 3.3-5. Increased cancer risks at the MEIR were calculated separately for infant (3rd trimester through 2 years of age), child, and adult exposure at the receptor using the modeled maximum DPM concentrations and OEHHA-recommended exposure parameters based on age sensitivity.

TABLE 3.3-5
MAXIMUM HEALTH RISKS FROM PROJECT CONSTRUCTION

Health Risk at Maximally Exposed Receptors	Maximum Cancer Risk (in a million)	Chronic Risk (Hazard Index)	Maximum $PM_{2.5}$ Concentration
Uncontrolled Emissions			
Residential Receptor - Infant	10.9	0.007	0.01
Residential Receptor - Child	10.8	0.007	0.01
Residential Receptor - Adult	0.3	0.007	0.01
Project-level Threshold	10	1	0.3
Significant?	**Yes**	**No**	**No**
Mitigated Emissions – With Tier 4 Construction Equipment			
Residential Receptor - Infant	1.0	0.007	0.01
Residential Receptor - Child	1.0	0.007	0.01
Residential Receptor - Adult	<0.1	0.007	0.01
Project-level Threshold	10	1	0.3
Significant?	**No**	**No**	**No**

NOTE: Refer to Appendix E for health risk calculations and AERMOD model outputs.

SOURCE: Calculated by ESA using AERMOD Model, April 2020.

As shown in the Table 3.3-5, uncontrolled health risks (cancer risk, chronic hazard index, and $PM_{2.5}$ concentration) to receptors at the MEIR resulting from Project construction would exceed the BAAQMD's CEQA significance thresholds for infant and child receptors. Implementation of Mitigation Measure AIR-1 would reduce the impact to a less-than-significant level by requiring use of engines meeting the Tier 4[2] final standard in all construction equipment. Currently, Tier 4 engines represent best available control technology for control of DPM emissions, and can reduce emissions by up to 90 percent.

Due to the extended periods people spend at homes, residential receptors are assumed to be exposed to Project emissions 72 to 85 percent of the time (depending on the age group of the receptors). In contrast, receptors using the North Orinda Sports Field located approximately 1,000 feet northwest of the Orinda WTP would be exposed to emissions for much shorter durations, approximately 2 to 4 hours a day for instance, when they use the field. Due to larger distance separating construction emissions from the North Orinda Sports Field and the shorter duration of exposure, uncontrolled health risks to receptors using the Sports Field are expected be less than the BAAQMD's CEQA significance thresholds. Implementation of Mitigation Measure AIR-1 would further reduce this risk.

As the estimated health risk from exposure to Project construction emissions would exceed the BAAQMD's CEQA significance thresholds for infant and child receptors, Mitigation Measure AIR-1 would require EBMUD and/or its contractors to use equipment with Tier 4 engines to reduce emissions. Therefore, the Project's construction-related health risk from exposure to TACs and $PM_{2.5}$ concentrations would be less than significant with mitigation.

Operation

Once operational, the Project would not include any major sources of TACs. Routine testing and maintenance of the proposed emergency generator would generate minimal DPM emissions. However, the emergency generator would be subject to permit requirements of the BAAQMD as part of which a site-specific health risk analysis would need to be conducted. The BAAQMD would not permit any sources if their associated health risks exceed the BAAQMD's thresholds. Therefore, impacts from the testing and maintenance of the emergency generator would be less than significant.

Criteria Air Pollutants

Construction and Operation

The Project would generate criteria pollutant emissions, as discussed under Impact AIR-1; however, the impacts of Project emissions on sensitive receptors are difficult to quantify.

[2] Tier 4 refers to the latest emission milestone established by the U.S. EPA and CARB applicable to new engines in off-road equipment including construction, mining and agricultural equipment, marine vessels and workboats, locomotives and stationary engines found in industrial and power generation applications. As of January 1, 2014, these emissions standards apply to new engines that power equipment commonly found in most construction and agricultural applications, while new engines manufactured for much larger applications including marine, locomotives must have met the standard by January 1, 2015. These emissions standards apply to new and remanufactured engines and do not apply to older engines.

Given that ozone formation occurs through a complex photo-chemical reaction between its precursors NO_X and ROG in the atmosphere with the presence of sunlight, the impacts of ozone are typically considered on a basin-wide or regional basis instead of a localized basis. The health-based ambient air quality standards for ozone therefore are as concentrations of ozone and not as tonnages of their precursor pollutants (i.e., NO_X and ROG). It is not necessarily the tonnage of precursor pollutants emitted that causes human health effects, but the concentration of resulting ozone or particulate matter. Because of the complexity of ozone formation and the non-linear relationship of ozone concentration with its precursor gases, and given the state of environmental science modeling in use at this time, it is infeasible to convert specific levels of NO_X or ROG emitted in a particular area to a particular concentration of ozone in that area. Meteorology, the presence of sunlight, seasonal impacts, and other complex chemical factors all combine to determine the ultimate concentration and location of ozone (SCAQMD, 2014; SJVAPCD, 2014). Because the Project would not exceed the numeric indicator for ROG and NO_X emissions during either construction or operation, it is unlikely that Project ROG and NO_X emissions could result in an increase in ground-level ozone concentrations in proximity to the Project site or elsewhere in the air basin, and impacts can be considered less than significant.

As expressed in the *amicus curiae* brief submitted for the *Sierra Club v. County of Fresno* case ([2018] 6 Cal.5th 502, also known as the *Friant Ranch Case*), the CEQA criteria pollutants significance thresholds from the air district were set at emissions levels tied to the region's attainment status, and are emissions levels above which stationary pollution sources permitted by the air district must offset their emissions (SCAQMD, 2014; SJVAPCD, 2014). Under CEQA, a project must use feasible mitigations for the region to attain the health-based ambient air quality standards. Therefore, given that the Project would not exceed the mass emissions thresholds established by BAAQMD, it is unlikely that emissions from Project-related activities would cause or contribute to the exposure of sensitive receptors to ground-level concentrations of ozone in excess of health-protective levels.

The primary health concern with exposure to NO_X emissions is the secondary formation of ozone. As the *amicus curiae* briefs submitted for the *Sierra Club v. County of Fresno* case suggested, and as stated above, because of the complexity of ozone formation, and given the state of environmental science modeling in use at this time, it is infeasible to determine whether, or the extent to which, a single project's precursor (i.e., NO_X and ROG) emissions would potentially result in the formation of secondary ground-level ozone and the geographic and temporal distribution of such secondary formed emissions. Furthermore, available models today are designed to determine regional, population-wide health impacts, and cannot accurately quantify ozone-related health impacts caused by NO_X or ROG emissions from the local level (project level). Notwithstanding these scientific constraints, the disconnect between Project-level NO_X emissions and ozone-related health impact cannot be bridged at this time.

Significance Determination Before Mitigation

Potentially significant.

Mitigation Measures

Mitigation Measure AIR-1: Use of Tier 4 Construction Equipment.

EBMUD shall require construction contractors to use all off-road diesel-powered construction equipment compliant with Tier 4 off-road emissions standards. In the event that equipment with a Tier 4 engine is not available for any off-road engine, that engine shall be operated with tailpipe retrofit controls that provide an equivalent reduction of exhaust particulate emissions. Diesel retrofit technologies considered shall include, but not be limited to, the California Air Resources Board's (CARB) currently verified diesel emission control strategies. If emission levels equivalent to Tier 4 standards cannot be reached, the emissions shall be reduced to the maximum extent possible based on the selected retrofit technology.

Significance Determination After Mitigation

Less than significant.

3.3.4 References

BAAQMD (Bay Area Air Quality Management District), 2009. *Revised Draft Options and Justification Report,* California Environmental Quality Act Thresholds of Significance, October 2009.

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BAAQMD, 2017c. *California Environmental Quality Act Air Quality Guidelines*, May 2017. Available: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, accessed February 2020.

CARB (California Air Resources Board), 2020. iADAM Air Quality Data Statistics. Available: http://www.arb.ca.gov/adam/index.html, accessed January 2020.

City of Orinda, 1987. *City of Orinda General Plan 1987–2007* – Environmental Resources Element, adopted May 20, 1987. Available: https://cityoforinda.app.box.com/s/zb07kq9r9eiafrwu6i9w.

EBMUD (East Bay Municipal Utility District), 2006. *Water Treatment and Transmission Improvements Program Final Environmental Impact Report*, SCH # 2005092019. November 2006.

OEHHA (Office of Environmental Health Hazard Assessment), 2015. *Air Toxics Hot Spots Program – Risk Assessment Guidelines*, February 2015. Available: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.

SCAQMD (South Coast Air Quality Management District), 2014. Application of the South Coast Air Quality Management District for Leave to File Brief of *Amicus Curiae* in Support of Neither Party and Brief of *Amicus Curiae*. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno.

SJVAPCD (San Joaquin Valley Air Pollution Control District), 2014. Application for Leave to File Brief of *Amicus Curiae* Brief of San Joaquin Valley Unified Air Pollution Control District in Support of Defendant and Respondent, County of Fresno and Real Party in Interest and Respondent, Friant Ranch, L.P. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno.

3.4 Biological Resources

This section describes the physical environmental and regulatory setting for biological resources, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts on biological resources (including terrestrial resources, wetlands and other water features, and fisheries resources) that could result from construction and operation of the Project. Also provided in this section are database search results, including a list of special-status species considered in the Project area.

3.4.1 Environmental Setting

Existing biological resources and the applicable environmental setting on the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.6, Biological Resources (EBMUD, 2006). The Project area also includes the four potential staging areas described in Chapter 2, *Project Description*, of this document. The environmental setting in the WTTIP EIR was based on reconnaissance-level surveys, literature review, queries of wildlife agency species lists, and information collected by EBMUD biologists. To reflect new information on biological resources since the development of the WTTIP EIR, Environmental Science Associates (ESA) searched publically available and subscription-based biological resources data. The following sources were specifically queried during development of the Supplemental EIR analysis:

- WTTIP EIR (EBMUD, 2006)
- Topographic maps (Briones Valley quadrangle) (USGS, 2012)
- On-line soil maps from the Natural Resources Conservation Service (NRCS, 2019)
- California Wildlife Habitat Relationships database (CDFW, 2014)
- The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) list of plant and wildlife species documented on the Briones and eight surrounding quadrangles (CDFW, 2019)
- The California Native Plant Society (CNPS) on-line database of plant species documented on the Briones Valley and eight surrounding quadrangles (CNPS, 2019)
- A United States Fish and Wildlife Service (USFWS) list of species that may be present in the vicinity of the study area (USFWS, 2019)
- An arborist survey that evaluated tree resources on the Project site, particularly those along the eastern portion of the Orinda WTP site near San Pablo Creek (ESA, 2019)

The CNDDB and CNPS lists include special-status species documented on the following nine quadrangles: Briones Valley, Mare Island, Benicia, Vine Hill, Richmond, Walnut Creek, Oakland West, Oakland East, and Las Trampas Ridge.

The WTTIP EIR identified the vegetation communities present within the Orinda WTP site, as well as those present within the North Orinda Sports Field site. These vegetation communities included mixed riparian woodland, mixed oak woodland, non-native grassland, and developed and ornamental landscaping. Each of these vegetation communities and the associated wildlife habitat and common wildlife species are described in the WTTIP EIR, Section 3.6.2, Setting. The WTTIP EIR also addresses aquatic habitat within the Project site, including a reach of San Pablo Creek approximately 1 mile upstream of San Pablo Reservoir and two seasonal streams tributary to San Pablo Creek located between the Orinda WTP site and the North Orinda Sports Field site.

Based on recent site visits and aerial imagery, the setting for vegetation communities, wildlife movement and migration corridors, and wetlands is the same as described in the WTTIP EIR. Tree resources within the Project footprint were analyzed at a programmatic level in the WTTIP EIR because proposed improvements did not affect trees. As described in Chapter 2*, Project Description*, of this Supplemental EIR, trees would be removed under the Project, and an arborist survey was performed in 2019 to inventory tree resources within the Project site (ESA, 2019). The special-status plant and animal species lists were updated for the Supplemental EIR analysis to reflect changes in species distribution and protection status.

Special-Status Species

The WTTIP EIR defines those plant and wildlife species that are considered special-status. These include the following:

- Plant and wildlife species identified as rare, threatened, or endangered under the federal or state Endangered Species Acts
- Species that are candidates for listing under either federal or state law
- CDFW species of special concern or otherwise recognized by CDFW as “special animals”
- Species protected by the federal Migratory Bird Treaty Act (16 United States Code [USC] Sections 703–711)
- Bald and golden eagles protected by the federal Bald and Golden Eagle Protection Act (16 USC 668)
- Species such as candidate and CNPS Rank 1 and 2 species that may be considered rare or endangered pursuant to the criteria in Section 15380(b) of the *CEQA Guidelines*

Table 3.4-1 provides an updated list of special-status species with the potential to occur on the Project site, but only the species with moderate or greater potential to occur are discussed in detail below. No special-status species other than those described in the WTTIP EIR have the potential to occur on the Project site (refer to Appendix E of the WTTIP EIR, which lists the special-status plant species and special-status wildlife species reported to occur in the entire WTTIP project area). There are no additional CNDDB records of special-status species in the Project site that were not already considered in the WTTIP EIR.

TABLE 3.4-1
SPECIAL-STATUS SPECIES CONSIDERED IN THE PROJECT AREA

Common Name *Scientific Name*	Status (Federal/ State/Other)	Habitat Requirements	Potential to Occur
Plants			
Mount Diablo fairy-lantern *Calochortus pulchellus*	--/--/1B.2	Wooded, brushy slopes of chaparral, cismontane woodland, riparian woodland, valley and foothill grassland, 140–2,600 feet. Blooms April to June.	Moderate; suitable habitat present along San Pablo Creek.
western leatherwood *Dirca occidentalis*	--/--/1B.2	Found in mesic environments in broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, riparian forest, riparian woodland. Found at elevations from about 100 feet to 1,400 feet. Blooms primarily from January to March.	Moderate; suitable habitat present along San Pablo Creek.
Invertebrates			
western bumble bee *Bombus occidentalis*	--/CCT/--	Found in open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows. Nests underground in abandoned rodent burrows or other cavities, but may also nest above ground in structures including logs and railroad ties. Host plant food includes ceanothus (*Ceanothus* sp.), thistle (*Centaurea* sp.), rabbitbrush (*Chrysothamnus* sp.), geranium (*Geranium* sp.), gumplant (*Grindelia* sp.), lupine (*Lupinus* sp.), sweetclover (*Melilotus* sp.), monardella (*Monardella* sp.), blackberry (*Rubus* sp.), goldenrod (*Solidago* sp.), and clover (*Trifolium* sp.).	None; no suitable habitat present.
Amphibians/Reptiles			
California tiger salamander *Ambystoma californiense*	FT/CT/--	In winter, breeds in vernal pools and seasonal wetlands with a minimum 10-week inundation period; in summer, aestivates in grassland habitat, primarily in rodent burrows.	None; no suitable habitat present.
foothill yellow-legged frog *Rana boylii*	--/CCT/--	Inhabits partially shaded, rocky streams with perennial flow at low to moderate elevations, in areas of chaparral, open woodland, and forest. Elevation range extends from sea level to about 7,000 feet.	None; presumed extirpated from the area.
California red-legged frog *Rana draytonii*	FT/SSC/--	Requires a permanent water source and is typically found along quiet, slow-moving streams, ponds, or marsh communities with emergent vegetation.	Low; swift and variable water levels in San Pablo Creek adjacent to Project site discourage their presence; no nearby identified occurrences.
western pond turtle *Emys marmorata*	--/SSC/--	Agricultural wetlands and other wetlands such as irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, and associated uplands.	Low; swift and variable water levels in San Pablo Creek adjacent to Project site likely discourage their presence.

TABLE 3.4-1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED IN THE PROJECT AREA

Common Name *Scientific Name*	Status (Federal/ State/Other)	Habitat Requirements	Potential to Occur
Amphibians/Reptiles			
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT/CT/--	Chaparral foothills, shrublands with scattered grassy patches, rocky canyons and watercourses, and adjacent habitats.	Low; the Project site does not appear to support any primary habitat elements.
Fish			
central California coast steelhead *Oncorhynchus mykiss*	FT/--/--	Cool streams with suitable spawning habitat and conditions allowing migration between spawning and marine habitats	None; the dam of San Pablo Reservoir effectively blocks steelhead migration to the portion of San Pablo Creek within the Project site. Non-listed hatchery-released rainbow trout from San Pablo Reservoir may use San Pablo Creek adjacent to the Orinda WTP.
Birds			
tricolored blackbird *Agelaius tricolor*	--/CT/--	Nests in dense blackberry, cattail, tules, bulrushes, sedges, willow, or wild rose within freshwater marshes. Nests in large colonies of at least 50 pairs (up to thousands of individuals).	Low; species not known to occur in the vicinity of the Project site.
golden eagle *Aquila chrysaetos*	--/CFP/--	Open and semi-open areas up to 12,000 feet in elevation. Builds stick nests on cliffs, in trees, or on man-made structures.	Low; although suitable nesting habitat is present in the large trees within Project footprint, this species is highly sensitive to human disturbance, which occurs frequently at the Orinda WTP and the sports fields.
burrowing owl *Athene cunicularia*	--/SSC/--	Nests in burrows in the ground, often in old ground squirrel or badger burrows, within open dry grassland and desert habitats. The burrows are found in dry, level, open terrain, including prairie, plains, desert, and grassland with low height vegetation for foraging and available perches, such as fences, utility poles, posts, or raised rodent mounds.	Low; suitable habitat may be in grasslands areas north of the Orinda WTP, but area is heavily disturbed
northern harrier *Circus hudsonius*	--/SSC/--	Nests on the ground among herbaceous vegetation, such as grasses or cattails; forages in grasslands, agricultural fields, and marshes.	Low; suitable habitat may be present near San Pablo Creek, but this species prefers more open (treeless) areas with tall vegetative cover.
white-tailed kite *Elanus leucurus*	--/CFP/--	Nests in isolated trees or woodland areas with suitable open foraging habitat.	Moderate; suitable habitat is present, particularly within riparian trees along San Pablo Creek.
Mammals			
pallid bat *Antrozous pallidus*	--/SSC/ WBWG H	Most abundant in oak woodland, savannah, and riparian habitats. Roosts in crevices and hollows in trees, rocks, cliffs, bridges, and buildings.	Moderate; suitable roosting habitat is present in riparian trees.

TABLE 3.4-1 (CONTINUED)
SPECIAL-STATUS SPECIES CONSIDERED IN THE PROJECT AREA

Common Name *Scientific Name*	Status (Federal/ State/Other)	Habitat Requirements	Potential to Occur
Mammals (continued)			
Townsend's big-eared bat *Corynorhinus townsendii*	--/SSC/ WBWG H	Found in a wide variety of habitats except for subalpine and alpine habitats. Roosts in caves, mines, tunnels with minimal disturbance, abandoned open buildings, and other human-made structures.	Moderate; suitable roosting habitat is present in riparian trees and man-made structures.
long-eared myotis Myotis evotis	--/--/WBWG M	Inhabits woodlands and forests up to approximately 8,200 feet in elevation; roosts in crevices and snags.	Moderate; suitable roosting habitat is present in riparian trees.
fringed myotis bat *Myotis thysandodes*	--/--/WBWG H	Inhabits variety of woodland habits, roosts in crevices or caves, and forages over vegetation and along forest edges.	Moderate; suitable roosting habitat is present in riparian trees.
long-legged myotis bat *Myotis volans*	--/--/WBWG H	Inhabits variety of habitats ranging from coastal forests to Joshua tree woodlands. Day roosts in hollow trees and snags. Forages over open areas on moths, beetles, and other flying insects.	Moderate; suitable roosting habitat is present in riparian trees.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	--/SSC/--	Found in heavy chaparral and hardwood, conifer, and mixed forests, typically in densely wooded areas with heavy undergrowth; riparian woodlands.	Moderate; suitable habitat is present in riparian vegetation.
big free-tailed bat *Nyctinomops macrotis*	--/SSC/ WBWG MH	Rocky areas in rugged or hilly country in both lowland and highland areas, including evergreen forest, woodlands, desert scrub, river floodplain-arroyo associations, and stream courses in areas of mixed tropical deciduous forest and thorn forest.	Low; very rare in California and only known occurrence in Contra Costa County occurred in 1979 in Martinez. There is also a record of this species presumably in Berkeley from 1916, but the quality of the locational data for this observation is highly questionable.

Status Codes

Federal:
FE = federal endangered
FT = federal threatened
FC = candidate
PT = proposed threatened
FPD = proposed for delisting
FD = delisted

California:
CE = California state endangered
CT = California state threatened
CR = California state rare
SSC = California species of special concern
CCT = California state threatened candidate
CFP = California fully protected

Western Bat Working Group (WBWG):
M = Medium Priority species
MH = Medium/High Priority species
H = High Priority species

CRPR Rank Categories:
1A = plants presumed extirpated in California and either rare or extinct elsewhere
1B = plants Rare, Threatened, or Endangered in California and elsewhere.

CRPR Code Extensions:
.1 = seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
.2 = fairly endangered in California (20–80% occurrences threatened)
.3 = not very endangered in California (less than 20% of occurrences threatened or no current threats known)

SOURCE: CDFW, 2019; CNPS, 2019; USFWS, 2019.

Plants

Twenty-one (21) special-status plant species were considered in the WTTIP EIR. Of these, only two are considered to have the potential to occur in the Project area (Table 3.4-1), and these two plant species have at least a moderate potential to occur on the Project site: Mount Diablo fairy-lantern (*Calochortus pulchellus*) and western leatherwood (*Dirca occidentalis*) (see Table 3.4-1). Neither of these species is protected under the federal or state Endangered Species Acts, but both are considered to be rare within California and elsewhere and have been designated with a California Rare Plant Rank (CRPR) of 1B.2. These two species are briefly described below. There are no additional CNDDB occurrence records of special-status plant species on the Project site that were not already considered in the WTTIP EIR.

Mount Diablo Fairy-lantern

Mount Diablo fairy-lantern is endemic to the Diablo Range in Contra Costa County, ranging in elevation between 140 and 2,600 feet and has as CRPR ranking of 1B.2.[1] Mount Diablo fairy-lantern blooms from April through June, producing bright yellow, pendant flowers. Mount Diablo fairy-lantern grows on grassy slopes and in openings in chaparral and oak woodland communities, riparian woodlands, and valley and foothill grasslands. Threats to Mount Diablo fairy-lantern include grazing, road and trail maintenance, excessive erosion, feral pigs, and collection. The mixed riparian woodland habitat on the Project site represents potential habitat for Mount Diablo fairy-lantern.

Western Leatherwood

Western leatherwood is a deciduous shrub with a CRPR ranking of 1B.2. This species is associated with broadleaf upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and riparian forest and typically grows on moist and shaded slopes. Western leatherwood blooms from January through March, although the blooming period can occasionally extend through April. The known range of western leatherwood includes Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma Counties. The mixed riparian woodland habitat on the Project site represents potential habitat for western leatherwood.

Wildlife

Table 3.4-1 provides an updated list of special-status wildlife species with the potential to occur on the Project site, but only the following species with moderate or greater potential to occur are discussed in detail below: white tailed kite (*Elanus leucurus*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), long-eared myotis bat (*Myotis evotis*), long-legged myotis bat (*M. volans*), fringed myotis bat (*M. thysandodes*), and San Francisco dusky-footed woodrat (*Neotoma fuscipes annectans*). There are no additional CNDDB records of special-status wildlife species in the Project site that were not already considered in the WTTIP EIR.

[1] A CRPR ranking of 1B.2 indicates that the plant is "fairly" rare, threatened, or endangered in California and elsewhere, with 20 to 80 percent of its occurrences threatened.

White-tailed kite

The white-tailed kite is a state fully protected species. White-tailed kites inhabit open lowland grassland, riparian woodland, marshes, and scrub areas in Central Valley and coastal valleys and foothills. The white-tailed kite is a permanent resident in the Project area. White-tailed kites typically breed in open country with scattered trees. Large shrubs or trees are required for nesting. Nest sites are often located near water. White-tailed kite has the potential to roost in trees within riparian habitat along San Pablo Creek.

Pallid Bat

Pallid bat is a California species of special concern that favors roosting sites in crevices, rock outcrops, caves, hollow trees, abandoned mines, and human-made structures such as barns, attics, and sheds. Although pallid bats are gregarious, they tend to group in small colonies of 10 to 100 individuals. Pallid bats are a nocturnal hunter and captures prey in flight, but unlike most American bats, the species has been observed foraging for flightless insects, which it seizes after landing. Pallid bats have the potential to roost in trees within riparian habitat along San Pablo Creek.

Townsend's Big-eared Bat

Townsend's big-eared bat is a California species of special concern and is found in western desert scrub, pine forest regions, native grasslands, riparian communities, and active agricultural areas. Townsend's big-eared bats use caves, rock crevices, buildings, artificial structures, and tree hollows for roosting and are sensitive to disturbance at roosting sites. Townsend's big-eared bats forage along riparian edge habitats in a variety of wooded habitats and typically hibernate in caves and abandoned mines. Moderately suitable habitat conditions for Townsend's big-eared bats are present within the riparian trees along San Pablo Creek.

Long-eared Myotis Bat

Long-eared myotis bat is a former federal species of concern. Long-eared myotis bat has been found in nearly all brush, woodland, and forest habitats from sea level to 8,200 feet and roost in tree cavities, caves, rock crevices, and abandoned buildings. Long-eared myotis bats feed along habitat edges, in open habitats, and over water. Suitable habitat for long-eared myotis bats is found along the riparian corridor of San Pablo Creek.

Long-legged Myotis Bat

Long-legged myotis bat is a Western Bat Working Group (WBWG) High Priority species. Long-legged myotis bats are found in forest regions and establish roosts in trees, rock crevices, fissures in stream banks, and buildings. Caves and mines are not known to be used as day roosts. Suitable habitat for Long-legged myotis bats is found along the riparian corridor of San Pablo Creek.

Fringed Myotis Bat

Fringed myotis bat is a WBWG High Priority species. Fringed myotis bats inhabit a variety of plant communities including desert scrub, dry grasslands, drier forest, moist

coastal coniferous forest, and riparian habitat. Access to water sources appears to be important for fringed myotis bats. Day roosts, including maternity colonies, occur in trees, snags, rock crevices, caves, mines, and buildings. Suitable habitat for fringed myotis bats is found on the Project site and along the riparian corridor of San Pablo Creek.

San Francisco Dusky-footed Woodrat

San Francisco dusky-footed woodrat is a California species of special concern that is found in grassland, shrub, and wooded areas throughout the San Francisco Bay Area, often in proximity to riparian areas. San Francisco dusky-footed woodrats consume a variety of nuts, fruits, fungi, foliage, and some forbs and are known for their terrestrial stick houses. Nests are also placed in crotches and cavities of trees and in hollow logs. Suitable habitat for San Francisco dusky-footed woodrats is present in the riparian vegetation along San Pablo Creek.

Sensitive Natural Communities

Natural communities are evaluated by the CDFW and are assigned global (G) and state (S) ranks based on rarity and threats to these communities in California. Natural communities with ranks S1–S3 (S1: critically imperiled; S2: imperiled; S3: vulnerable) are considered "sensitive natural communities." Sensitive natural communities have a limited distribution and are often vulnerable to the environmental effects of projects. Sensitive natural communities should be evaluated in environmental documents based on whether they can be considered a high-quality occurrence of a given community. The criteria used in this evaluation are highly flexible and may include site quality, size, and surrounding landscape. The mixed riparian woodland habitat along San Pablo Creek would be considered a sensitive natural community of special concern under CEQA.

3.4.2 Regulatory Framework

The regulatory framework for biological resources in the vicinity of the Orinda WTP is described in Section 3.6.2 and Appendix D of the WTTIP EIR. This Supplemental EIR highlights changes in implementation of those laws and regulations that have occurred since the certification of the WTTIP EIR in December 2006. Elements of the regulatory framework for biological resources identified in the WTTIP EIR that are not described below have not notably changed since 2006.

Federal Regulation

The WTTIP EIR briefly describes how wetlands and other waters (e.g., rivers, streams, and natural ponds) are "waters of the United States (U.S.)" subject to protection under Section 404 of the Clean Water Act. Since 2006, the regulatory definitions of what features specifically are considered to be a "water of the U.S." have changed in response to court rulings.

In 2015, the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (U.S. EPA) issued the Clean Water Rule detailing the process for

determining federal Clean Water Act jurisdiction over waters of the U.S. The rule is currently in effect in California and 21 other states. The rule essentially clarifies under which circumstances waters adjacent to established jurisdictional features (traditional navigable waters, interstate waters, territorial waters, jurisdictional tributaries, or impoundments of these waters) are also considered jurisdictional features. These adjacent waters could include features such as wetlands, oxbows, ponds, and similar waters. The 2015 rule is meant to more specifically define the scope of federal protection of waters.

State Regulations

Wetlands and "Waters of the State"

The State Water Resources Control Board (SWRCB) adopted a new statewide wetland definition and procedures on April 2, 2019 for discharges of dredged and fill material, which apply to the Project.

"Waters of the state" includes all "waters of the U.S." In 2000, the SWRCB determined that all waters of the U.S. are also waters of the state by regulation, prior to any regulatory or judicial limitations on the federal definition of waters of the U.S. (California Code of Regulations title 23, Section 3831(w)). This regulation has remained in effect despite subsequent changes in the federal definition. Therefore, waters of the state includes features that have been determined by the U.S. EPA or the Corps to be "waters of the U.S." in an approved jurisdictional determination; "waters of the U.S." identified in an aquatic resource report verified by the Corps upon which a permitting decision was based; and features that are consistent with any current or historic final judicial interpretation of "waters of the U.S." or any current or historic federal regulation defining "waters of the U.S." under the federal Clean Water Act. Based on the new statewide wetland definition, the following wetlands are defined as waters of the state:

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the state, and
3. Artificial wetlands that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Specifically identified in a water quality control plan as a wetland or other water of the state;
    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
    d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and

e. Is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):

   i. Industrial or municipal wastewater treatment or disposal,

   ii. Settling of sediment,

   iii. Detention, retention, infiltration, or treatment of stormwater run-off and other pollutants or run-off subject to regulation under a municipal, construction, or industrial stormwater permitting program,

   iv. Treatment of surface waters,

   v. Agricultural crop irrigation or stock watering,

   vi. Fire suppression,

   vii. Industrial processing or cooling,

   viii. Active surface mining – even if the site is managed for interim wetlands functions and values,

   ix. Log storage,

   x. Treatment, storage, or distribution of recycled water,

   xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or

   xii. Fields flooded for rice growing.

All artificial wetlands that are less than 1 acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not waters of the state. If an aquatic feature meets the wetland definition, the burden is on the applicant to demonstrate that the wetland is not a water of the state." (SWRCB, 2019). This new rule essentially seeks to increase consistency with how the state defines jurisdictional waters with the Corps and U.S. EPA 2015 rule.

California Rare Plant Ranking System

The WTTIP EIR described how the CNPS maintained its own list of rare plant species under the following designations:

List 1A: Plants presumed extinct.

List 1B: Plants rare, threatened, or endangered in California and elsewhere.

List 2: Plants rare, threatened, or endangered in California, but more numerous elsewhere.

List 3: Plants about which more information is needed (a review list).

List 4: Plants of limited distribution (a watch list).

The list of plants identified by the CNPS had no legal status or protections under federal or state legislation. Since the release of the WTTIP EIR, CDFW worked in collaboration with the CNPS to maintain a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. These species are categorized by rarity in the CRPR and are published in the Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2019). The following identifies the current definitions of the CRPR, which is slightly different than the definitions the CNPS used at the time of the WTTIP EIR:

Rank 1A: Plants presumed extirpated in California and either rare or extinct elsewhere.

Rank 1B: Plants rare, threatened, or endangered in California and elsewhere.

Rank 2A: Plants presumed extirpated in California, but more common elsewhere.

Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.

Rank 3: Plants about which more information is needed (a review list).

Rank 4: Plants of limited distribution (a watch list).

In general, plants with CRPR Rank 1A, 1B, 2A, or 2B are considered to meet the criteria of *CEQA Guidelines* Section 15380. Additionally, plants with CRPR Rank 1A, 1B, 2A, or 2B meet the definition of Section 1901, Chapter 10 (Native Plant Protection Act) and Sections 2062 and 2067 (California Endangered Species Act) of the California Fish and Game Code.

Local Regulations

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies as guidance. As such, the *City of Orinda General Plan* policies related to the preservation and protection of biological resources noted on page 3.6-19 and in Appendix D of the WTTIP EIR remain relevant to the Project. The applicable elements of the *City of Orinda General Plan* (i.e., Land Use, Open Space, Conservation) have not been updated since the 2006 certification of the WTTIP EIR and as such remain relevant to the Project.

As described in the WTTIP EIR, the Orinda Municipal Code (Title 17, Chapters 17.21 and 17.24) provides measures that preserve or replace protected trees if construction activities may remove or destroy a protected tree. If an activity may remove or destroy a protected tree, a tree permit is required. The tree permit includes conditions of approval

including the following measures: (1) if a protected tree proposed for removal can be relocated, the applicant shall move the tree to a suitable location on a site shown on the approved plans; (2) the applicant shall guarantee the health and vigor of each protected tree required to be preserved during the construction process and for 2 years after construction is certified as complete; and (3) the applicant shall replace a protected tree that dies during the guarantee period in accordance with the City's tree replacement provisions, and shall comply with the City's established tree care requirements. Because EBMUD is not subject to building and land use zoning ordinances, a tree permit would not be obtained for the Project, but EBMUD would comply with tree care requirements during Project construction and operation.

3.4.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to biological resources and evaluates whether there would be a new significant environmental impact or a substantial increase in the severity of a significant impact identified in the WTTIP EIR, given (a) the proposed design and operating characteristics of the Project, and (b) changes in significance criteria.

Impacts on biological resources are identified and evaluated based on relevant *CEQA Guidelines* and local standards, policies, and guidelines; on the likelihood that special-status species, sensitive habitats, wetlands and waters, and wildlife corridors are present within the study area; and on the likely effects that Project construction and operation might have on these resources.

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines,* an impact would be considered significant if the Project would:

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.

2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS.

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.

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.

5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

Adopted WTTIP Mitigation Measures

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. Table 3.4-2 presents adopted mitigation measures from the WTTIP EIR that relate to biological resources at and in the vicinity of the Orinda WTP.

TABLE 3.4-2
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR BIOLOGICAL RESOURCES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.6-1a	~~For each project site (except for the Walnut Creek WTP and the Lafayette WTP under Alternative 2)~~, EBMUD will prepare a map indicating the trees to be removed and retained (preserved). Prior to the start of any clearing, stockpiling, excavation, grading, compaction, paving, change in ground elevation, or construction, retained trees that are adjacent to or within project construction areas will be identified and clearly delineated by protective fencing (e.g., short post and plank walls), which will be installed at the dripline of each tree to hold back fill. The delineation markers will remain in place for the duration of all construction work. Where proposed development or other site work must encroach upon the dripline of a preserved tree, special construction techniques will be required to allow the roots of remaining trees within the project site to breathe and obtain water (examples include, but are not limited to, using hand equipment for trenching and/or allowing only one pass through a tree's dripline). Tree wells or other techniques may be used where advisable by a certified arborist. Excavation adjacent to any trees will be performed in a manner that causes only minimal root damage. The following will not occur within the dripline of any retained tree: parking; storage of vehicles, equipment, machinery, stockpiles of excavated soils, or construction materials; or dumping of oils or chemicals.
3.6-1b	~~For each project site (except for the Walnut Creek WTP and the Lafayette WTP under Alternative 2)~~, all pruning of preserved trees will be performed by a certified arborist. No more than 25 percent of a tree's canopy will be removed. Tree replacement will adhere to the following guidelines: • If any protected tree native to the local area, such as valley oak and coast live oak, is removed, the District will replace it on a 3:1 basis with native trees of the same species as those removed. • All non-native protected trees which are removed will be replaced at a 1:1 ratio with a non-invasive tree species. • Non-native trees removed from a natural environment will be replaced with a native species that occurs in the area. • Replacement trees will be planted on site where feasible. Where this is not feasible, trees will be planted at ecologically appropriate sites on EBMUD watershed lands. • In natural areas, when the trees removed are locally native and when the replacement planting will occur on site, a species replacement ratio reflecting the tree species composition of the site will be used. • In lieu of tree replacement the District would consider the establishment of permanent conservation easements on EBMUD watershed lands that support high quality oak woodlands. Oak woodland acreage lost through individual tree removal will be quantified prior to initiation of project construction activities and concurrent with the mapping activities to occur under Measure 3.6-1a.

TABLE 3.4-2 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR BIOLOGICAL RESOURCES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.6-1c	~~For each project site (except for the Walnut Creek WTP and the Lafayette WTP under Alternative 2)~~, the contractor will be required to warrant tree health for one year after project completion and the District will guarantee the health of all trees to be preserved within and adjacent to the construction corridor of project-related pipeline and facility sites for two additional years, for a total of three years. The guarantee period for a tree will be five years if the District constructs or installs improvements or performs approved mechanical excavation within the dripline of any tree. The District will replace any tree that is to be retained but that dies as a result of project construction activities during the guarantee period with a tree of the same species. The replaced trees would be subject to the same monitoring protocols as those protected trees removed due to construction.
3.6-1d	~~For each project site (except for the Walnut Creek WTP and the Lafayette WTP under Alternative 2)~~, the District will develop and implement a five-year tree monitoring program. Performance standards may include, but are not limited to: a 75 percent survival rate of tree plantings and the ability to be self-sustaining at the end of five years.
3.6-2b	In coordination with a qualified biologist, the District will, to the extent feasible, establish a minimum 25-foot construction exclusion zone (from the edge of wetland, riparian habitat, or the creek banks, whichever is greater), using protective fencing, where features will be avoided by direct impacts.
3.6-2c	If impacts to potentially jurisdictional features and associated riparian vegetation cannot be avoided or minimized, then the District will obtain a qualified biologist to complete a wetland delineation in accordance with Corps guidelines and will obtain the appropriate permits/agreements, including a Section 401 water quality certification from the RWQCB, a Section 404 wetland permit from the Corps, and/or a Section 1602 Streambed Alteration Agreement from the CDFW. The District will implement all conditions contained in these permits. The District will recontour and revegetate temporarily disturbed portions of the creek at a ratio of 1:1 (or at a ratio agreed on by the wetland permitting agencies). The District will compensate for permanent wetland and stream impacts onsite at a ratio of 2:1 (or at a ratio agreed on by the wetland permitting agencies) with the same type of feature as the feature affected. If the District determines that onsite restoration is not feasible, the District will compensate for permanent impacts at a 3:1 ratio (or at a ratio agreed on by the permitting agencies). The District will develop and implement a five-year wetland mitigation and monitoring program. Appropriate performance standards may include, but are not limited to: a 75 percent survival rate or plant cover of restoration plantings; absence of non-native, invasive plant species; and a functioning, self-sustaining creek or wetland system at the end of five years. As warranted following construction, the District will recontour and revegetate temporarily disturbed portions of creeks. Creek banks will be recontoured to a more stable condition if necessary. Revegetation will include a palette of species native to the watershed area. Following removal, woody trees would be replanted at a 1:1 ratio at minimum, or as determined and agreed on by the appropriate wetland permitting agencies. Interim measures to protect the unvegetated creek from erosion may be required. Interim measures may include replanting banks using native or sterile non-native seeds or seedlings following construction within the creek, removing non-native vegetation from stream banks, and employing biotechnical bank stabilization methods, such as willow wattles and biodegradable erosion control mats, where appropriate.
~~3.6-2d~~	~~Where applicable, for overflow discharges into a creek or reservoir, the District will install energy diffusers, such as riprap, to minimize erosion and water quality effects. Such diffusers shall be placed, whenever possible, to avoid fill of jurisdictional waters and impacts to aquatic or riparian habitat. When such secondary impacts cannot be avoided, compensation for loss of habitat shall be provided as described under Measure 3.6-2c.~~
3.6-2e	Where construction activities occur adjacent to or within the dripline of riparian habitat, the District will implement special construction techniques to allow the roots of riparian trees to breathe and obtain water (examples include, but are not limited to, using hand equipment for tunnels and trenching, and allowing only one pass through a riparian tree's dripline). Excavation adjacent to or within the dripline of any riparian tree will occur in a manner that causes only minimal root damage.
3.6-2f	The District will implement the following measures: • ~~Ensure that work activities at creeks are completed during the low-flow period (between April 1 and October 15), unless otherwise approved by appropriate regulatory agencies (e.g., RWQCB, Corps, CDFG).~~ • Store equipment and materials away from waterways to the extent feasible as determined by the District. No debris will be deposited within 60 feet of creeks ~~for most WTTIP projects~~.

TABLE 3.4-2 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR BIOLOGICAL RESOURCES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.6-2f (cont.)	• Provide proper and timely maintenance for vehicles and equipment used during construction to reduce the potential for mechanical breakdowns leading to a spill of materials into or around creeks. Maintenance and fueling will be conducted away from the creek. • To control erosion, install silt fencing material at the edge of established buffer zones for riparian habitat, or at the edge of the creek where no riparian habitat is present (see WTTIP Mitigation Measure 3.6-2b-ORWTPDI). • Minimize the removal of riparian and wetland vegetation.
3.6-3c	~~At all WTTIP project sites,~~ the District will revegetate all natural areas temporarily disturbed due to project activities. Areas supporting sensitive plant communities will be restored using locally collected plant materials specific to that community. For all sites, revegetation criteria will include general restoration concepts and methods, including use of locally native plant material, protection and restoration of soil conditions, irrigation, and control of aggressive non-native species. The planting effort will commence in the fall following construction at the project site. Sites disturbed prior to the planting effort will be treated immediately with a (1) seed mixture and mulch using broadcast methods, or (2) hydroseed. The plant palette will include native plants found locally, such as coffeeberry, sticky monkeyflower, miniature lupine, California poppy, purple needlegrass, California brome, and blue wild rye. All revegetated sites will be monitored for five years. Success criteria to be met at the end of five years may include: at least 80 percent survival of plantings, 75 percent vegetative cover by desirable species, and a viable, self-sustaining plant community.
3.6-4a	~~At all WTTIP project sites,~~ EBMUD will avoid disturbing active nests of raptors and other special-status nesting birds by performing preconstruction surveys and creating no-disturbance buffers. If construction activities (i.e., ground clearing and grading, including removal of trees or shrubs) are scheduled to occur during the nonbreeding season (September 1 through January 31), no mitigation is required. If construction activities are scheduled to occur during the breeding season (February 1 through August 31), EBMUD will implement the following measures to avoid potential adverse effects on nesting raptors and other special-status birds: • EBMUD will retain a qualified wildlife biologist to conduct preconstruction surveys of all potential nesting habitat within 500 feet of construction activities where access is available. • If active nests are found during preconstruction surveys, EBMUD will create a no-disturbance buffer (acceptable in size to the CDFW) around active raptor nests and nests of other special-status birds during the breeding season, or until it is determined that all young have fledged. Typical buffers include 500 feet for raptors and 250 feet for other nesting birds. The size of these buffer zones and types of construction activities restricted in these areas may be further modified during construction with the CDFW and will be based on existing noise and human disturbance levels at each ~~WTTIP~~ project site. Nests initiated during construction are presumed to be unaffected, and no buffer would be necessary. However, the "take" of any individuals will be prohibited. • If preconstruction surveys indicate that nests are inactive or potential habitat is unoccupied during the construction period, no further mitigation is required. Trees and shrubs within the construction footprint that have been determined to be unoccupied by special-status birds or that are located outside the no-disturbance buffer for active nests may be removed.
3.6-5	EBMUD will avoid disturbance of the roosts of special-status bats by performing preconstruction surveys and creating no-disturbance buffers. Prior to construction activities (i.e., ground clearing and grading, including removal of trees or shrubs) within 200 feet of trees that potential support special-status bats, EBMUD will retain a qualified bat biologist to survey for special-status bats. If no evidence of bats (i.e., direct observation, guano, staining, strong odors) is present, no further mitigation is required. If evidence of bats is observed, EBMUD will carry out the following measures to avoid potential adverse effects special-status bats: • EBMUD will create a no-disturbance buffer (acceptable in size to the CDFW) around active bat roosts during the breeding season (April 15 through August 15). Bat roosts initiated during construction are presumed to be unaffected, and no buffer would be necessary. However, the take of individuals will be prohibited.

TABLE 3.4-2 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR BIOLOGICAL RESOURCES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.6-5 (cont.)	• Removal of trees showing evidence of bat activity will occur during the period least likely to affect bats, as determined by a qualified bat biologist (generally between February 15 and October 15 for winter hibernacula, and between August 15 and April 15 for maternity roosts). If exclusion is necessary to prevent indirect impacts to bats due to construction noise and human activity adjacent to trees showing evidence of bat activity, these activities will also be conducted during these periods.
3.6-6	EBMUD will avoid disturbance to San Francisco dusky-footed woodrat by performing preconstruction surveys and by avoiding or relocating nests ~~at the following project sites: Lafayette WTP (Alternative 1), Orinda WTP (Alternative 2), Orinda-Lafayette Aqueduct, Glen Pipeline Improvements, Happy Valley Pipeline, Highland Reservoir and Pipelines, Lafayette Reclaimed Water Pipeline, and Moraga Road Pipeline~~. Not more than two weeks prior to construction, a qualified wildlife biologist will conduct a preconstruction survey to identify woodrat nests within 10 feet of proposed ground disturbance. A qualified wildlife biologist will conduct additional surveys periodically throughout the duration of construction activities to identify newly constructed woodrat nests. If woodrat nests can be avoided by project activities, the qualified biologist would demarcate suitable buffer areas for avoidance. If woodrat nests are located within areas proposed for construction, nest relocation would be implemented. Active woodrat nests found within 10 feet of proposed disturbance areas that cannot be avoided will be relocated offsite to adjacent suitable woodland habitat under the supervision of a qualified wildlife biologist. Understory vegetation would first be cleared from around the nest. Next, the wildlife biologist would disturb the nest and allow all woodrats to leave the nest. Finally, the biologist would remove the nest sticks offsite to the base of an adjacent suitable oak, bay, or other tree. Sticks would be placed at a suitable distance determined by the qualified wildlife biologist.
3.6-7a	EBMUD will avoid disturbing central California coast steelhead, other aquatic species, and associated habitats. Implementation of adopted WTTIP Mitigation Measure~~s~~ 3.5-1a ~~and b, 3.5-3, and 3.5-6 (see~~ in Section 3.5, Hydrology and Water Quality (see Impact HYD-1), as well as best management practices (BMPs) for construction activities, would reduce potential impacts to steelhead and other aquatic species and habitat resulting from sedimentation, turbidity, and hazardous materials. Specific measures aimed at protecting steelhead and other aquatic species include: • Construction activities within and adjacent to aquatic and riparian habitats will be monitored by a qualified biologist. The biologist will survey the work area for sensitive resources prior to the start of construction each day and monitor identified biological resources during construction activities, such as initial clearing and grading, installation of silt fencing, pipeline trench excavation, and backfilling and compaction. • ~~Water from around the section of the worksite that is within the actively flowing channel of Lafayette Creek will be diverted past the construction site. This diversion will reduce the potential for sediment or other pollutants to enter the waterways and affect downstream resources. The diversion will be installed so as to capture water from the existing outlet structure and release the diverted water downstream of the construction site.~~ • Sediment curtains will be placed downstream of the construction or maintenance zone to prevent sediment disturbed during trenching activities from being transported and deposited outside of the construction zone. • If groundwater is encountered, or if water remains within the worksite after flows are diverted, it will be pumped out of the construction area and into a retention basin constructed of hay bales lined with filter fabric. The pump(s) will be screened to avoid entrapment of aquatic species. • Silt fencing will be installed in all areas where construction occurs within 100 feet of actively flowing water. • A spill prevention plan for potentially hazardous materials will be prepared and implemented. The plan will include the proper handling and storage of all potentially hazardous materials, as well as the proper procedures for cleaning up and reporting any spills. If necessary, containment berms will be constructed to prevent spilled materials from reaching the creek channels. • Equipment and materials will be stored at least 50 feet from waterways. No debris (such as trash and spoils) will be deposited within 100 feet of wetlands. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents will be located outside of the stream channel and banks and be limited to the smallest size feasible as determined by EBMUD. Stationary equipment such as motors, pumps, generators, compressors, and welders located within or adjacent to the stream will be

TABLE 3.4-2 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR BIOLOGICAL RESOURCES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.6-7a (cont.)	positioned over drip pans. Any equipment or vehicles driven and/or operated within or adjacent to the stream will be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life. Vehicles will be moved away from the stream prior to refueling and lubrication. • Proper and timely maintenance of vehicles and equipment will be performed to reduce the potential for mechanical breakdowns that could lead to a spill of materials into or around creeks. Maintenance and fueling will be conducted at least 75 feet from riparian or aquatic habitats. • ~~WTTIP~~ project sites will be revegetated with an appropriate assemblage of native upland vegetation and, if necessary, riparian and wetland vegetation suitable for the area. A plan describing pre-project conditions, invasive species control measures, and restoration and monitoring success criteria will be prepared prior to construction.

NOTE: Strikethrough text indicates text in the adopted WTTIP mitigation measures that does not relate to the Project. Text that is underlined is included to address typographical errors in the original mitigation language or to add clarifying language to the adopted WTTIP Mitigation Measures.

References to the California Department of Fish and Game (CDFG) above have been updated to the California Department of Fish and Wildlife (CDFW) to reflect the official change in that agency's name on January 1, 2013.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact BIO-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 the CDFW or USFWS. (Criterion 1)

At the Orinda WTP and San Pablo Reservoir Overflow Parking Lots staging areas, staging activities are outside sensitive natural communities and have little to no potential for substantial adverse effects on any special-status species, being located in previously disturbed areas and/or paved parking areas. Therefore, the Orinda WTP and San Pablo Reservoir Overflow Parking Lots staging areas are not discussed further under Impact BIO-1. Activities at the Manzanita East staging area would be limited to the upland areas of the property outside, but adjacent to, the San Pablo Creek riparian corridor. Any potential indirect impacts on special-status species from activities at the Manzanita East staging area are discussed below.

Special-Status Plants and Sensitive Natural Communities

Construction

The WTTIP EIR determined that there was no potential for impacts on special-status plants associated with the Project as presented in the WTTIP EIR because the infrastructure improvements were preliminarily sited within disturbed (e.g., sports fields) and developed habitats. However, with the Project now locating the MAUVE/UV/CCB Structure within the existing Orinda WTP site, the construction footprint would be shifted to within and around mixed riparian woodland habitat that may support special-status plants. Western leatherwood and Mount Diablo fairy-lantern are potentially present in the

undeveloped riparian habitat along the banks of San Pablo Creek. In addition, mixed riparian woodland is present within the MAUVE/UV/CCB Structure footprint, which warrants special consideration under CEQA because it is considered a sensitive natural community. These special-status plant species and riparian habitat could be adversely impacted by construction activities where excavation, staging, and access would occur within riparian habitat.

Implementation of adopted WTTIP Mitigation Measure 3.6-3c would reduce impacts by revegetating all natural areas temporarily disturbed, using native plants found locally. These areas include the footprint around the MAUVE/UV/CCB Structure where vegetation removal and ground excavations would occur, and within the Manzanita East staging area where construction office trailers would be temporarily placed. Refer to Table 3.4-2 for the full text of adopted WTTIP Mitigation Measure 3.6-3c.

While adopted WTTIP Mitigation Measure 3.6-3c was adopted for the Project, no WTTIP mitigation measures were adopted for the Orinda WTP that specifically included surveying for the presence of special-status plants and sensitive natural communities, and if found to be present, identifying procedures to ensure their protection. As such, there is a potential for the construction of the Project to result in a significant impact on special-status plants and sensitive natural communities. Mitigation Measure BIO-1 requires that a presence/absence survey for special-status plant species be conducted by a qualified botanist during the spring prior to construction. The survey would occur within areas that are within the zone of construction and/or staging areas plus a 25-foot buffer, and within 100 feet of San Pablo Creek. Under Mitigation Measure BIO-1, the survey would be conducted using CDFW or USFWS survey guidelines, and sensitive plant communities that are located within the Project site footprint would be mapped and quantified prior to construction. Mitigation Measure BIO-2 requires avoidance of and establishment of a construction buffer zone around mapped special-status plant species and sensitive plant communities, and restoration of special-status plant habitat and/or sensitive plant communities where avoidance is not feasible. Because Mitigation Measures BIO-1 and BIO-2 require preconstruction surveys for the presence of special-status plants and sensitive natural communities, and if found to be present, identifying procedures to ensure their protection or restoration, potential impacts on special-status plants and sensitive natural communities, including indirect impacts from activities at Manzanita East staging area, from construction would be reduced to a less-than-significant level.

Operation

Because operation of the Project would not include any ground disturbance or vegetation management with the riparian habitat, there would be no operational impacts on special-status plants and sensitive natural communities.

Nesting Raptors and Other Special-Status Nesting Birds

Construction

Conforming to similar findings in the WTTIP EIR, under Project conditions, oaks, eucalyptus, pines, and ornamental trees and shrubs surrounding facilities at the Orinda

WTP may provide nesting and foraging habitat for special-status birds, and the well-developed riparian corridor of San Pablo Creek adjacent to the east and north sides of the Orinda WTP provides large trees and a dense understory for nesting raptors and other birds. As described in Chapter 2*, Project Description*, trees that are located within the Project construction footprint are expected to be removed as part of the Project. Special-status birds could be adversely affected through direct nest tree removal, or by nearby Project-related noise and vibration that results in reduced nesting success, such as by nest abandonment at the MAUVE/UV/CCB Structure or Manzanita East staging area. There would be a low potential to impact special-status nesting birds within the Manzanita East staging area from the temporary placement of construction office trailers and worker parking, because activities at the Manzanita East staging area would be limited to the upland area of the property outside, but adjacent to, the riparian corridor, and there would also be neither ground grading or excavation that would result in Project-related noise and vibration impacts that would minimize nesting success. If needed, dead or dying trees would be removed or limbed in the upland area of the property outside the riparian corridor at the Manzanita East staging area.

Adopted WTTIP Mitigation Measure 3.6-4a would ensure that if construction activities (i.e., ground clearing and grading, including removal or limbing of trees or shrubs) are scheduled during the bird breeding season from February 1 through August 31, a qualified wildlife biologist would conduct a preconstruction survey of all potential nesting habitat within approximately 500 feet of construction activities where access is available, and establish a no-disturbance buffer around active bird nests that would remain in place until the end of the breeding season or after it is determined that all the young have fledged. Refer to Table 3.4-2 for the full text of adopted WTTIP Mitigation Measure 3.6-4a. Because adopted WTTIP Mitigation Measure 3.6-4a would establish no-disturbance buffers around active bird nests and is included as part of the Project, the impact related to nesting raptors and other special-status nesting birds from construction would be less than significant.

Operation

Operation of the Project would not include any ground disturbance or removal/major trimming of trees. Additionally, noise associated with operations of the Project, including the rooftop-based HVAC system on the MAUVE Building, would occur throughout the year (i.e., be part of the baseline noise level before the start of the nesting season) and would be attenuated through a parapet wall around the HVAC system. Therefore, impacts associated with operation of the Project would be less than significant because there would be no potential for direct removal of nests, and nesting birds in the area would acclimate to the ongoing, low level of noise associated with normal building operations.

Special-Status Bat Species

Construction

The WTTIP EIR found no woodland and/or riparian habitat with large trees suitable for special-status bats located within or adjacent to proposed areas of disturbance at the Orinda WTP. With the Project now locating the MAUVE/UV/CCB Structure within the existing

Orinda WTP site, the construction footprint would be shifted to within and around mixed riparian woodland habitat. The well-developed riparian corridor of San Pablo Creek adjacent to the north and east side of the Orinda WTP and nearby large ornamental trees next to the existing Orinda WTP facilities provide suitable habitat for roosting special-status bats. Man-made structures can also provide suitable roosting habitat for special-status bats if they are shielded from regular human disturbance. Special-status bat species with the potential to roost on and surrounding the Orinda WTP and Manzanita East staging area include pallid bat, Townsend's big-eared bat, long-eared myotis bat, long-legged myotis bat, and fringed myotis bat. Construction would occur within the riparian corridor of San Pablo Creek, which provides habitat for bats. Removal of trees within this corridor could affect bats if they are using those trees as roosting habitat. Activities at the Manzanita East staging area would be limited to the upland areas of the property outside, but adjacent to, the riparian corridor. There would be minimal potential to impact special-status bats within the Manzanita East staging area from the temporary placement of construction office trailers and worker vehicle parking, because minimal vegetation management would occur (e.g., if needed, dead or dying trees would be removed or limbed outside the riparian corridor) and the noise generated with the placement and subsequent removal of the construction office trailers and parking would be relatively minor and short in duration to minimize disturbance to roosting bats.

Adopted WTTIP Mitigation Measure 3.6-5 would require a survey prior to construction activities (i.e., ground clearing and grading, including removal and limbing of trees and shrubs) within 200 feet of trees that potentially support special-status bats, establish a no-disturbance buffer around active bat roosts during the breeding season from April 15 through August 15, ensure that if construction requires the removal of trees showing evidence of bat activity then the tree removal would occur during the period least likely to affect bats as determined by a qualified bat biologist, and implement bat exclusion as necessary to prevent indirect impacts on bats from construction noise and human activity. Refer to Table 3.4-2 for the full text of adopted WTTIP Mitigation Measure 3.6-5. Because adopted WTTIP Mitigation Measure 3.6-5 is included as part of the Project, the impact related to special-status bat species from construction would be less than significant.

Operation

Operation of the Project would not include the removal or major trimming of trees. Additionally, noise associated with operations of the Project, such as external mechanical equipment, would occur throughout the year and would be attenuated through design features such as sound barriers and silencers. Therefore, impacts associated with operation of the Project would be less than significant because there would be no potential for direct removal of roost trees, and roosting bats would acclimate to the ongoing, low level of noise associated with Project operations.

San Francisco Dusky-Footed Woodrat

Construction

The WTTIP EIR found that the well-developed riparian corridor of San Pablo Creek adjacent to the Orinda WTP provided potential habitat for the San Francisco dusky-

footed woodrat, and suitable oak woodland habitats for the woodrat occurred within the Project site. The San Francisco dusky-footed woodrat is locally abundant, and numerous San Francisco dusky-footed woodrat nests were observed in the past in the vicinity of the Project footprint (EBMUD, 2006). Vegetation removal, grading, and soil excavation within their habitat could cause destruction of nests and mortality of individuals. Activities at the Manzanita East staging area would be limited to the upland area of the property outside, but adjacent to, the riparian corridor. There would be only a low potential for impact on San Francisco dusky-footed woodrat nests within the Manzanita East staging area from the temporary placement of construction office trailers and worker parking because there would be no ground disturbance and minimal vegetation management (e.g., if needed, dead or dying trees would be removed or limbed outside the riparian corridor) which would minimize the destruction of nests and mortality of dusky-footed woodrats.

Adopted WTTIP Mitigation Measure 3.6-6 would require a preconstruction survey to identify any woodrat nests within 10 feet of proposed ground disturbance, and additional surveys periodically throughout the duration of construction work to identify any newly constructed nests; establish suitable avoidance buffers around identified woodrat nets; and relocate any woodrat nests that cannot be avoided to the base of an adjacent suitable oak, bay, or other tree under the supervision of a qualified biologist. Refer to Table 3.4-2 for the full text of adopted WTTIP Mitigation Measure 3.6-6. Because adopted WTTIP Mitigation Measure 3.6-6 is included as part of the Project, the impact related to San Francisco dusky-footed woodrat from construction would be less than significant.

Operation

There would be no impact on San Francisco dusky-footed woodrat from operation of Project because there would be no ground disturbance of suitable habitat for this species.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.6-3c, 3.6-4a, 3.6-5, and 3.6-6 (Refer to Table 3.4-2 for the full text of adopted mitigation measures).

Mitigation Measure BIO-1: Preconstruction surveys of special-status plant species.

EBMUD shall require that a presence/absence survey for special-status plant species be conducted by a qualified botanist during the spring prior to construction within areas that are both within the zone of construction and/or staging areas plus a 25-foot buffer, and within 100 feet of San Pablo Creek. Surveys shall be conducted using CDFW or USFWS survey guidelines. All surveys shall be conducted during the period when the species are identifiable and shall be repeated seasonally, as needed, to provide a complete species list. Any

observed sensitive plant species shall be mapped and flagged for avoidance where feasible. The results of the surveys shall be filed as part of the Project administrative record; if the presence of any of these species is confirmed, a copy of the survey results shall be forwarded to the CDFW and/or USFWS. In the event that special-status species are proven absent, then no additional mitigation is necessary.

In addition, the sensitive plant communities that are located within the Project site footprint shall be mapped and quantified prior to construction to aid in later avoidance, revegetation, and replacement efforts.

Mitigation Measure BIO-2: Buffer zone and restoration mitigation plan for impacted special-status plant species.

In the event that special-status plant species or sensitive plant communities are present or assumed present within or immediately adjacent to the limits of construction, EBMUD shall avoid these species or sensitive plant communities and establish a visible buffer zone (25 feet at minimum, if feasible) prior to construction, in coordination with a qualified biologist, or shall redesign or relocate the proposed structure and/or staging area. If EBMUD determines that it is not feasible to avoid disturbance or mortality, then special-status plant habitat and/or sensitive plant communities shall be mitigated. Mitigation approach may include, but not be limited to: restoring the impacted area, permanently preserving any unaffected on-site populations, or providing off-site compensation. Off-site compensation may include permanent protection of known populations through use of a conservation easement or purchase of mitigation bank credits. If feasible, special-status plants shall be salvaged and transplanted to nearby similar habitat. The appropriate agencies shall be consulted by EBMUD to determine the appropriate species-specific mitigation measures, including mitigation ratios. A 5-year restoration mitigation and monitoring program shall be developed and implemented. Appropriate performance standards may include, but not be limited to: a 75 percent survival rate of restoration plantings or plant cover; absence of invasive plant species; and a functioning, self-sustainable plant community at the end of 5 years.

Significance Determination After Mitigation

Less than significant.

Impact BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS, or 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. (Criteria 2 and 3)

Construction

The WTTIP EIR found that no aquatic habitat occurred within the vicinity of the original WTTIP Orinda WTP project construction disturbance areas. With the Project now locating the MAUVE/UV/CCB Structure within the existing Orinda WTP site, the construction footprint would be shifted to within and around mixed riparian woodland habitat adjacent to San Pablo Creek. Construction activities associated with the MAUVE/UV/CCB Structure would occur at or near (within approximately 100 feet of) waterways (e.g., creeks) and riparian habitat (including mixed riparian woodland habitat), and would involve the removal of trees that are part of the riparian canopy of San Pablo Creek (refer to Figure 3 in Appendix D, Tree Inventory/Assessment Report). If needed, dead or dying trees would be removed or limbed at the Manzanita East staging area.[2] Activities at the Manzanita East staging area would be limited to the upland area of the property outside, but adjacent to, the riparian corridor. If grading and excavation occur during the rainy season, some waterways could be temporarily indirectly affected by soil run-off. These activities could increase sediment and construction fluids in creeks, causing turbidity and reduced water quality. Such conditions could cause clogged air passages and suffocation for aquatic species, as well as smothering of fish or amphibian eggs. Such impacts on water quality would constitute a significant impact. Mitigation Measure BIO-3, Staging Area Silt Fence Installation, requires the installation of silt fence along the perimeter of staging areas adjacent to riparian corridors and waterways (i.e., Manzanita East staging area) to prevent sediment from entering riparian or aquatic areas. Mitigation Measure BIO-3 also requires a biologist to review and approve silt fence plans and to monitor silt fence installation to minimize riparian impacts during installation. Adopted WTTIP Mitigation Measures 3.6-2f and 3.6-7a require silt fencing to be installed to control erosion from construction activities at the edge of established buffer zones for riparian habitat, or at the edge of the creek where no riparian habitat is present, and/or where construction occurs within 100 feet of actively flowing water. All construction activities such as initial clearing and grading, installation of silt fencing, pipeline trench excavation, and backfilling and compaction within and adjacent to aquatic and riparian habitats to be monitored by a qualified biologist.

The potential removal or disturbance of riparian habitat could be subject to Sections 1600–1616 of the California Fish and Game Code. The loss of riparian habitat would be a significant impact.

[2] The Orinda WTP staging area, North Orinda Sports Field staging area, and San Pablo Reservoir Overflow Parking Lots staging area are not within a riparian corridor, and no trees would be removed from these staging areas.

While adopted WTTIP Mitigation Measures 3.6-2b and 3.6-2c were adopted in the WTTIP EIR for the Orinda WTP project, specific revisions to these adopted WTTIP mitigation measures are necessary for application of the mitigation measure to the Project. While the adopted WTTIP Mitigation Measure 3.6-2b establishes a 25-foot construction exclusion zone from riparian habitat, the location of the MAUVE/UV/CCB Structure would require a smaller buffer to provide the necessary clearance to existing water treatment plant facilities. Revised Mitigation Measure 3.6-2b – ORWTPDI requires a 10-foot construction exclusion zone from the creek top-of-bank and orange construction fencing around existing riparian vegetation that is not to be disturbed. If impacts to riparian vegetation cannot be avoided or minimized, Mitigation Measure 3.6-2c – ORWTPDI requires EBMUD to obtain and comply with all conditions of appropriate permits, potentially including a CDFW Streambed Alteration Agreement.

The MAUVE/UV/CCB Structure would be constructed approximately 10 to 30 feet from the top of bank of San Pablo Creek and approximately 20 to 30 feet from the toe of the nearest bank of San Pablo Creek. As discussed in Chapter 2, *Project Description*, the Project would include subsurface secant pile shoring that would create a three-foot thick permanent concrete wall that would support the MAUVE/UV/CCB Structure. With the placement of the MAUVE/UV/CCB Structure at this location relative to San Pablo Creek, the subsurface shoring would occur near the west bank of San Pablo Creek. The tiebacks supporting the shoring would extend below ground out from the MAUVE/UV/CCB Structure by approximately 55 feet at its base on all sides. There would be at least 15 feet of existing soil and rock above the tieback shoring supports. Thus, while the shoring installation work would occur from outside the creek proper, the tiebacks would extend outward from the north and east sides of the MAUVE/UV/CCB Structure beneath the west bank of San Pablo Creek and ending at least 15 feet beneath the creek bed.

Installation of the below-ground tiebacks between the secant piles has the potential to adversely affect water quality through “frac-outs,” which are conditions where the grout used to fill the tieback borehole is released through fractured bedrock into the surrounding environment. The tiebacks would be grouted by gravity (i.e., grout simply poured inside the tieback borehole) and not grouted using pressure injection which could over-pressurize the grout and lead to a “frac-out.” By using this gravity method, the risk of grout leakage into the surrounding groundwater and/or San Pablo Creek would be low (McMillen Jacobs, 2020). Fracturing of the ground is not expected due to the low pressure used to apply the grout, and the characteristics of the bedrock beneath San Pablo Creek indicate the grout is unlikely to result in permeation into the rock and leak at ground surface. However, since ground conditions can vary from those indicated by field investigations, unanticipated conditions could be encountered which may pose a significant impact if a frac-out occurs. Mitigation Measure HYD-2 would require tieback installation be monitored and modifications to the tieback installation process or remedial measures be implemented if a frac-out is observed.

For a discussion of the Project’s potential effects to the hydrologic function of San Pablo Creek and further discussion of Mitigation Measure HYD-2, refer to Impact HYD-1 in Section 3.10, Hydrology and Water Quality.

Additionally, the excavation or drilling of the tieback boreholes could encounter and damage roots of surrounding trees, which could compromise their health and possibly lead to eventual mortality. However, the tiebacks are located and anchored within bedrock at depths below typical tree root extents, which minimizes the potential for tieback boreholes to encounter and damage roots of surrounding trees. Occurring beneath the riparian corridor of the west bank of San Pablo Creek, this activity would potentially be within jurisdiction of CDFW. As there would be no cut and fill activities or adverse effects to surface water quality within San Pablo Creek associated with the Project, it is unlikely the Project would be within jurisdiction of the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) or Corps. To ensure that the construction of the MAUVE/UV/CCB Structure, including installation of tiebacks, would not significantly impact riparian vegetation, implementation of Mitigation Measure 3.6-2c – ORWTPDI requires monitoring of riparian vegetation during and after construction.

To ensure that Project construction does not contribute to or increase the potential for creek bank instability which would affect riparian habitat, Mitigation Measure HYD-3, San Pablo Creek Bank Monitoring and Remediation Program, will require development of a creek bank monitoring and remediation program to be implemented during and after construction. Mitigation Measure HYD-3 will include, but not be limited to: baseline creek cross-section surveys, visual creek bank stability evaluations at pre-determined construction milestones and for five years annually after Project completion, development of specific bank stability thresholds and appropriate bank stabilization remedial actions, and coordination with regulatory waterway agencies in the event of bank failure in San Pablo Creek.

For a discussion of the Project's potential effects to the hydrologic function of San Pablo Creek and further discussion of Mitigation Measure HYD-3, refer to Impact HYD-3d in Section 3.10, Hydrology and Water Quality.

Adopted WTTIP Mitigation Measures.6-2e, 3.6-2f, and 3.6-7a would implement special construction techniques to allow the roots of riparian trees to breathe and obtain water, and excavate adjacent to or within the dripline of any riparian tree in a manner that causes only minimal root damage (adopted WTTIP Mitigation Measure 3.6-2e); require that equipment and materials be stored away from waterways to the extent feasible, provide proper and timely maintenance for vehicles and equipment used during construction, install silt fencing material at the edge of established buffer zones for riparian habitat, or at the edge of the creek where no riparian habitat is present, and minimize the removal of riparian and wetland vegetation (adopted WTTIP Mitigation Measure 3.6-2f); and implement practices to protect water quality for the benefit of fish and amphibians located downstream through the use of sediment curtains and silt fencing, preparation and implementation of a spill prevention plan, and ensure that equipment and hazardous materials are stored at least 50 feet away from waterways (adopted WTTIP Mitigation Measure 3.6-7a). Refer to Table 3.4-2 for the full text of adopted WTTIP Mitigation Measures 3.6-2e, 3.6-2f, and 3.6-7a. Because adopted WTTIP Mitigation Measures 3.6-2e, 3.6-2f, and 3.6-7a are incorporated into the Project and would be implemented in tandem with Mitigation Measure 3.6-2b – ORWTPDI, Mitigation Measure 3.6-2c –

ORWTPDI, Mitigation Measure BIO-3, and Mitigation Measures HYD-2 and HYD-3, the impact from construction on riparian habitat would be less than significant.

Operation

Operation of the Project would not include any ground disturbance or impacts on riparian trees; therefore, there would be no impact on riparian habitat and state or federally protected wetlands.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.6-2e, 3.6-2f, and 3.6-7a (Refer to Table 3.4-2 for the full text of adopted mitigation measures).

Mitigation Measure 3.6-2b - ORWTPDI: Construction Exclusion Zone

In coordination with a qualified biologist, ~~the District will~~ EBMUD shall, to the extent feasible, establish a minimum ~~25~~10-foot construction exclusion zone where direct impacts will be avoided, ~~(~~from the edge of ~~wetland, riparian habitat, or~~ the creek top-of-banks~~, whichever is greater),~~ using protective fencing~~, where features will be avoided by direct impacts~~. Existing riparian vegetation that is not to be disturbed shall be delineated with orange construction fencing.

Mitigation Measure 3.6-2c - ORWTPDI: Jurisdictional Features and Riparian Vegetation

If impacts to potentially jurisdictional features and associated riparian vegetation cannot be avoided or minimized, then ~~the District will~~ EBMUD shall obtain a qualified biologist to complete a wetland delineation in accordance with Corps guidelines and ~~will~~ shall obtain the appropriate permits/agreements, including a Section 401 water quality certification from the RWQCB, a Section 404 wetland permit from the Corps, and/or a Section 1602 Streambed Alteration Agreement from the CDFW. ~~The District will~~ EBMUD shall implement all conditions contained in these permits. ~~The District will recontour and~~ EBMUD shall revegetate temporarily disturbed portions of the creek and herbaceous vegetation at a ratio of 1:1 (or at a ratio agreed on by the wetland permitting agencies). ~~The District will~~ EBMUD shall compensate for permanent wetland and stream impacts onsite at a ratio of 2:1 (or at a ratio agreed on by the wetland permitting agencies) with the same type of feature as the feature affected. If ~~the District~~ EBMUD determines that onsite restoration is not feasible, ~~the District will~~ EBMUD shall compensate for permanent impacts at a 3:1 ratio (or at a ratio agreed on by the permitting agencies).

EBMUD shall develop and implement a five-year riparian vegetation mitigation and monitoring program by a certified arborist to reduce potential impacts to the riparian corridor attributable to the Project and include:

- Riparian tree assessment/inventory to be conducted for native, riparian trees for the extent of the tiebacks on the west bank of San Pablo Creek (approximately from the upper spillway downstream to the Lafayette 1 Drain outfall):
    - Immediately after installation of the tiebacks is completed
    - Immediately after construction of the MAUVE/UV/CCB Structure is completed
    - Annually (in the late spring) for five years after construction

Appropriate performance standards may include, but are not limited to: existing riparian tree health changes since the Project, ~~a 75 percent survival rate or plant cover of restoration plantings;~~ absence of non-native, invasive plant species; and a functioning, self-sustaining riparian system at the end of five years. After each inspection, a technical memorandum shall be prepared by the certified arborist and submitted to EBMUD reporting the findings of each inspection, including but not limited to findings regarding changes in existing conditions vegetation in the riparian corridor, and whether specified performance standards are being met.

As determined necessary by the certified arborist per the findings of the technical memoranda ~~warranted following construction, the District will~~, EBMUD shall ~~recontour and~~ revegetate temporarily disturbed portions of creeks and the riparian corridor to meet the performance standards specified above. ~~Creek banks will be recontoured to a more stable condition if necessary.~~ Revegetation shall include a palette of species native to the watershed area. Following removal, woody trees ~~would~~ shall be replanted at a ~~1~~3:1 ratio at minimum, or as determined and agreed on by the appropriate ~~wetland~~ permitting agencies. Interim measures to protect the unvegetated creek from erosion may be required. Interim measures may include replanting banks using native or sterile non-native seeds or seedlings following construction within the ~~creek~~ riparian corridor, and removing non-native vegetation from stream banks, ~~and employing biotechnical bank stabilization methods, such as willow wattles and biodegradable erosion control mats,~~ where appropriate. EBMUD shall engage the regulatory agencies with jurisdiction over San Pablo Creek and its riparian corridor to review and confirm the adequacy of proposed revegetation and/or interim measures to meet the specified performance standards and any applicable regulatory requirements.

Mitigation Measure BIO-3: Staging Area Silt Fence Installation

EBMUD shall require installation of silt fence along the perimeter of staging areas adjacent to riparian corridors and waterways to prevent sediment from entering riparian or aquatic areas. EBMUD shall also require a qualified biologist to review and approve silt fence plans and to monitor silt fence installation to minimize riparian impacts during installation.

Mitigation Measure HYD-2: Tieback Installation Monitoring and Remedial Actions. (Refer to Impact HYD-1 in Section 3.10, Hydrology and Water Quality, for the full text of Mitigation Measure HYD-2.)

Mitigation Measure HYD-3: San Pablo Creek Bank Monitoring and Remediation Program. (Refer to Impact HYD-3d in Section 3.10, Hydrology and Water Quality, for the full text of Mitigation Measure HYD-3.)

Significance Determination After Mitigation

Less than significant.

Impact BIO-3: 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. (Criterion 4)

Construction

The WTTIP EIR found that San Pablo Creek and its associated riparian habitat provide a migratory corridor for wildlife moving through the Project site. The long-term effects associated with vegetation removal and ground disturbance would be reduced, because most disturbed areas would be revegetated with native species upon completion of the Project. Activities at the Manzanita East staging area would be limited to the upland areas of the property outside, but adjacent to, the riparian corridor. Construction fencing, office trailers, and worker parking at the Manzanita East staging area would be temporary and removed following completion of the construction effort and no ground disturbance would occur within the Manzanita East staging area, minimizing the potential for disturbance of movement of riparian wildlife. Wildlife movement during construction could continue around the small, fenced staging area. If needed, dead or dying trees would be removed or limbed outside the riparian corridor at the Manzanita East staging area. The other staging areas are not within a riparian corridor nor any other known established wildlife corridor. Furthermore, because the Project's new aboveground structures would largely be situated within the existing active, developed and fenced area of the Orinda WTP, they are not likely to significantly affect wildlife movement through the area or fragment habitat for migratory or resident wildlife. The remaining mixed riparian woodland habitat next to the Orinda WTP and outside the Orinda WTP fenceline would continue to facilitate wildlife movement through and along the Project site and maintain habitat connectivity for migratory wildlife, resulting in a less-than-significant impact.

Operation

Operation of the Project would not include any ground disturbance or vegetation management within the riparian corridor, and noise associated with operations of the Project, including external mechanical equipment on the MAUVE Building, would be attenuated through design features such as sound barriers and silencers. Therefore, the impact on wildlife movement through the area from operation of the Project would be less than significant.

Significance Determination Before Mitigation

Less than significant. No mitigation measures required.

Mitigation Measures

None required.

Impact BIO-4: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Criterion 5)

Construction

The WTTIP EIR identified a potential impact due to the loss or damage to protected trees for the Orinda WTP project as less than significant because the trees to be removed originally were non-native, ornamental trees. Under Project conditions, construction activities would result in the removal of or damage to the root zone of trees that are adjacent to or within the construction zones, including trees that meet the criteria to be identified as a "protected tree" by the Orinda Tree Ordinance. Trees that occur within, or immediately adjacent to, construction zones could be damaged by excavation, grading, and soil compaction; extensive damage could result in mortality. Construction-related root damage reduces the tree's capacity to supply water and nutrients to the leaves.

Pursuant to adopted WTTIP Mitigation Measure 3.6-1a from the WTTIP EIR, a tree inventory and assessment was completed in 2019 and identified five protected trees that would be removed within the construction footprint, and an additional nine protected trees that could be removed or heavily trimmed (refer to Table 3.4-3; ESA, 2019). The tree assessment report is included as Appendix D of this Supplemental EIR.

Adopted WTTIP Mitigation Measures 3.6-1a, 3.6-1c, and 3.6-1d require a map of removed and retained (preserved) trees prior to construction, provide protective fencing around retained trees, and minimize tree root damage (adopted WTTIP Mitigation Measure 3.6-1a); warrant the health of trees to be preserved and replace any dead trees during the warranty period (adopted WTTIP Mitigation Measure 3.6-1c); and develop and implements a 5-year tree monitoring program with appropriate performance standards (adopted WTTIP Mitigation Measure 3.6-1d). Refer to Table 3.4-2 for the full text of adopted WTTIP Mitigation Measures 3.6-1a, 3.6-1c, and 3.6-1d.

TABLE 3.4-3
PROTECTED TREES

Tree Species (*Scientific Name*)	Total Trees Surveyed	Protected Trees To Be Removed within Project Footprint	Protected Trees Potentially Affected by Project[a]
Coast live oak (*Quercus agrifolia*)	20	4	6
Valley oak (*Quercus lobata*)	2	1	1
Bay laurel (*Umbellularia californica*)	2	-	1
Western sycamore (*Platanus racemosa*)	1	-	1

NOTES:

[a] Protected trees potentially affected by the Project include trees exposed to accidental mechanical damage to tree trunks and canopies resulting from inadvertent contact by construction equipment, root damage resulting from open trench construction and excavation activities, and root damage resulting from soil compaction.

SOURCE: ESA, 2019.

While adopted WTTIP Mitigation Measure 3.6-1b was adopted in the WTTIP EIR for the Orinda WTP project, specific revisions to this adopted WTTIP mitigation measure are necessary for application of the mitigation measure to the Project. Because the MAUVE/UV/CCB Structure is located within the Orinda WTP near the fenceline, a new subset of trees to be removed now occurs outside the fenceline in a natural environment. Mitigation Measure 3.6-1b – ORWTPDI would ensure that all pruning is performed by a certified arborist following City guidelines; provide replacement guidelines for protected and unprotected, native and non-native trees; or place permanent conservation easements on EBMUD watershed lands. Because adopted WTTIP Mitigation Measures 3.6-1a, 3.6-1c, and 3.6-1d are incorporated into the Project, and because Mitigation Measure 3.6-1b – ORWTPDI would ensure that all pruning is performed by a certified arborist following City guidelines; provide replacement guidelines for protected and un-protected, native and non-native trees; or place permanent conservation easements on EBMUD watershed lands, potential impacts due to conflicts with local policies or ordinances protecting biological resources would be less than significant.

Operation

EBMUD maintains tree health and safety on their properties, as necessary. However, there would be no removal or major trimming of trees during regular Project operations. Therefore, there are no conflicts with local policies or ordinances protecting biological resources associated with operation of the Project.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.6-1a, 3.6-1c, and 3.6-1d (Refer to Table 3.4-2 for the full text of adopted mitigation measures).

Mitigation Measure 3.6-1b - ORWTPDI: Tree Replacement

For each project site, all pruning of preserved trees ~~will~~ shall be performed by a certified arborist. No more than 25 percent of a tree's canopy ~~will~~ shall be removed. Tree replacement ~~will~~ shall adhere to the following guidelines:

- If any protected tree native to the local area, such as valley oak and coast live oak, is removed, the District ~~will~~ shall replace it on a 3:1 basis with native trees of the same species as those removed.

- ~~All non-native protected trees which are removed will be replaced at a 1:1 ratio with a non-invasive tree species.~~

- ~~Non-native trees removed from a natural environment will be replaced with a native species that occurs in the area.~~

- In natural areas, defined as outside the Orinda WTP existing fenceline, all unprotected native and non-native trees that are removed shall be replaced at a 1:1 ratio. Unprotected native trees shall be replaced with native trees. Unprotected non-native trees shall be replaced with a non-invasive tree species (native or non-native) at a distribution that reflects the local tree species' composition.

- Replacement trees ~~will~~ shall be planted on site where feasible. Where this is not feasible, trees ~~will~~ shall be planted at ecologically appropriate sites on EBMUD watershed lands.

- ~~In natural areas, when the trees removed are locally native and when the replacement planting will occur on site, a species replacement ratio reflecting the tree species composition of the site will be used.~~

- In lieu of tree replacement, the District ~~would~~ may consider the establishment of permanent conservation easements on EBMUD watershed lands that support high quality oak woodlands. Oak woodland acreage lost through individual tree removal ~~will~~ shall be quantified prior to initiation of project construction activities and concurrent with the mapping activities to occur under adopted WTTIP Mitigation Measure 3.6-1a.

Significance Determination After Mitigation

Less than significant.

Impact BIO-5: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan. (Criterion 6)

The WTTIP EIR concluded that because there were no approved habitat conservation plans in the vicinity of its planning area, further evaluation of that topic was not warranted.

Since the completion of the WTTIP EIR, EBMUD has completed its Low Effect East Bay Habitat Conservation Plan (EBMUD, 2008; watershed lands HCP). The watershed lands HCP covers watershed lands in the San Francisco East Bay Area owned by EBMUD. Only the San Pablo Reservoir Overflow Parking Lot staging area falls within EBMUD's Watershed Property (EBMUD, 2018); the Orinda WTP and other staging areas associated with the Project are located outside the boundaries of EBMUD's Watershed Property. Temporary construction staging within the already developed parking lot at San Pablo Reservoir would not conflict with any goals or objectives in the watershed lands HCP.

Also, since the certification of the WTTIP EIR in 2006, Pacific Gas and Electric Company (PG&E) completed its Bay Area Habitat Conservation Plan (Bay Area HCP), which identifies strategies to avoid, minimize, and offset potential direct, indirect, and cumulative effects of PG&E's operations and maintenance work, as well as minor new construction activities (PG&E, 2017). PG&E's Bay Area HCP covers an approximately 402,440-acre plan area that includes portions of Alameda, Contra Costa (including the Orinda WTP and staging areas), Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties (PG&E, 2017). As indicated in Chapter 2, *Project Description,* Section 2.8, a PG&E easement traverses part of the Project site along San Pablo Creek.

PG&E's Bay Area HCP addresses 32 species federally listed as threatened or endangered. These include 11 invertebrates, three amphibians, two reptiles, one bird, and two mammals, as well as 13 different plant species. PG&E's Bay Area HCP allows for PG&E to have incidental take over 30 years for actions that are covered under the approved plan. The mitigation approach identified in PG&E's Bay Area HCP includes purchase of high-quality habitat for species affected by covered activities, purchase or placement of conservation easements, purchase of credits from approved mitigation or conservation banks, partnerships with and/or contributions to existing conservation planning and recovery efforts, placement of conservation easements of existing PG&E land, implementation of and contributions to recovery plan strategies, and habitat enhancement and restoration on lands already protected. The focus of any mitigation approach identified in PG&E's Bay Area HCP involves land preservation. This approach targets areas that provide high-quality habitat for species covered under the plan or that are of high conservation value, and focuses on preserving large, contiguous areas of habitat instead of a larger number of small areas.

The Project would not interfere with PG&E's ability to pursue the mitigation approach described in PG&E's Bay Area HCP. The Project footprint is not on land owned by

PG&E that it could set aside for species conservation. Furthermore, the Project site does not represent high-quality habitat for any special-status species, including specifically any of the 32 species covered under PG&E's Bay Area HCP. As such, the construction and operation of the Project improvements at the Orinda WTP are not expected to interfere or conflict with PG&E's ability to implement the PG&E Bay Area HCP, including elements related to the plan's mitigation strategy.

Because construction and operation of the Project would not conflict with the implementation of either the EBMUD watershed lands HCP or PG&E's Bay Area HCP, the impact would be less than significant.

Significance Determination Before Mitigation

Less than significant. No mitigation measures required.

Mitigation Measures

None required.

3.4.4 References

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CDFW, 2019. California Natural Diversity Database (CNDDB) search for the U.S. Geological Survey 7.5-minute Briones Valley topographic quadrangle and surrounding eight quadrangles. Accessed October 15, 2019.

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EBMUD (East Bay Municipal Utility District), 2006. *Water Treatment and Transmission Improvements Program Final Environmental Impact Report*, SCH # 2005092019. November 2006.

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EBMUD, 2018. *East Bay Watershed Master Plan Update*. Updated May 2018.

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NRCS (Natural Resources Conservation Service), 2019. United States Department of Agriculture (USDA). Web Soil Survey. Available: http://websoilsurvey.nrcs.usda.gov/. Accessed October 31, 2019.

PG&E (Pacific Gas and Electric), 2017. *Bay Area Operations and Maintenance Habitat Conservation Plan*. September 2017. Prepared by ICF. Available: https://www.fws.gov/sacramento/outreach/2017/11-22/docs/PGE_Bay_Area_HCP_Final.pdf.

SWRCB (State Water Resources Control Board), 2019. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Adopted April 2, 2019.

USFWS (U.S. Fish and Wildlife Service), 2019. List of Threatened and Endangered Species that may Occur in your Proposed Project Location, and/or may be Affected by your Proposed Project. Consultation Code: 08ESMF00-2020-SLI-0121. October 17, 2019.

USGS (U.S. Geological Survey), 2012. Briones Valley, California. 7.5-minute series topographic quadrangle. U.S. Department of the Interior.

3.5 Cultural Resources

This section describes the physical environmental and regulatory settings for cultural resources, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts on cultural resources that could result from construction and operation of the Project. Also provided in this section are the results of background research to update the environmental setting, an updated records search, and a pedestrian survey of the Project site. The Project site includes all areas of ground disturbance and work areas associated with the Project, as well as staging and access areas. Refer to Appendix F for the City of Orinda's Historic Landmarks Ordinance 88-12 (City of Orinda, 1988).

The WTTIP EIR evaluated the effect of the WTTIP on paleontological resources in Section 3.7, Cultural Resources (EBMUD, 2006). As part of the December 2018 update to the *CEQA Guidelines*, which occurred after the WTTIP EIR was certified, the question addressing paleontological resources was moved to the Geology and Soils section in the *CEQA Guidelines* Appendix G Environmental Checklist Form. As the criteria used to evaluate the environmental impacts of the WTTIP are based on the Appendix G Environmental Checklist Form, the analysis of paleontological resources in this Supplemental EIR for the Project is found in Section 3.7, Geology, Soils, Seismicity, and Paleontological Resources.

3.5.1 Environmental Setting

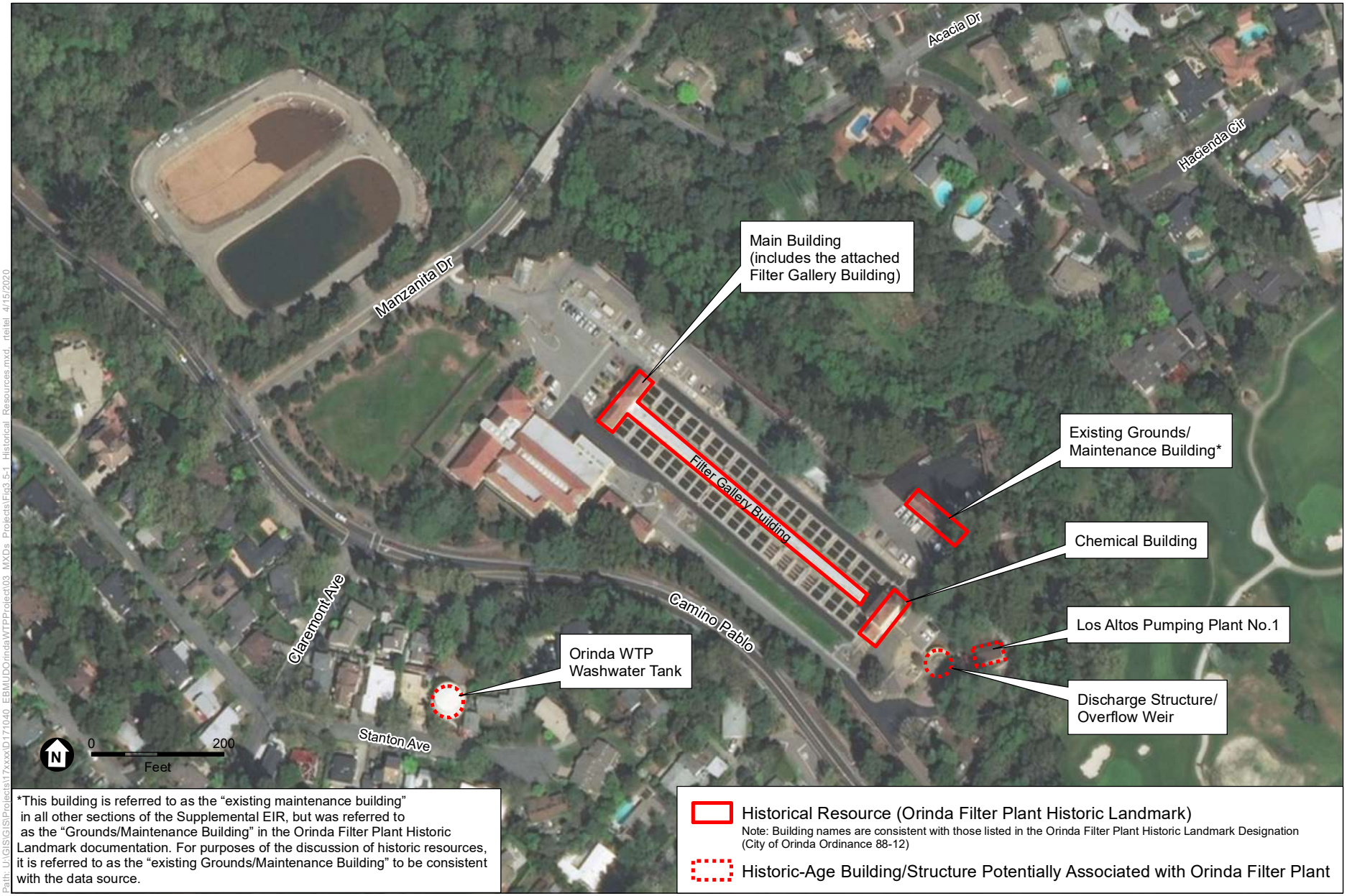
Existing cultural resources and the applicable environmental setting on the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.7, Cultural Resources (EBMUD, 2006). The WTTIP EIR described existing cultural resources for each WTTIP site, including the Orinda WTP. The environmental setting in the WTTIP EIR was based on an archival review and field surveys.

Orinda Water Treatment Plant

The Orinda WTP is owned and operated by EBMUD. The facility, originally known as the Orinda Filtration Plant, was designed in 1934 by architect Mark Daniels in an eclectic Mediterranean Revival style with some Art Deco details (DeCosta, 1936). The principal buildings that composed the original facility, which were in use by 1936 as part of EBMUD's Mokelumne River/Aqueduct Project, were the existing Main Building (including the attached Filter Gallery Building), the existing Chemical Building (or Lime Tower),[1] and the existing Grounds/Maintenance Building (refer to Figure 3.5-1).[2]

[1] The structure now known as the Lime Tower on the Orinda WTP site was referred to as the "Chemical Building" in the Orinda Filter Plant Historic Landmark documentation. For purposes of this discussion of historic resources, it will continue to be referred as the "Chemical Building" to be consist with the data source.

[2] For clarification, this building is referred to as the "existing maintenance building" in all other sections of the Supplemental EIR, but was referred to as the "Grounds/Maintenance Building" in the Orinda Filter Plant Historic Landmark documentation. For purposes of this discussion of historic resources, it will continue to be referred as the "existing Grounds/Maintenance Building" to be consistent with the data source.



SOURCE: ESA, 2019; ESRI, 2019.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.5-1
Historical Resources Within and Adjacent to Project Site

ESA

Mid-1930s photographs indicate that the Filter Gallery Building was originally only four structural bays in length (DeCosta, 1936). Sometime between 1947 and 1958, the building was enlarged to its present length of 9.5 structural bays. A 1939 aerial photograph shows landscaped areas throughout the facility, two gated driveways from Camino Pablo that were configured differently from the present-day driveways, and the Orinda WTP washwater tank on the south side of Camino Pablo between Claremont Avenue and North Lane, which is still in existence (Aerial Photography Collection, 1939). The 1939 aerial photograph also shows an area southeast of the Chemical Building with a radial plan as well as the building that is known today as Los Altos Pumping Plant No. 1 (LAPP1). Construction of the overflow weir and the Works Progress Administration (WPA)-era bas-relief, both of which are extant, began in 1940 at the center of the radial plan area (the Orinda Water Treatment Plant Sculptures; The Living New Deal, 2014).

The Orinda WTP was expanded in 1961 and extensively renovated in 1997–1998, including a restoration of the Art Deco design and details. In November 1988, the City of Orinda designated the Orinda Filter Plant as Orinda's first historic landmark (City of Orinda, 2005; EBMUD, 2003). EBMUD identifies the Orinda WTP as a historic architectural resource (EBMUD, 2005), and the facility is considered a historical resource for the purposes of CEQA (*CEQA Guidelines* Section 15064.5[a]).

Updated Northwest Information Center Database Search

On August 29, 2019, an updated records search of the Project site and immediate vicinity was conducted at the Northwest Information Center (NWIC), located at Sonoma State University (NWIC, 2019). The NWIC is the California Historical Resources Information System repository that houses records for Contra Costa County.

The study area for the records search included areas on and adjacent to the Project site for built resources and within 0.5 mile for archaeological resources. The records search included a review of the NWIC base map (*Briones Valley, CA* 7.5-minute United States (U.S.) Geological Survey topographic quadrangle), previously recorded resource records, and previous cultural resources reports for the study area. Additional sources reviewed during the records search included historic maps, the Directory of Properties in the Historic Property Data File for Contra Costa County, which includes listings of the National Register of Historic Places, the California Register of Historical Resources (California Register), the *California Inventory of Historic Resources*, the *California Historical Landmarks*, and the *California Points of Historical Interest*. Historic-period topographic maps (1897, 1913, 1915, 1949, 1960) and aerial imagery (1946, 1958, 1968) were also reviewed (Historic Aerials, 2019).

The objectives of the records search were to:

- Determine whether known historic-era architectural resources have been recorded on or adjacent to the Project site, and whether known archaeological resources have been recorded within 0.5 mile of the Project site.

- Assess the likelihood of the presence of unrecorded cultural resources on the Project site and in the vicinity, based on historical references and the distribution of the environmental settings of nearby sites.

- Develop a context for the identification and preliminary evaluation of cultural resources.

The records search indicated that one prehistoric archaeological resource has been previously recorded in the records search study area (Schenck, 1925; ECORP, 2015). The resource was originally recorded as a prehistoric habitation site. Identified cultural materials included *Olivella* shell beads, shell fragments, quartz cores, an obsidian projectile point fragment, a clay smoking pipe, a curved bone blade, two groundstone mortars, and a pestle. When revisited in 2015, the area had been highly disturbed and only midden soil intermixed with artificial fill was identified. The site is documented approximately 0.3 mile from the Project site.

Historically, the Wagner Ranch covered approximately 240 acres and included the entire Project site. No surface or subsurface cultural materials associated with Wagner Ranch have been documented on the Project site or in the records search study area.

In 1987, archaeologist Allan Bramlette from Sonoma State University conducted an archaeological survey of 11 acres that currently include the settling ponds north of Manzanita Drive (Bramlette, 1987). No cultural materials were identified during the survey effort. However, the survey noted that extensive artificial fill was present on approximately 35 percent of the 11-acre study area. The fill was reportedly brought in from the "adjacent filtration plant, San Pablo Reservoir, and possibly the Claremont Tunnel" (Bramlette, 1987).

1n 2011, Basin Research Associates completed a cultural resources inventory and survey for a City of Orinda bridge replacement project just north of the Project site on Manzanita Drive. The survey did not identify any archaeological resources and determined that the potential to uncover prehistoric or historic-era archaeological resources at this location is very low (Busby, 2011).

According to the geotechnical data report prepared for the Project by McMillen Jacobs Associates in 2018, the inlet of the Claremont Tunnel, constructed in the late 1920s, is located on the Project site. The Claremont Tunnel has a horseshoe-shaped section, measuring approximately 12 feet by 12 feet that was excavated using drill-and-blast methods. Construction of the existing facilities and the Claremont Tunnel greatly disturbed the Project site (see Figure 5 in McMillen Jacobs Associates geotechnical data report, 2018). In addition, an underground, 8,000-gallon steel tank (designated as the "Weed Oil Tank" see Figure 4 in McMillen Jacobs Associates geotechnical data report, 2018) and storm and sewer lines are present within the Project site.

As noted in Section 3.7, Geology, Soils, Seismicity, and Paleontological Resources, of this Supplemental EIR, subsurface materials across the Orinda WTP site consists of approximately 10 inches of asphaltic concrete and aggregate base, underlain by artificial

fill and terrace deposits over bedrock (McMillen Jacobs Associates, 2019). Given the extensive previous disturbance and the paucity of archaeological sites in the vicinity, the potential to uncover archaeological resources during Project construction is low.

Historic Architectural Resource Present on the Project Site

An architectural historian conducted a field survey of the Orinda WTP on September 10, 2019, to confirm the conditions of the buildings as documented in the City of Orinda's Historic Landmarks Ordinance 88-12 (City of Orinda, 1988) (Appendix F). The Historic Landmarks Ordinance is discussed in Section 3.5.2, Regulatory Framework, below.

In 1988, the Orinda City Council designated the Orinda Filter Plant as a historical landmark (City of Orinda, 1988). The three buildings identified in Ordinance 88-12—the Main Building (including the attached Filter Gallery Building), the Chemical Building, and the existing Grounds/Maintenance Building—are all extant and in operation at this writing. These buildings were designed by architect Mark Daniels in 1934. Notable building features cited in the designation include the gargoyles at the entrance to the Main Building, the arched entrance ceiling and chandelier in the Main Building, the wall-mounted light fixtures on all three buildings, the railings surrounding the wells along the Filter Gallery Building, and the exterior lamp posts.

The Orinda City Council found the Orinda Filter Plant to be significant because the filter plant:

- Is part of the development and heritage characteristics of Orinda;
- Is located on a site of significant historic events;
- Represents a distinctive example of an architectural period and style; and
- Is associated with important governmental and social developments of the City.

The architectural historian observed alterations made to the existing Grounds/ Maintenance Building, the least geographically and functionally prominent of the three documented buildings. The observed alterations to the southwest (primary) façade of the existing Grounds/Maintenance Building include: a replacement door leading to what was originally a laborers' room and the addition of a canopy above the doorway; removal of a pair of doors that led to what was originally a warehouse and filling in the doorway with a wall clad in wood shingles; and the removal of three sliding garage doors, two of which were replaced with roll-up doors and one that was filled with a wall clad in stucco.[3] The September 10, 2019 field survey confirmed the existence of other historic-age buildings and structures that were not included in the supporting documentation for the City of Orinda's Historic Landmarks Ordinance. These structures include, but are not limited to, the overflow weir/discharge structure, the semicircular wall with WPA-era bas-relief, and

[3] Original architectural drawings of the existing Grounds/Maintenance Building are included in the *Orinda Water Treatment Plant Disinfection Improvements Project 50 Percent Submittal, Volume 2* (August 2019). Some (if not all) of these alterations appear to have been made prior to 1988, as evidenced by a photograph of the existing Grounds/Maintenance Building included in the 1988 Historic Landmarks Ordinance.

LAPP1 (refer to Figure 3.5-1). As described in Section 3.5.3 below, the Project would not impact the overflow weir/discharge structure or semicircular wall with WPA-era bas-relief, but would include demolition of LAPP1.

3.5.2 Regulatory Framework

The regulatory framework for cultural resources in the vicinity of the Orinda WTP is described in Section 3.7.2 and Appendix D of the WTTIP EIR. Elements of the regulatory framework for cultural resources identified in the WTTIP EIR have not notably changed since 2006 and are incorporated by reference only in the impact analysis below.

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances (such as historic landmark ordinances) for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance. As such, the City of Orinda Historic Landmarks Ordinance and *City of Orinda General Plan* policies noted on page 3.7-15 and in Appendix D of the WTTIP EIR remain relevant to the Project.

3.5.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to cultural resources and evaluates whether there would be a new significant environmental impact or a substantial increase in the severity of a significant impact identified in the WTTIP EIR, given (a) the proposed design and operating characteristics of the Project, and (b) changes in significance criteria.

Architectural Resources

Potential impacts on architectural resources are assessed by identifying whether implementing the Project could affect resources that have been identified as historical resources for the purposes of CEQA. Individual properties and districts identified as historical resources under CEQA include those that are significant because of their association with important events, people, or architectural styles or master architects, or for their informational value (California Register Criteria 1, 2, 3, and 4) and that retain sufficient historic integrity to convey their significance. The California Register criteria for eligibility are as follows:

- **Criterion 1:** Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
- **Criterion 2:** Associated with the lives of persons important to local, California or national history.

- **Criterion 3:** Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values.

- **Criterion 4:** Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Criterion 4, however, is typically applied to the evaluation of archaeological resources and not to architectural resources, as described below.

Once a resource has been identified as significant, it must be determined whether a project's impacts would "cause a substantial adverse change in the significance" of the resource (*CEQA Guidelines* Section 15064.5[b]). A substantial adverse change in the significance of a historical resource means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of [the] historical resource would be materially impaired" (*CEQA Guidelines* Section 15064.5[b][1]). A historical resource is materially impaired through the demolition or alteration of the resource's physical characteristics that convey its historical significance and that justify its inclusion in (or eligibility for inclusion in) the California Register or a qualified local register (*CEQA Guidelines* Section 15064.5[b][2]).

Archaeological Resources

The significance of most prehistoric and historic-period archaeological sites is usually assessed under California Register Criterion 4. Criterion 4 stresses the importance of the information potential contained within the site, rather than its significance as a surviving example of a type or its association with an important person or event. Archaeological resources may qualify as historical resources under the definition provided in *CEQA Guidelines* Section 15064.5[a], or they may also be assessed under CEQA as unique archaeological resources. Unique archaeological resources are defined as archaeological artifacts, objects, or sites that:

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

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

3) Is directly associated with a scientifically recognized important prehistoric or historic event or person [PRC Section 21083.2].

Under CEQA, the evaluation of an archaeological resource as an "historical resource" is prioritized over the evaluation of the resource as a "unique archaeological resource", in that, CEQA requires that "when a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource" (*CEQA Guidelines* §15064.5 [c][1]). A substantial adverse change in the significance of an archaeological resource is assessed similarly to other historical resources: by determining whether the Project would result in the destruction or adverse material alteration of those physical

resource characteristics that convey its significance under the appropriate criteria (*CEQA Guidelines* Section 15064.5[b][2]).

Human Remains

Human remains, including those buried outside of formal cemeteries, are protected under several state laws, including PRC Section 5097.98 and Section 7050.5 of the California Health and Safety Code. This CEQA analysis considers impacts including the intentional disturbance, mutilation, or removal of interred human remains.

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines,* an impact would be considered significant if the Project would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* Section 15064.5.
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* Section 15064.5.
3. Disturb any human remains, including those interred outside of dedicated cemeteries.

Adopted WTTIP Mitigation Measures

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. Table 3.5-1 presents adopted mitigation measures from the WTTIP EIR that relate to cultural resources at and in the vicinity of the Orinda WTP.

TABLE 3.5-1
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR CULTURAL RESOURCES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.7-1a	EBMUD will include the following in ~~WTTIP~~ contract specifications for ground-disturbing activities, including excavation and grading. In the event of accidental discovery of cultural resources, such as structural features, bone, shell, artifacts, human remains, architectural remains (such as bricks or other foundation elements), or historic archaeological artifacts (such as antique glass bottles, ceramics, horseshoes, etc.), work will be suspended and EBMUD staff will be contacted. A qualified cultural resource specialist will be retained and will perform any necessary investigations to determine the significance of the find. EBMUD will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources. In addition, pursuant to Sections 5097.97 and 5097.98 of the California Public Resources Code and Section 7050.5 of the California Health and Safety Code, in the event of the discovery of human remains, all work will be halted and the county coroner will be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission will be adhered to in the treatment and disposition of the remains.

TABLE 3.5-1 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR CULTURAL RESOURCES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
~~3.7-1b~~	~~EBMUD will retain the services of a qualified archaeological consultant that has expertise in California prehistory to monitor ground-disturbing or vegetation removal activity within 500 feet of a known archaeological site. If an intact archaeological deposit is encountered, all soil-disturbing activities in the vicinity of the deposit will cease. The archaeological monitor will be empowered to temporarily redirect crews and heavy equipment until the deposit is evaluated. The monitor will immediately notify EBMUD of the encountered archaeological deposit. The monitor will, after making a reasonable effort to assess the identity, integrity, and significance of the encountered archaeological deposit, present the findings of this assessment to EBMUD. If the archaeological monitor determines that the area being excavated does not contain archaeological materials, the monitor will modify the level of monitoring as needed.~~ ~~If EBMUD, in consultation with the archaeological monitor, determines that a significant archaeological resource is present and that the resource could be adversely affected by the proposed project, EBMUD will:~~ ~~If the District in consultation with the archaeological monitor, determines that a significant archaeological resource is present and that the resource could be adversely affected by the proposed project, EBMUD will:~~ ~~• Redesign the project to avoid any adverse effects on the significant archaeological resource; or~~ ~~• Implement an archaeological data recovery program (ADRP) (unless the archaeologist determines that the resource is of greater interpretive than research significance, and that interpretive use of the resource is feasible). If the circumstances warrant, an ADRP will be conducted. The project archaeologist and EBMUD will meet and consult to determine the scope of the ADRP. The archaeologist will prepare a draft ADRP that will be submitted to EBMUD for review and approval. The~~
~~3.7-1b (cont.)~~	~~ADRP will identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain (i.e., the ADRP will identify the scientific/historical research questions that are applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions). Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods will not be applied to portions of the archaeological resources if nondestructive methods are practical.~~
~~3.7-3~~	~~To reduce potential indirect effects to the historic setting of the Orinda WTP, EBMUD will provide additional landscaping around the proposed emergency generator building, solids pumping plant, sludge storage tank, and (if implemented) high-rate sedimentation unit to screen these industrial elements from view and soften their visual appearance. This measure is in addition to the landscape treatments already proposed for the immediate area as part of the project and will be included in an amended landscape plan for the Orinda WTP project.~~

NOTE: Strikethrough text indicates text in the adopted WTTIP Mitigation Measures that does not relate to the Project.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact CUL-1: Cause a substantial adverse change in the significance of a historical resource, as defined in *CEQA Guidelines* Section 15064.5. (Criterion 1)

The WTTIP EIR found that, although there are historical resources at the Orinda WTP, there would be no significant direct or indirect impacts to historical resources at the Orinda WTP, either at the project level or the program level. This was due to the distance between the proposed WTTIP facilities and the historic resources at the Orinda WTP.

The following analysis focuses on architectural resources. Archaeological resources, including those that have the potential to be historical resources according to *CEQA Guidelines* Section 15064.5, are addressed under Impact CUL-2.

Construction

The three buildings described in the City of Orinda Landmark Ordinance for the Orinda Filter Plant, are the existing Main Building (including the attached Filter Gallery Building), the existing Chemical Building, and the existing Grounds/Maintenance Building (City of Orinda, 1988). Together, these buildings constitute one designated City historical landmark. The Orinda WTP has been identified by EBMUD as a historical resource and is therefore considered a historical resource under CEQA. The 1988 landmark documentation does not include physical descriptions or evaluations of the three identified buildings, of which the existing Grounds/Maintenance Building is the least visually and functionally prominent. The Project would demolish the existing Grounds/Maintenance Building and incorporate its associated uses into a new facility. The existing landmark documentation for the Orinda WTP also does not address all historic-age buildings and structures at the facility. A second historic-age building, LAPP1, would also be demolished. According to historic aerial photographs, LAPP1 appears to have been constructed by 1939, possibly concurrent with or subsequent to the three buildings that compose the landmark Orinda WTP (Aerial Photography Collection, 1939). In addition, the Project would alter the setting of the Orinda WTP by demolishing those two historic-age buildings (including one contributing element of the landmark) and constructing several new buildings and structures on the Orinda WTP site. Alteration of the setting could affect the integrity of the Orinda WTP, which has been altered periodically since its original construction. Demolition of the existing Grounds/Maintenance Building and LAPP1 and changes to the setting of the Orinda WTP would result in a significant impact on the historical resource. However, the demolition of these two buildings is the more important factor contributing to the significant impact on the historical resource.

The Project would not affect either the Main Building (including the attached Filter Gallery Building) or the Chemical Building, which are the two most visually, functionally, and geographically prominent buildings that constitute the designated City historic landmark. When the existing Grounds/Maintenance Building is demolished as part of the Project, the Orinda WTP would retain its landmark status.

Implementation of Mitigation Measure CUL-1a would require that all historic-age buildings, structures, objects, and sites that make up the Orinda WTP are documented by an architectural historical on a DPR 532 form. Additionally, implementation of Mitigation Measure CUL-1b would require that the existing Grounds/Maintenance Building and LAPP1 be fully documented (including written history and drawings and photographs) by an architectural historian before construction and demolition of the existing structures. As a result, landmark status would still apply to the Orinda WTP, and this impact would be less than significant with mitigation.

Construction-related vibration, such as from jack-and-bore techniques, backfill operations, and heavy construction equipment, have the potential to damage fragile historic architectural resources in the immediate vicinity of the source of vibration. The closest construction activities on the Project site would take place approximately 45 feet from the Chemical Building (i.e., Lime Tower) and approximately 20 to 30 feet from the overflow weir/discharge structure (i.e., Effluent 1 Discharge). Based on recent site

investigations, this building and structure appear to be in sound condition and structurally stable. Of the equipment proposed for Project construction (as detailed in Chapter 2, *Project Description*), large bulldozers, bore/drill rigs, and trucks would generate the highest vibration levels. As indicated in Section 3.11, Noise and Vibration, under Impact NOI-2, the construction equipment would generate 0.076 to 0.089 inch per second peak particle velocity (PPV) at 25 feet. The performance standard of 0.5 inch per second peak particle velocity is generally accepted as a means to limit structural and cosmetic damage to nearby historic structures (Caltrans, 2013). The anticipated vibration levels are well below the 0.5 inch per second PPV performance standard applied in the Project's vibration analysis; therefore, construction-related vibration is not expected to cause a significant adverse impact on historical resources.

With implementation of Mitigation Measures CUL-1a and CUL-1b, which require documentation of historic-age structures and sites at the Orinda WTP and development of a written history, drawings, and photographs of the existing Grounds/Maintenance Building and LAPP1 building, impacts related to causing a substantial adverse change in the significance of a historical resource during Project construction would be less than significant.

Operation

Because operation of the Project would not include any ground disturbance or further alterations to structures that were altered or demolished during construction, there would be no operational impacts related to causing a substantial adverse change in the significance of a historical resource.

Significance Determination Before Mitigation

Potentially significant.

Mitigation Measures

Mitigation Measure CUL-1a: Prepare documentation of all historic-age buildings, structures, objects, and sites that make up the Orinda WTP.

Before ground disturbance, EBMUD shall hire an architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards for architectural history to prepare California Department of Parks and Recreation (DPR) 523 forms that document all historic-age buildings, structures, objects, and sites that make up the Orinda WTP. The completed DPR 523 forms shall be submitted to the Northwest Information Center at Sonoma State University, the City of Orinda, and the Orinda Historical Society.

Mitigation Measure CUL-1b: Document Existing Grounds/Maintenance Building and LAPP1 before removal.

Before the start of any construction and demolition work at the existing Grounds/Maintenance Building and LAPP1, EBMUD shall fully document the building. Documentation by an architectural historian (or historical architect, as

appropriate) shall consist of a written history of the two buildings and drawings and photographs, as described below.

- ***Written history.*** An architectural historian (or historical architect, as appropriate) shall prepare a written history of the two buildings, conducting archival research as required. The completed DPR 523 forms for the Orinda WTP described in Mitigation Measure CUL-1a shall be used to the greatest extent possible. The report shall be produced on archival bond paper.

- ***Drawings and photographs.*** An architectural historian (or historical architect, as appropriate) shall conduct research into the availability of architectural drawings and photographs of the existing Grounds/Maintenance Building and LAPP1 as they existed historically and as they currently exist.

  – *Drawings:* Select existing drawings, where available, may be photographed with large-format negatives or photographically reproduced on Mylar in accordance with the U.S. Copyright Act, as amended.

  – *Photographs:* Photographs with large-format negatives of exterior and interior views and historic views where available and produced in accordance with the U.S. Copyright Act, as amended, shall be included in the documentation.

  The documentation shall be prepared by an architectural historian or historical architect, as appropriate, who meets the Secretary of the Interior's Professional Qualifications Standards. The documentation shall be submitted to the Orinda Historical Society and kept on file at EBMUD.

Significance Determination after Mitigation

Less than significant.

Impact CUL-2: Cause a substantial adverse change in the significance of an archaeological resource, pursuant to *CEQA Guidelines* Section 15064.5. (Criterion 2)

The WTTIP EIR found that no archaeological resources were identified within the Orinda WTP and that several archaeological resources had been previously recorded in the vicinity of the Orinda WTP. Construction could result in a significant impact to unrecorded cultural resources; however, with implementation of adopted WTTIP Mitigation Measure 3.7-1a the impact would be reduced to a less-than-significant level.

Impact CUL-2 describes archaeological resources that have the potential to be historical resources according to *CEQA Guidelines* Section 15064.5, as well as unique archaeological resources as defined in PRC Section 21083.2(g).

Construction

The results of the background research indicate that no prehistoric or historic-era archaeological resources are present within the Project site and that the potential to uncover resources during Project implementation is low. However, the possibility of an inadvertent discovery during construction cannot be entirely discounted; such a discovery would result in a potentially significant impact. Implementation of adopted WTTIP Mitigation Measure 3.7-1a would reduce impacts to a less-than-significant level by requiring that work halt in the event of an accidental discovery of cultural resources until a qualified cultural resources specialist can make any recommendations as to the significance of the find. Refer to Table 3.5-1 for adopted WTTIP Mitigation Measure 3.7-1a. Because adopted WTTIP Mitigation Measure 3.7-1a is included as part of the Project, this impact would be less than significant for construction.

Operation

Because operation of the Project would not include any ground disturbance or further alterations to structures that were altered or demolished during construction, there would be no operational impacts related to causing a substantial adverse change in the significance of an archaeological resource.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

> **Adopted WTTIP Mitigation Measures:** 3.7-1a (Refer to Table 3.5-1 for the full text of adopted mitigation measures).

Impact CUL-3: Disturb any human remains, including those interred outside of dedicated cemeteries. (Criterion 3)

Construction

The WTTIP EIR found that no human remains have been identified within the Orinda WTP. Construction could result in a significant impact to previously unidentified human remains; however, with implementation of adopted WTTIP Mitigation Measure 3.7-1a the impact would be reduced to a less-than-significant level.

The results of the archival research and survey effort do not provide any indication that any part of the Project site has been used for human burial purposes in the recent or distant past. Therefore, encountering human remains during Project construction would be unlikely. However, the possibility of inadvertent discovery cannot be entirely discounted; such a discovery would result in a potentially significant impact. Implementation of adopted WTTIP Mitigation Measure 3.7-1a would reduce impacts to a

less-than-significant level by requiring that work halt in event of an accidental discovery of human remains until the county coroner is notified and, if the remains are determined to be Native American, the guidelines of the Native American Heritage Commission are followed. Refer to Table 3.5-1 for adopted WTTIP Mitigation Measure 3.7-1a. Because adopted WTTIP Mitigation Measure 3.7-1a has been incorporated into the Project, this impact would be less than significant.

Operation

Because operation of the Project would not include any ground disturbance or further alterations to structures that were altered or demolished during construction, there would be no operational impacts related to disturbing human remains.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.7-1a (Refer to Table 3.5-1 for the full text of adopted mitigation measures).

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3.6 Energy

This section describes the physical environmental and regulatory setting for energy resources, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts on energy resources that could result from construction and operation of the Project.

3.6.1 Environmental Setting

Energy resources are defined as all forms of fuels used in the modern world, either for heating, generation of electrical energy, or for other forms of energy conversion processes (B. Novakovic and A. Nasiri, 2016), and were not required to be specifically identified and addressed in the WTTIP EIR (EBMUD, 2006). However, in recognition of the addition of Energy emissions impacts to the Environmental Checklist Form found in Appendix G of the *CEQA Guidelines*, EBMUD has included an analysis of potential Energy impacts in this Supplemental EIR. Potential impacts from the Project related to energy usage as it may affect climate change are described in Section 3.8, Greenhouse Gas Emissions of this Supplemental EIR.

Electricity and Natural Gas

In 2018, California's energy mix totaled 285,488 gigawatt hours (GWh) of electricity, of which 68 percent was from in-state electricity generation and the remaining 32 percent imported from northwestern and southwestern sources. Of the electricity generated in California, about 46.5 percent was produced by natural gas; 11.3 percent from hydroelectricity; 9.4 percent from nuclear; and 32.4 percent was produced by renewable sources such as wind, solar, geothermal, biomass, and small hydroelectric facilities; with the remaining 0.4 percent from coal and other sources (California Energy Commission [CEC], 2019a).

Pacific Gas and Electric Company (PG&E) is the local electricity and natural gas supplier in the city of Orinda. PG&E provides natural gas and electric service to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California (PG&E, 2017). About 39 percent of PG&E's electrical generation is from renewable resources, such as wind, geothermal, biomass, solar, and small hydroelectric facilities.

EBMUD is a net energy generator, producing more energy through hydropower, solar power, and biogas production than is used by its water and wastewater facilities. EBMUD sells hydropower to electric power providers when the water system generates excess energy. On average, EBMUD generates 185,000 megawatt-hours (MWh) of electricity annually at its two hydroelectric power plants. EBMUD's photovoltaic generation capacity is 930 MWh annually. EBMUD's wastewater treatment plant is also a net producer of renewable energy, selling energy back to the electrical grid to help reduce fossil fuel use in California. It can generate more than 55,000 MWh annually. EBMUD's sustainability practices minimize energy use and greenhouse gas (GHG) emissions (EBMUD, 2018a).

Petroleum

Petroleum used in California in 2018 came from California (31.1 percent), Alaska (11.4 percent), and foreign sources (57.5 percent), and is refined to produce gasoline, diesel fuel, and a variety of other liquid petroleum products (CEC, 2019b). There are five oil refineries in the San Francisco Bay Area.

Gasoline is the most-used transportation fuel in California, with 97 percent of all gasoline consumed by light-duty cars, pickup trucks, and sport utility vehicles (CEC, 2019c). Diesel fuel is the second-largest transportation fuel used in California, representing 17 percent of total fuel sales behind gasoline. Nearly all heavy-duty trucks, delivery vehicles, buses, trains, ships, boats and barges, farm, construction, and heavy-duty military vehicles and equipment have diesel engines. Diesel is the fuel of choice because it has 12 percent more energy per gallon than gasoline and has fuel properties that prolong engine life, making it ideal for heavy-duty vehicle applications (CEC, 2019d). According to the State Board of Equalization (BOE), 14.2 billion gallons of gasoline and 3.1 billion gallons of diesel, including off-road diesel, were sold in California in 2018 (BOE, 2019a and 2019b). In Contra Costa County, an estimated 397 million gallons of gasoline and 34 million gallons of diesel were sold in 2018 (CEC, 2019e).

3.6.2 Regulatory Framework

Federal Regulations

National Energy Conservation Policy Act

The National Energy Conservation Policy Act is the underlying authority for federal energy management goals and requirements. Signed into law in 1978, it has been regularly updated and amended by subsequent laws and regulations. The National Energy Conservation Policy Act is the foundation of most federal energy requirements.

National Energy Policy Act of 2005

The National Energy Policy Act of 2005 sets standards for equipment energy efficiency, seeks to reduce reliance on non-renewable energy resources, and provides incentives to reduce current demand on these resources. Under the National Energy Policy Act of 2005, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; constructing energy-efficient buildings; and improving the energy efficiency of commercial buildings. Tax credits are also available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

Executive Order 13834 (Efficient Federal Operations), signed in 2018, strengthens the key energy management goals for the federal government and sets more challenging goals than the National Energy Policy Act of 2005. Executive Order 13834 affirms that agencies shall meet energy and environmental performance statutory requirements in a manner that increases efficiency, optimizes performance, eliminates unnecessary use of resources, and protects the environment.

Energy and Independence Security Act of 2007 and Corporate Average Fuel Economy Standards

The Energy and Independence Security Act of 2007 sets federal energy management requirements in several areas, including energy reduction goals for federal buildings, facility management and benchmarking, performance standards for new buildings and major renovations, high-performance buildings, energy savings performance contracts, metering, energy-efficient product procurement, improved fuel economy and reduction in petroleum use, and increase in alternative fuel use. The Energy and Independence Security Act of 2007 also amends portions of the National Energy Policy Conservation Act and includes provisions to increase the supply of renewable alternative fuel sources by setting a mandatory Renewable Fuel Standard, which requires transportation fuel sold in the United States to contain a minimum of 36 billion gallons of renewable fuels annually by 2022. In addition, the law sets the Corporate Average Fuel Economy (CAFE) standard at 35 miles per gallon for passenger cars and light trucks by the year 2020.

State Regulations

In December 2018, a separate discussion of Energy as a resource impact area was identified as required in Appendix G of the *CEQA Guidelines*. Consistent with Public Resources Code 21100, this impact analysis evaluates the potential for the Project to result in a substantial increase in energy demand and/or wasteful use of fuel, water, or energy during Project construction and operations. The impact analysis is informed by Appendix G of the *CEQA Guidelines*.

California Energy Action Plan II

California's *Energy Action Plan Update* is the state's principal energy planning and policy document (CEC and California Public Utilities Commission [CPUC], 2008). The California *Energy Action Plan Update* describes a coordinated implementation plan for state energy policies and refines and strengthens California's original *Energy Action Plan* published in 2003 (CPUC, 2003). The California *Energy Action Plan Update* identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound and adopts a loading order of preferred energy resources to meet the state's needs and reduce reliance on natural gas and other fossil fuels, also important for achieving GHG emission reductions from the electricity sector.

Energy efficiency and demand response[1] are considered the first ways to meet the energy needs of California's growing population. Renewable energy and distributed generation are the best ways to achieve this on the supply side. To the extent that energy efficiency, demand response, renewable resources, and distributed generation are unable to satisfy increasing energy and capacity needs, CEC supports clean and efficient fossil fuel-fired

[1] Demand response is the reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure.

generation to meet California's energy needs. The 2008 *Energy Action Plan Update* provides a status update to the 2005 *Energy Action Plan II* (CEC and CPUC, 2005) and continues the goals of the original California *Energy Action Plan* (CEC and CPUC, 2008).

State of California Integrated Energy Policy Report

Senate Bill (SB) 1389 was signed into law in 2002 and requires the CEC to "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices." These assessments and forecasts are used to develop recommendations for energy policies that conserve state resources, protect the environment, provide reliable energy, enhance the state's economy, and protect public health and safety. The CEC is required to issue a report every two years, and the most recent report is the *2018 Integrated Energy Policy Report* (CEC, 2019f), which provides the results of the CEC's assessments of a variety of energy issues facing California including "decarbonizing buildings, energy efficiency, energy equity, integrating renewable energy, updates on Southern California electricity reliability, climate adaptation activities for the energy sector, and the California Energy Demand Forecast" (CEC, 2019f).

State Alternative Fuels Plan

The *State Alternative Fuels Plan* (California Air Resources Board [CARB] and CEC, 2007) presents strategies and steps that California must take to increase the use of alternative fuels without adversely affecting air quality, water quality, or causing negative health effects. The *State Alternative Fuels Plan* recommends alternative fuel targets of 9 percent in 2012, 11 percent in 2017, and 26 percent by 2022. The *State Alternative Fuels Plan* also presents a 2050 Vision that extends the plan outcomes and presents a transportation future that greatly reduces the energy needed for transportation, provides energy through a diverse set of transportation fuels, eliminates over-dependency on oil, and achieves an 80 percent reduction in GHG emissions. With these goals, more than 4 billion gasoline gallon equivalents (20 percent) would be displaced by alternative fuels in 2020. CEC estimates that by 2050, alternative fuels could provide more than half of the energy needed to power California's transportation system.

Senate Bill 350

SB 350 was signed into law in October 2015, and establishes a requirement for California to reduce the use of petroleum in cars by 50 percent, to generate half of its electricity from renewable resources, and to increase energy efficiency by 50 percent at new and existing buildings, all by the year 2030.

Title 24 - California Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings specified in Title 24, Part 6 of the California Code of Regulations were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are periodically updated to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The CEC adopted the most recent

update to its standards in 2019, which went into effect on January 1, 2020. These new standards continue to improve upon previous standards for new construction of, and additions and alterations to, residential and nonresidential buildings.

Local Regulations

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance.

City of Orinda General Plan

The *City of Orinda General Plan* (City of Orinda, 1987) Conservation Element includes the following policies relevant to energy resources:

> ***Section 4.1.1, Guiding Policy L:*** Promote energy conservation programs and policies.
>
> ***Section 4.1.2, Implementing Policy N:*** Develop a comprehensive energy conservation plan. The plan should be coordinated with those of adjoining communities and utility companies and with experts in the field. It should include policies, ordinances, and informational elements.

EBMUD Sustainability Policy

EBMUD adopted a sustainability policy in 2008 that focuses on using resources (economic, environmental, and human) in a responsible manner that meets the needs of today without compromising the ability of future generations to meet the needs of tomorrow. The sustainability policy uses a holistic view and minimizes waste; conserves energy and natural resources; promotes long-term economic viability; supports safety and well-being for employees, communities, and customers; and is beneficial to society (EBMUD, 2018b).

EBMUD Strategic Plan

EBMUD's *Strategic Plan* outlines the goals, strategies, objectives, and key performance indicators that it uses to carry out the mission of managing natural resources, providing reliable, high-quality water and wastewater services at fair and reasonable rates for the people of the East Bay, and by preserving and protecting the environment for future generations. The long-term water supply goal in the *Strategic Plan* includes a strategy to address climate change. Strategy 4 of the long-term water supply goal notes that EBMUD shall maintain an updated *Climate Change Monitoring and Response Plan* to inform EBMUD's planning efforts for future water supply, water quality, and infrastructure and support sound water and wastewater infrastructure investment decisions (EBMUD, 2018c).

EBMUD Climate Change Monitoring and Response Plan

The purpose of the *Climate Change Monitoring and Response Plan* is to help EBMUD understand the potential climate change threats, prepare adaptation strategies, and guide mitigation of GHG emissions, which contribute to climate change (EBMUD, 2014). The *Climate Change Monitoring and Response Plan* established objectives for EBMUD, including encouraging and promoting cost-effective use and the generation of renewable energy within its water and wastewater operations.

3.6.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to energy resources and evaluates whether there would be a significant environmental impact, given the proposed design and operating characteristics of the Project.

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines*, an impact would be considered significant if the Project would:

1. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation.
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Criteria Requiring No Further Evaluation

- ***Criterion 2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.*** The Project would comply with federal standards for vehicle fuel efficiency because all vehicles and machinery that are sold within the United States are required to meet those standards. EBMUD has long been committed to renewable energy generation and wise energy use, and generates energy through hydropower, solar power, and biogas production at its wastewater treatment plants. However, the Project would neither affect the generation nor use of renewable energy. The Project would comply with other applicable energy efficiency policies or standards noted above. Therefore, there would be no impact associated with conflicts with energy plans and policies related to renewable energy or energy efficiency.

Adopted WTTIP Mitigation Measures

The WTTIP EIR did not include any mitigation measures related to energy.

Impacts and Mitigation Measures

Impact EN-1: Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation. (Criterion 1)

Construction

Construction of the Project components would result in indirect energy consumption from construction traffic and the use of construction materials. Although the precise amount of construction-related energy demand cannot be predicted at this time, the primary energy demand during construction would occur from the use of gasoline and diesel-powered mobile construction equipment and vehicles to transport workers and materials to and from the construction sites. Electricity would also be used for construction lighting, field services, and electrically driven construction devices, such as air compressors, pumps, and other equipment. Although Project construction would result in increased indirect energy consumption, the amount of transportation fuel and potential electricity use required for Project construction is not considered an inefficient or wasteful use of energy as fuel use would be consistent with current construction and manufacturing practices, energy standards that promote strategic planning, and building standards that reduce the consumption of fossil fuels and enhance energy efficiency. Additionally, construction vehicles and equipment would comply with federal standards for vehicle fuel efficiency because all vehicles and machinery that are sold in the United States must meet those standards. Therefore, the impact would be less than significant.

Operation

Implementation of the Project would result in direct energy consumption associated with operations from an increase in the demand for electrical energy. As stated in Section 2.7, Operations and Maintenance, the Orinda WTP currently uses approximately 5,000,000 kilowatt hours per year of electricity. Approximately 1,400,000 kilowatt hours per year of electricity would be required to operate the new components at the Orinda WTP, resulting in approximately 6,400,000 kilowatt hours per year of electricity use at the Orinda WTP. Electrical power would be provided through the existing power utility's (PG&E) belowground duct banks. Also, as described above in Section 3.6.1, Environmental Setting, EBMUD is a net energy generator, producing more energy through hydropower, solar power, and biogas production than is used by its water and wastewater facilities.

All proposed facilities would require specific maintenance and inspection activities (described in Section 2.7), as well as general building maintenance. Long-term site maintenance would also continue as described in Section 2.7. Maintenance activities would require the dedication of one or two Orinda WTP employees per day, which would be staffed by the existing crew. Although most maintenance activities would be conducted by staff already on site, one truck trip per month on average is anticipated for operation and maintenance activities.

While the Project would increase truck trips and electricity demands, as described above, the amount of transportation fuel and electricity use required for Project operation is not considered an inefficient or wasteful use of energy as fuel use would be consistent with current construction and manufacturing practices, energy standards that promote strategic planning, and building standards that reduce the consumption of fossil fuels and enhance energy efficiency. Additionally, the Project is required to help ensure continued compliance with drinking water quality regulations, which benefits residents and businesses throughout the EBMUD service area, so energy use during operation is necessary. For these reasons, this impact is less than significant.

Significance Determination Before Mitigation

Less than significant. No mitigation measures required.

Mitigation Measures

None required.

3.6.4 References

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3.7 Geology, Soils, Seismicity, and Paleontological Resources

This section describes the physical environmental and regulatory setting for geology, soils, seismicity, and paleontological resources, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts associated with geology, soils, and seismicity, and paleontological resources that could result from construction and operation of the Project.

3.7.1 Environmental Setting

Existing geological resources and the applicable environmental setting on the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.4, Geology, Soils, and Seismicity (EBMUD, 2006). The environmental setting in the WTTIP EIR was based on review of various geologic maps and reports. Site geology, faults and seismicity, and ground shaking are described below.

Paleontological resources are fossilized evidence of past life found in the geologic record. Existing paleontological resources and the applicable environmental setting on the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.7, Cultural Resources (EBMUD, 2006). The environmental setting in the WTTIP EIR was based on analysis of fossil discoveries that have been documented within the greater Orinda area. To conform to current *CEQA Guidelines*, this Supplemental EIR includes a discussion of paleontological resources with analysis of potential impacts from geology, soils, and seismicity, detailed below under "State Regulations."

Site Geology

According to the San Pablo Creek Slope Stability Evaluation (McMillen Jacobs, 2019a), the subsurface materials at the Project site consist of approximately 10 inches of asphaltic concrete and aggregate base, and artificial fill and terrace deposits over bedrock. As indicated by the boring and sonic coring logs provided in the slope stability evaluation, the depth of the artificial fill varies across the site from approximately 7 feet below the existing grade (at the northeastern corner of the Maintenance and Ultraviolet Electrical [MAUVE]/UV/Chlorine Contact Basin [CCB] Structure) to approximately 26 feet below the existing grade (at the southeastern corner of the MAUVE/UV/CCB Structure). The bedrock underlying the fill and terrace deposits is identified as the Orinda Formation, which lies below the fill and terrace deposits (McMillen Jacobs, 2019a). The artificial fill is composed mostly of sandy to fat[1] clay and loose to medium dense clayey gravel and clayey sand (McMillen Jacobs, 2019a). The native terrace deposits consist of medium to

[1] A fat clay is a clay with relatively high plasticity. Plasticity of soil is defined as its property by virtue of which it undergoes deformation without cracking, fracturing or rupturing.

highly plastic sandy lean clay, and medium dense to dense clayey sand with gravel (McMillen Jacobs, 2019a).

Orinda Formation

The Orinda Formation dates to the late Miocene (5.3 million to 23 million years before present) and consists of interbedded bluish- and greenish-gray conglomerate, sandstone, siltstone, and grayish-red claystone (Poust, 2016). The presence of the Orinda Formation is confirmed by the slope stability evaluation, which describes the Orinda Formation at the site as consisting of alternating layers of sandstone, claystone, siltstone, and occasional layers of pebble-rich sandstone or conglomerate (McMillen Jacobs, 2019a).

The Orinda Formation has produced significant fossil finds including a plastron, carapace, and eggshell from a turtle, as well as horse and rodent remains (Poust, 2016). Many of the fossils were discovered approximately 2 miles from the Project site during the third and fourth bores of the Caldecott Tunnel[2] (Poust, 2016). The University of California Museum of Paleontology (UCMP) database has records of 22 vertebrate fossils and 14 invertebrate fossils found in the Orinda Formation in Contra Costa County (UCMP, 2019). Of the localities for which more precise location could be inferred from the locality name, many are located near the Caldecott Tunnel, approximately 2.1 miles southwest of the Project site (UCMP, 2019). Given the record of significant fossils recovered within 2 miles from the Project site, the Orinda Formation is considered to have high paleontological sensitivity.

Faults and Seismicity

The Project site is in a seismically active region of California that contains both active[3] and potentially active[4] faults; the Project site is near multiple known active faults (California Geological Survey [CGS], 2010). Throughout the San Francisco Bay Area, there is potential for damage resulting from movement along any one of a number of active faults, seismic shaking, and seismically induced ground failures (e.g., liquefaction).

The Working Group on California Earthquake Probabilities (WGCEP), comprised of the United States Geological Survey (USGS), the CGS, and the Southern California Earthquake Center, evaluates the probability of one or more earthquakes of M_w[5] 6.7 or higher occurring in the state of California over the next 30 years. The San Francisco Bay Area as a whole has an estimated 72 percent chance of experiencing an earthquake of M_w 6.7 or higher over the next 30 years; among the various active faults in the region, the

2 Separate Caltrans projects.

3 Active faults have ruptured during the Holocene Epoch, or within the last 11,000 years (CGS, 2003).

4 Potentially active faults have ruptured during the Quaternary Period, or within the last 2.6 million years (CGS, 2003, 2014).

5 The moment magnitude (M_W) of an earthquake is the measure of the total energy expended during an earthquake; it is used here in place of the local magnitude (M_L) (i.e., the Richter magnitude scale), as local magnitude is an inaccurate measure of large earthquakes (USGS, 2018).

Hayward and Calaveras Faults are the most likely to cause such an event (Field et al., 2015).

Groundshaking

The entire San Francisco Bay Area, including the Project site, could be subject to strong groundshaking during earthquakes. According to the ShakeMaps that corresponds with the earthquake planning scenario generated by the USGS, if a large earthquake were to occur on either of the active faults in the region (i.e., the Hayward, Calaveras, and/or San Andreas Faults), the Project site would experience strong to very strong seismic groundshaking (USGS, 2016a-c).

Paleontological Resources

Paleontological resources are the mineralized (fossilized) remains of prehistoric plants and animals, including body fossils, such as bones, bark or wood, and shell, as well as trace fossils, such as shell, leaf, skin, or feather impressions, footprints, burrows, or other evidence of an organism's life or activity. These resources are located within sedimentary rocks or alluvium and are considered to be nonrenewable.

The Society of Vertebrate Paleontology (SVP) has established standard guidelines that outline professional protocols and practices for conducting paleontological resource assessments and surveys; monitoring and mitigation; data and fossil recovery; sampling procedures; and specimen preparation, identification, analysis, and curation (SVP, 2010). Most practicing professional vertebrate paleontologists adhere closely to the SVP's assessment, mitigation, and monitoring requirements as provided in its standard guidelines.

The SVP (SVP, 2010: 11) defines a significant fossil resource as:

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

Based on the significance definitions of SVP (2010), all identifiable vertebrate fossils are considered to have significant scientific value. This position is adhered to because vertebrate fossils are relatively uncommon, and only rarely would a fossil locality yield a statistically significant number of specimens of the same genus. Therefore, every vertebrate fossil found has the potential to provide significant new information on the taxon it represents, its paleoenvironment,[6] and/or its distribution. Furthermore, all geologic units in which vertebrate fossils have previously been found are considered to

[6] A paleoenvironment is the past environment of an area during a given time period in the past.

have high sensitivity. Identifiable plant and invertebrate fossils are considered significant if found in association with vertebrate fossils or if defined as significant by project paleontologists, specialists, or local government agencies.

Paleontological sensitivity is defined as the potential for a geologic formation to produce scientifically significant fossils. This potential is determined by rock type, past 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. In its *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Non-renewable Paleontologic Resources,* the SVP (2010:1–2) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential:

- ***High Potential***: Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources.
- ***Low Potential***: Rock units that are poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule.
- ***Undetermined Potential***: Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment.
- ***No Potential***: Rock units like high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites) that will not preserve fossil resources.

3.7.2 Regulatory Framework

The regulatory framework for geological and paleontological resources in the vicinity of the Orinda WTP is described in Section 3.6.2, Section 3.7.2, and Appendix D of the WTTIP EIR. This Supplemental EIR highlights changes in implementation of those laws and regulations that have occurred since the release of the WTTIP EIR in December 2006. Elements of the regulatory framework for geological and paleontological resources identified in the WTTIP EIR that are not described below have not notably changed since 2006.

Federal Regulation

No federal regulations are applicable to the Project's potential effects on geology, soils, seismicity, or paleontological resources.

State Regulations

In December 2018, consideration of impacts to paleontological resources was moved from the Cultural Resources section to the Geology, Soils, and Seismicity section of Appendix G of the *CEQA Guidelines*.

The WTTIP EIR (EBMUD, 2006) describes laws pertaining to geotechnical building standards, namely the California Building Code (CBC). The CBC has been updated since adoption of the WTTIP EIR, particularly with respect to seismic design. The following describes the updated building code.

California Building Code

The CBC, which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress to facilities (entering and exiting), and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction.

Title 24 is administered by the California Building Standards Commission, which by law is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2019 edition of the CBC is based on the 2018 International Building Code (IBC) published by the International Code Council, which replaced the Uniform Building Code (UBC). The CBC is updated triennially; the 2019 edition of the CBC was published by the California Building Standards Commission on July 1, 2019, and took effect on January 1, 2020. The 2019 CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standard ASCE/SEI 7-16 (ASCE, 2017), provides requirements for general structural design and includes means for determining earthquake loads, as well as other loads (such as wind loads) for inclusion in local building codes.

Requirements for geotechnical investigations are included in Appendix J of the CBC. Testing of samples from subsurface investigations is required, such as from borings or test pits. Studies must be done as needed to evaluate slope stability, soil strength, position and adequacy of load-bearing soils, the effect of moisture variation on load-bearing capacity, compressibility, liquefaction, differential settlement, and expansiveness.

Public Resources Code Section 5097.5 and Section 30244

State requirements for management of paleontological resources are included in Public Resources Code (PRC) Section 5097.5 and Section 30244. These statutes prohibit the removal of any paleontological site or feature from public lands without permission of the jurisdictional agency, define the removal of paleontological sites or features as a misdemeanor, and require reasonable mitigation of adverse impacts on paleontological resources from developments on public (state, county, city, district) lands.

Local Regulations

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance. As such, the *City of Orinda General Plan* policies in Appendix D of the WTTIP EIR remain relevant to the Project

3.7.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to geology, soils, seismicity, and paleontological resources and evaluates whether there would be a new significant environmental impact or a substantial increase in the severity of a significant impact identified in the WTTIP EIR, given (a) the proposed design and operating characteristics of the Project, and (b) any changes in significance criteria.

The analysis below is based in part on the San Pablo Creek Construction Slope Stability Evaluation Technical Memorandum and the draft Geotechnical Design Recommendations report (McMillen Jacobs, 2019a and 2019b, respectively).

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines*, an impact would be considered significant if the Project would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

    b. Strong seismic ground shaking.

    c. Seismic-related ground failure, including liquefaction.

    d. Landslides.

2. Result in substantial soil erosion or the loss of topsoil.

3. 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.

4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Buildings Code (1994), creating substantial direct or indirect risks to life or property.

5. 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.

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

Criteria Requiring No Further Evaluation

- ***Criterion 1(a): Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault.*** The faults most susceptible to earthquake rupture are active faults, which are faults that have experienced surface displacement within the last 11,000 years. No active faults cross the Project site. Therefore, there would be no impact from a fault rupture affecting the Project.

- ***Criterion 5: 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.*** Any wastewater generated from the Project would be directed to the existing sewer system for disposal; therefore, land would not be used for the treatment or disposal of wastewater. During construction, temporary self-contained toilets and hand washing facilities would be located on site. Any wastewater generated by these facilities would be hauled off site for treatment and disposal. Therefore, there would be no impacts associated with the capability of soils to dispose of wastewater.

Adopted WTTIP Mitigation Measures

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. Table 3.7-1 presents adopted mitigation measures from the WTTIP EIR that relate to geology, soils, seismicity, and paleontological resources at and in the vicinity of the Orinda WTP. Implementation of an adopted WTTIP Mitigation Measure from WTTIP EIR Section 3.9, Air Quality, would reduce or avoid significant impacts related to soil erosion or the loss of topsoil, and is therefore included in Table 3.7-1.

TABLE 3.7-1
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR GEOLOGY, SOILS, SEISMICITY, AND PALEONTOLOGICAL RESOURCES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.4-2	During the design phase for all ~~WTTIP~~ project components that require ground-breaking activities (excluding pipelines), the District will perform site-specific, design-level geotechnical evaluations to identify potential secondary ground failure hazards (i.e., seismically-induced settlement) associated with the expected level of seismic ground shaking. The geotechnical analysis would provide recommendations to mitigate those hazards in the final design and, if necessary during construction. The site-specific design-level geotechnical evaluations, based on the site conditions and location and professional opinion of the geotechnical engineer, could include subsurface drilling, soil testing, and analysis of site seismic response. The geotechnical engineer would review the seismic design criteria of facilities to ensure that facilities are designed to withstand the highest expected peak acceleration, set forth by the CBC for each site. Recommendations resulting from findings of the geotechnical study will be incorporated into the design and construction of proposed facilities. Design and construction for buildings will be performed in accordance with the District's seismic design standards, which meet and/or exceed design standards for Seismic Zone 4 of the Uniform Building Code.
3.4-3a	During the design phase for all ~~WTTIP~~ project components that require ground-breaking activities (excluding pipelines), the District will perform site-specific design-level geotechnical evaluations to identify geologic hazards and provide recommendations to mitigate those hazards in the final design and during construction. The geotechnical evaluations, conducted by a California registered professional engineer, will include site-specific investigations, which may include, if necessary, soil sampling and testing to determine the presence and characteristics of potentially compressible soils, the engineering properties of the proposed foundation material, the depth and thickness of soil layers, and the depth to groundwater. Based on the findings of the investigations, the registered professional shall formulate adequate measures to reduce the expansivity index of the site soil to a low expansion potential (Expansivity Index (EI) less than 50) as defined in the 1997 Uniform Building Code. For compressible soils, the registered professional would develop and implement a strategy to improve the soil to achieve settlements below what the proposed structure can tolerate, as determined through laboratory soils testing and professional judgment. Feasible mitigation measures, as listed below, are standard engineering practice and are common engineering design strategies used to overcome problematic soil conditions. • Removal and replacement of problematic topsoil • Soil pre-compression, using vertical drains, surcharge fills or dynamic compaction • Installation of deep foundations (i.e., piles, drilled piers) • Deep mixing of compressible or expansive soils with stabilizing agents Mitigation measures included in the geotechnical evaluations will be incorporated into the project design specifications and would become part of the project.
3.4-3b	The District will include in the contract specifications that any fill will be selected, placed, compacted, and inspected in accordance with plans and specifications prepared by a licensed professional engineer in accordance with standard and accepted engineering protocols (inspection, compaction-density testing, in-situ field testing) necessary to prevent engineered fill soils from becoming expansive or compressible after placement.
3.4-4	During the design phase for all ~~WTTIP~~ project components that require ground-breaking activities (excluding pipelines), the District will perform site-specific design-level geotechnical evaluations to identify geologic hazards and provide recommendations to mitigate those hazards in the final design and during construction. The design-level geotechnical evaluations will include the collection of subsurface data for determining liquefaction potential. The evaluation and mitigation of liquefaction hazards shall be in conformance with the California Geological Survey's Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, which provides methods to identify, evaluate, and reduce the hazards and earthquake-induced landslide hazards as required under the Seismic Hazards Mapping Act (SHMA) of 1990. The evaluation and mitigation shall be conducted by a California registered professional engineer or California certified engineering geologist. When site-specific testing identifies a potential for significant liquefaction-induced ground failures and damage to project facilities, appropriate feasible measures, as recommended in SP 117, shall be developed and incorporated into the project design. Because the project sites are not located in an area zoned under the SHMA, review of the investigation report by the CGS is not required. For all pipelines located in liquefaction hazard areas, appropriate piping material with the ability to deform without rupture (e.g. ductile steel) will be used. For

TABLE 3.7-1 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR GEOLOGY, SOILS, SEISMICITY, AND PALEONTOLOGICAL RESOURCES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.4-4 (cont.)	large diameter pipes (greater than 12 inches in diameter) located in high liquefaction hazard areas, a geotechnical evaluation will be conducted. Measures to minimize significant liquefaction hazards could include the following: • Densification or dewatering of surface or subsurface soils, • Construction of pile or pier foundations to support pipelines and/or buildings, • Removal of material that could undergo liquefaction in the event of an earthquake, and replacement with stable material, • Modification of site geometry to reduce the risk of translational site instability.
3.7-2	EBMUD or an appointed representative will notify a qualified paleontologist of any discoveries, document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in Section 15064.5 of the *CEQA Guidelines*. In the event a fossil is discovered during construction, excavations within 50 feet of the find will be temporarily halted or diverted until the discovery is examined by a qualified paleontologist, in accordance with Society of Vertebrate Paleontology standards (SVP, 1995). The paleontologist will notify EBMUD to determine procedures to be followed before construction is allowed to resume at the location of the find. If EBMUD determines that avoidance is not feasible, the paleontologist will prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important, and the plan will be implemented. The plan will be submitted to EBMUD for review and approval.
3.9-1b	The District will incorporate into the contract specifications the following requirements: *BAAQMD Enhanced Control Measures* • Hydroseed or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more). • Enclose, cover, water, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.) • Install sandbags or other erosion control measures to prevent silt runoff to public roadways. • Replant vegetation in disturbed areas as quickly as possible.

NOTE: Strikethrough text indicates text in the adopted WTTIP Mitigation Measures that does not relate to the Project.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic groundshaking; seismic-related ground failure (liquefaction, lateral spreading); or landslides. (Criterion 1(b) (c) (d))

Seismic Groundshaking

The WTTIP EIR found that groundshaking is an unavoidable hazard for structures and associated infrastructure within the entire Project region, and that Project-related improvements would likely experience at least one major earthquake during the operational lifetime of the components. Adopted WTTIP Mitigation Measure 3.4-2 was incorporated to ensure that EBMUD will perform site-specific, design-level geotechnical evaluations to identify potential secondary ground failure hazards (i.e., seismically-

induced settlement) associated with the expected level of seismic ground shaking, and reduce potentially significant impacts to a less-than-significant level.

As described above in Section 3.7.1, Environmental Setting, the Project site would be susceptible to strong seismic groundshaking in the event of an earthquake. The WTTIP EIR concluded that strong groundshaking is an unavoidable hazard for structures and associated infrastructure on the Project site, and that there would be at least one major earthquake sometime during the operational lifetime of the Project components.

The WTTIP EIR included mitigation measures to address the potential impacts associated with seismic groundshaking. Implementation of adopted WTTIP Mitigation Measure 3.4-2 would reduce impacts to a less-than-significant level by requiring a site-specific, design-level geotechnical evaluation during the design phase to provide recommendations to reduce the potential impacts associated with seismic groundshaking. Refer to Table 3.7.1 for the full text of adopted WTTIP Mitigation Measure 3.4-2. Pursuant to adopted WTTIP Mitigation Measures 3.4-2, McMillen Jacobs Associates drafted a Geotechnical Design Recommendations report (2019b) to inform the analysis of the Project. The seismic design criteria provided in the report were based on the American Society of Civil Engineers (ASCE) 7.16, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, which is referenced in the 2019 CBC. With implementation of adopted WTTIP Mitigation Measure 3.4-2, potential impacts related to substantial adverse effects from strong seismic groundshaking would be reduced to a less-than-significant level.

Ground Failure/Liquefaction

The WTTIP EIR determined that the liquefaction potential at the Orinda WTP is low, which is corroborated by the USGS Liquefaction Susceptibility map (USGS, 2006). A geotechnical evaluation was completed pursuant to adopted WTTIP Mitigation Measures 3.4-2 and 3.4-4 (refer to Table 3.7-1). Pursuant to adopted WTTIP Mitigation Measure 3.4-4, the geotechnical evaluation determined that liquefaction susceptibility is low at the Project site, but very high at San Pablo Creek north of the Orinda WTP (McMillen Jacobs, 2019b). The geotechnical evaluation also includes recommended measures to minimize significant liquefaction hazards, including construction of pile or pier foundations to support pipelines and/or buildings; identification and removal of debris, loose, and otherwise unsuitable soils at the site; and replacement (backfilling) with suitable, engineered fill, under the guidance of a geotechnical engineer (McMillen Jacobs, 2019b).

Implementation of adopted WTTIP Mitigation Measures 3.4-2 and 3.4-4 would reduce impacts to a less-than-significant level by requiring site-specific, design-level geotechnical evaluations to identify potential secondary ground failure hazards and geologic hazards and provide recommendations to mitigate those hazards in the final design and during construction. Refer to Table 3.7.1 for the full text of adopted WTTIP Mitigation Measures 3.4-2 and 3.4-4.

Through adherence to the recommendations provided by the site-specific, design-level geotechnical report prepared pursuant to adopted WTTIP Mitigation Measures 3.4-2 and

3.4-4, potential impacts related to substantial adverse effects from liquefaction and ground failure would be reduced to a less-than-significant level.

Landslides/Unstable Slopes

The WTTIP EIR found that because the Orinda WTP site has been previously graded for development and is relatively level, and the Project elements would be located in the previously developed area or in an area that would not present a hazard associated with unstable slopes, the potential impact of landslides/unstable slopes at the Orinda WTP would be less than significant.

A geotechnical evaluation was completed pursuant to adopted WTTIP Mitigation Measure 3.4-4 (refer to Table 3.7-1). Pursuant to adopted WTTIP Mitigation Measure 3.4-4, the geotechnical evaluation determined that the Project site would be stable under static conditions, during a seismic event, and when subjected to vibrations associated with construction (McMillen Jacobs, 2019b).

Implementation of adopted WTTIP Mitigation Measure 3.4-4 would reduce impacts to a less-than-significant level by requiring site-specific, design-level geotechnical evaluations to identify potential secondary ground failure hazards and geologic hazards. Refer to Table 3.7.1 for the full text of adopted WTTIP Mitigation Measure 3.4-4. Refer to Impact GEO-3 for further discussion regarding landslides and slope stability at the Orinda WTP.

With implementation of adopted WTTIP Mitigation Measures 3.4-2 and 3.4-4, impacts related to causing potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic groundshaking; seismic-related ground failure; or landslides would be less than significant for Project construction and operation.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

> **Adopted WTTIP Mitigation Measures:** 3.4-2 and 3.4-4 (Refer to Table 3.7-1 for the full text of adopted mitigation measures).

Impact GEO-2: Result in substantial soil erosion or the loss of topsoil. (Criterion 2)

The WTTIP EIR found that the Orinda WTP has a "slight" erosion hazard (refer to Table 3.4-1 of the WTTIP EIR), but that there would be no impact related to soil erosion. Pursuant to the WTTIP EIR, construction work would incorporate best management practices for erosion control to be consistent with applicable local policies and/or stormwater pollution prevention plan requirements, which would reduce the potential for

short- or long-term structural damage to fills, foundations, and other engineered structures.

Implementation of adopted WTTIP Mitigation Measure 3.9-1b would reduce impacts to a less-than-significant level by requiring that EBMUD implement control measures such as applying nontoxic soil stabilizers to inactive construction areas, installing sandbags or other erosion control measures to prevent silt runoff to public roadways, and replanting vegetation in disturbed areas as quickly as possible. Refer to Table 3.3-3 in Section 3.3, Air Quality, as well as Table 3.7-1 for the full text of adopted WTTIP Mitigation Measure 3.9-1b. Implementation of adopted WTTIP Mitigation Measure 3.9-1b would provide erosion control mechanisms that would reduce impacts related to soil erosion or the loss of topsoil. The impact of the Project on erosion and soil loss with respect to water quality and sedimentation is described in Section 3.10, Hydrology and Water Quality. This impact focuses on the potential for accelerated erosion (such as sheetwash, rilling, rutting, and in more extreme cases, gullying, sloughing, or sliding of incised gully sidewalls) to undermine berms, roads, utilities, and foundations. Accelerated erosion typically occurs on bare, unprotected slopes during the wet season, particularly in response to prolonged, intense storms. As indicated in Chapter 2, *Project Description*, any surface (including staging areas) that is made vulnerable to erosion during construction would be returned to its preconstruction condition (i.e., ground would be paved or re-paved, and removed vegetation would be replaced where feasible).

Measures to address water quality, sedimentation, and creek bed and bank erosion (such as implementation of BMPs from a SWPPP and adherence to the objectives and guidelines from the East Bay Watershed Management Plan) described in Section 3.10, Hydrology and Water Quality, would further reduce the potential for the structural or geotechnical problems associated with accelerated erosion. Therefore, with implementation of adopted WTTIP Mitigation Measure 3.9-1b, impacts related to resulting in substantial soil erosion or the loss of topsoil would be less than significant for Project construction and operation.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

> **Adopted WTTIP Mitigation Measures:** 3.9-1b (Refer to Table 3.7-1 for the full text of adopted mitigation measures).

Impact GEO-3: Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse. (Criterion 3)

As noted under Impact GEO-1, above, the WTTIP EIR concluded that because the Orinda WTP site has been previously graded for development and is relatively level, and the Project elements would be located in the previously developed area or in an area that would not present a hazard associated with unstable slopes, potential impacts related to slope stability at the Orinda WTP would be less than significant.

Pursuant to adopted WTTIP Mitigation Measures 3.4-2 and 3.4-3a, a site-specific slope stability evaluation was performed by McMillen Jacobs Associates (2019a) to analyze the slope stability at the Project site under static conditions, as well as conditions during a seismic event. The effects of vibrations associated with construction (i.e., via construction equipment) on slope stability were also evaluated. The study area for this slope stability evaluation centered on the north and east sides of the proposed MAUVE/UV/CCB Structure and the south and west sides of San Pablo Creek. The analysis confirmed that the existing creek bank would be stable under static conditions, during a seismic event, and when subjected to vibrations associated with construction. A geotechnical evaluation was completed pursuant to adopted WTTIP Mitigation Measure 3.4-4 (refer to Table 3.7-1). Pursuant to adopted WTTIP Mitigation Measure 3.4-4, the geotechnical evaluation determined that the Project site would be stable under static conditions (McMillen Jacobs, 2019b).

The site-specific slope stability evaluation discussed in the preceding paragraph (McMillen Jacobs, 2019b) was augmented in 2020 with a subsequent evaluation on the Project's shoring system effects on San Pablo Creek bank stability. Although the 2020 evaluation concluded that fracturing of the ground contributing to creek bank failure as a result of the Project would not be expected, the 2020 evaluation acknowledged that because ground conditions can vary from those indicated in field investigations, a risk of creek bank failure could exist and create a potentially significant impact. To ensure that Project construction does not contribute to or increase the potential for creek bank instability, Mitigation Measure HYD-3, San Pablo Creek Bank Monitoring and Remediation Program, would require development of a creek bank monitoring and remediation program to be implemented during and after construction. Mitigation Measure HYD-3 would include, but not be limited to: baseline creek cross-section surveys, visual creek bank stability evaluations at pre-determined construction milestones and for five years annually after Project completion, development of specific bank stability thresholds and appropriate bank stabilization remedial actions, and coordination with regulatory waterway agencies in the event of bank failure in San Pablo Creek.

For a full discussion of the Project's potential effects to the banks of San Pablo Creek, refer to Impact HYD-3d in Section 3.10, Hydrology and Water Quality.

Implementation of adopted WTTIP Mitigation Measures 3.4-2, 3.4-3a, and 3.4-4, and Mitigation Measure HYD-3, would reduce impacts to a less-than-significant level by

requiring site-specific, design-level geotechnical evaluations to identify potential slope stability hazards, and creek bank stability monitoring during and after construction. Refer to Table 3.7.1 for the full text of adopted WTTIP Mitigation Measures 3.4-2, 3.4-3a, and 3.4-4.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.4-2, 3.4-3a, and 3.4-4 (Refer to Table 3.7-1 for the full text of adopted mitigation measures).

Mitigation Measure HYD-3: San Pablo Creek Bank Monitoring and Remediation Program. (Refer to Impact HYD-3d in Section 3.10, Hydrology and Water Quality, for the full text of Mitigation Measure HYD-3.)

Significance Determination After Mitigation

Less than significant.

Impact GEO-4: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Buildings Code (1994), creating substantial direct or indirect risks to life or property. (Criterion 4)

The WTTIP EIR concluded that Project components could be damaged due to expansive or compressive soils. In response to this conclusion, the WTTIP EIR included Mitigation Measures 3.4-3a and 3.4-3b (refer to Table 3.7-1) to address the potential impacts associated with settlement or uplift caused by expansive or compressive soils.

Pursuant to adopted WTTIP Mitigation Measure 3.4-3a, a Geotechnical Design Recommendations report was prepared by McMillen Jacobs Associates (2019b) and provides recommendations to reduce impacts related to expansive and compressible soils. Adopted WTTIP Mitigation Measure 3.4-3a also includes feasible measures to overcome problematic soil conditions (such as compressive soils), including the following: removal and replacement of problematic topsoil; soil pre-compression, using vertical drains, surcharge fills, or dynamic compaction; installation of deep foundations (i.e., piles, drilled piers); and deep mixing of compressible or expansive soils with stabilizing agents. Adopted WTTIP Mitigation Measure 3.4-3b requires that fill to be used during construction be tested to prevent engineered fill soils from becoming expansive or compressible after placement.

Implementation of adopted WTTIP Mitigation Measures 3.4-3a and 3.4-3b would reduce impacts to a less-than-significant level by reducing impacts related to expansive and compressible soils, and requiring fill to be used during construction be tested to prevent

expansion after placement. Refer to Table 3.7-1 for the full text of adopted WTTIP Mitigation Measures 3.4-3a and 3.4-3b.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.4-3a and 3.4-3b (Refer to Table 3.7-1 for the full text of adopted mitigation measures).

Impact GEO-5: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (Criterion 6)

According to the boring and sonic coring logs provided in the San Pablo Creek Construction Slope Stability Evaluation (McMillen Jacobs, 2019a), the Orinda Formation is overlain by artificial fill and native terrace deposits. The depth of the artificial fill varies depending on location; the fill is approximately 7 feet below the existing grade at the northeast portion of the MAUVE/UV/CCB Structure boundary and approximately 26 feet below the existing grade at the southeastern corner of the MAUVE/UV/CCB Structure boundary. The Orinda Formation has yielded several significant paleontological resources (UCMP, 2019; Poust, 2016). Based on past fossil discoveries within the Orinda Formation, the formation is considered to have a high paleontological sensitivity.

Ground disturbance is anticipated to range between approximately 33 feet and 65 feet (refer to Table 2-2 in Chapter 2, *Project Description*, of this Supplemental EIR), and is therefore likely to disturb the Orinda Formation. Project-related ground disturbance within this formation would result in a significant impact on the paleontological resources in the area if it were to destroy unique paleontological resources. Project-related construction activities that would occur at the four staging areas (refer to Section 2.6.1, Construction Activities in Chapter 2, *Project Description*) would not include excavation or other ground disturbance, and would not impact paleontological resources.

Implementation of adopted WTTIP Mitigation Measure 3.7-2 would reduce impacts to a less-than-significant level by requiring a qualified paleontologist to assess and evaluate any potential resource discoveries made during construction, and to determine the significance of the discovery and prepare an excavation plan if avoidance is not feasible. Refer to Table 3.7-1 for the full text of adopted WTTIP Mitigation Measure 3.7-2.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.7-2 (Refer to Table 3.7-1 for the full text of adopted mitigation measures).

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3.8 Greenhouse Gas Emissions

This section describes the physical environmental and regulatory setting for greenhouse gas (GHG) emissions, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts from GHG emissions that could result from construction and operation of the Project. Refer to Appendix E for supporting information, including air quality and greenhouse gases modeling outputs.

3.8.1 Environmental Setting

"Global warming" and "climate change" are common terms used to describe the increase in the average temperature of Earth's near-surface air and oceans since the mid-20th century. Natural processes and human actions have been identified as impacting climate. The International Panel on Climate Change (IPCC) has concluded that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. Since the 19th century, however, increasing GHG emissions concentrations resulting from human activity such as fossil fuel combustion, deforestation, and other activities are believed to be a major factor in climate change. GHGs in the atmosphere naturally trap heat by impeding the exit of solar radiation that has hit Earth and is reflected back into space – a phenomenon sometimes referred to as the "greenhouse effect." Some GHGs occur naturally and are necessary for keeping Earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have trapped solar radiation and decreased the amount that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

GHG emissions were not specifically discussed in the WTTIP EIR. However, in recognition of the addition of GHG emissions impacts to the Environmental Checklist Form found in Appendix G of the *CEQA Guidelines*, EBMUD has included an analysis of potential GHG emissions impacts in this Supplemental EIR.

Greenhouse Gas Emissions

Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) are the principal GHGs. When concentrations of these gases exceed historical concentrations in the atmosphere, the greenhouse effect is intensified. CO_2, CH_4, and N_2O occur naturally and are also generated through human activity. Emissions of CO_2 are largely byproducts of fossil fuel combustion, whereas CH_4 results from off-gassing, natural gas leaks from pipelines and industrial processes, and incomplete combustion associated with agricultural practices, landfills, energy providers, and other industrial facilities. Other human-generated GHGs include fluorinated gases such as HFCs, PFCs, and SF_6, which have much higher heat-absorption potential than CO_2, and are byproducts of certain industrial processes.

CO_2 is the reference gas for climate change, as it is the GHG emitted in the highest volume. The effect that each GHG has on global warming is the product of the mass of its emissions and its global warming potential (GWP). GWP indicates how much a gas is predicted to

contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. For example, CH_4 and N_2O are substantially more potent GHGs than CO_2, with GWPs of approximately 25 (CH_4) and approximately 298 (N_2O) times that of CO_2, which has a GWP of 1 (California Air Resources Board [CARB], 2020).

In emissions inventories, GHG emissions are typically reported as metric tons (MT) of CO_2 equivalent (CO_2e). CO_2e is calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWPs than CO_2, CO_2 is emitted in higher quantities and accounts for the majority of GHG emissions in CO_2e, both from commercial developments and human activity in general. GHGs are global concerns, unlike criteria air pollutants or toxic air contaminants that are of regional and/or local concern.

Sources of Greenhouse Gas

In 2017, the United States (U.S.) emitted about 6,457 million metric tons of CO_2e, with 76.1 percent of those emissions coming from fossil fuel combustion. Of the major sectors nationwide, transportation accounts for the highest amount of GHG emissions (approximately 29 percent), followed by electricity generation (28 percent), industry (22 percent), agriculture (9 percent), commercial buildings (6 percent), and residential buildings (5 percent)[1]. Between 1990 and 2017, total net GHG emissions in the U.S. rose by 1.3 percent, accounting for forestry and land use changes. Since peaking in 2005, net total emissions have decreased by about 9 percent (U.S. EPA, 2019).

Statewide emissions of GHG from relevant source categories for 2011 through 2017 are summarized in Table 3.8-1. In 2017, California produced 424.1 million gross metric tons of CO_2e emissions. Transportation was the source of 41 percent of the state's GHG emissions, followed by industrial at 24 percent, electricity generation at 15 percent, commercial and residential sources at 13 percent, and agriculture and forestry and not specified comprised the remaining 7 percent (CARB, 2019).

TABLE 3.8-1
CALIFORNIA GHG EMISSIONS (MILLION METRIC TONS CO_2E)

Emission Inventory Category	2011	2012	2013	2014	2015	2016	2017	
Electricity Generation (In State)	41.26	51.17	49.62	51.79	49.98	42.35	38.57	9.1%
Electricity Generation (Imports)	46.95	44.58	40.08	36.84	33.98	26.35	24.00	5.7%
Transportation	166.78	166.24	165.82	167.39	170.91	173.31	174.31	41.1%
Industrial	100.65	101.68	104.48	105.07	102.79	101.04	101.14	23.8%
Commercial	20.73	21.11	21.64	21.37	22.05	23.18	23.26	5.5%
Residential	32.90	30.91	32.07	27.14	27.91	29.30	30.40	7.2%
Agriculture and Forestry	34.34	35.46	33.99	35.06	33.75	33.51	32.42	7.6%
Total Gross Emissions	**443.6**	**451.2**	**447.7**	**444.7**	**441.4**	**429.0**	**424.1**	**100.0%**

SOURCE: CARB, 2019.

[1] Percentages may not add to 100 percent due to independent rounding and the manner in which the National-Level U.S. Greenhouse Gas Inventory quantifies U.S. territories as a separate sector (U.S. EPA, 2019).

3.8.2 Regulatory Framework

Federal Regulations

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

The U.S. Supreme Court held that the U.S. Environmental Protection Agency (U.S. EPA) must consider the regulation of motor vehicle GHG emissions. In *Massachusetts v. Environmental Protection Agency* et al., 12 states and cities, including California, together with several environmental organizations sued to require the U.S. EPA to regulate GHGs as pollutants under the Clean Air Act (CAA) (127 S. Ct. 1438 [2007]). The U.S. Supreme Court ruled that GHGs fit within the CAA's definition of a pollutant and the U.S. EPA had the authority to regulate GHGs.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- ***Endangerment Finding*:** The current and projected concentrations of the six key GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.
- ***Cause or Contribute Finding*:** The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

These findings did not, by themselves, impose any requirements on industry or other entities. However, these actions were a prerequisite for implementing GHG emissions standards for vehicles.

State Regulations

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California. There are currently no state regulations in California that establish ambient air quality standards for GHGs. However, California has enacted laws directing CARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have come into play in the past decade.

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is a prominent environmental issue requiring analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit guidelines to the California Natural Resources Agency for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. The California Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On December 30, 2009, the California Natural

Resources Agency adopted the state *CEQA Guidelines* amendments, as required by SB 97. These *CEQA Guidelines* amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments became effective March 18, 2010.

CEQA Guidelines

CEQA Guidelines Section 15064.4 addresses the significance of GHG emissions and calls for a lead agency to make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG impacts should include consideration of: (1) the extent to which a project may increase or reduce GHG emissions, (2) whether project emissions would exceed a locally applicable threshold of significance, and (3) the extent to which a project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions." The revisions also state that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project would comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of GHG emissions) that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (*CEQA Guidelines* Section 15064(h)(3)). The *CEQA Guidelines* revisions do not, however, set a numerical threshold of significance for GHG emissions.

The revisions also include the following guidance on measures to mitigate GHG emissions, when such emissions are found to be significant:

> Consistent with [*CEQA Guidelines*] Section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:
>
> (1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
>
> (2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;
>
> (3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;
>
> (4) Measures that sequester greenhouse gases; and
>
> (5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the

incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.

Executive Order S-3-05

In June 2006, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which established the following statewide emissions-reduction targets through the year 2050:

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

This executive order does not contain any requirements that directly pertain to the Project; however, future actions taken by the state of California to implement these goals may affect the Project, depending on the specific implementation measures that are developed.

Assembly Bill 32

California Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, required CARB to establish a statewide GHG emissions cap for 2020 based on 1990 emission levels. AB 32 required CARB to adopt regulations that identify and require selected sectors or categories of emitters of GHGs to report and verify their statewide GHG emissions, and CARB is authorized to enforce compliance with the program. Under AB 32, CARB was also required to adopt a statewide GHG emissions limit equivalent to the statewide GHG emissions levels in 1990, which must be achieved by 2020. CARB established this limit in December 2007 at 427 million metric tons of CO_2e which was approximately 30 percent below forecasted "business-as-usual" emissions of 596 million metric tons of CO_2e in 2020, and approximately 10 percent below average annual GHG emissions during the period of 2002 through 2004 (CARB, 2009). In the interest of achieving the maximum technologically feasible and cost-effective GHG emission reductions, AB 32 permits the use of market-based compliance mechanisms and requires CARB to monitor compliance with and enforce any rule, regulation, order, emissions limitation, emissions reduction measure, or market-based compliance mechanism that it adopts.

Climate Change Scoping Plan (AB 32 Scoping Plan)

A specific requirement of AB 32 was to prepare a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emissions reduction by 2020. CARB developed and approved the initial Scoping Plan in 2008, outlining the regulations, market-based approaches, voluntary measures, policies, and other emissions reduction programs that would be needed to meet the 2020 statewide GHG emissions limit and initiate the transformations needed to achieve the state's long-range climate objectives (CARB, 2009). The First Update to the Scoping Plan was approved by CARB in May 2014 and built upon the initial Scoping Plan with new strategies and recommendations (CARB, 2014). The Scoping Plan was later updated in 2017, as detailed below under "Executive Order B-30-15 and SB 32".

Executive Order S-1-07

Executive Order S-1-07, signed by Governor Schwarzenegger in 2007, identified the transportation sector as the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. Executive Order S-1-07 established a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020 and also directed CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009, CARB approved the proposed regulation to implement the LCFS. The LCFS will reduce GHG emissions from the transportation sector in California by about 16 million metric tons in 2020.

California Renewable Energy Programs

In 2002, California initially established its Renewables Portfolio Standard (RPS), with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent by 2017. State energy agencies recommended accelerating that goal, and California Executive Order S-14-08 (November 2008) required California utilities to reach the 33 percent renewable electricity goal by 2020, consistent with the AB 32 Scoping Plan. In April 2011, Senate Bill 2 of the First Extraordinary Session (SB X1-2) was signed into law. SB X1-2 expressly applies the new 33 percent RPS by December 31, 2020, to all retail sellers of electricity and establishes renewable energy standards for interim years prior to 2020. SB 350 of 2015 (Chapter 547, Statutes of 2015) increased the RPS to 50 percent by the year 2030.

On September 10, 2018, Governor Edmund G. (Jerry) Brown Jr. 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, SB 100 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 must also 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.

Mandatory Reporting Requirements

Pursuant to California Code of Regulations Title 17, Sections 95100 through 95158, operations of large industrial stationary combustion and process emissions sources that emit 10,000 metric tons CO_2e or more per calendar year are required to report and verify their GHG emissions to CARB. As described in Section 3.8.3, Impact Analysis, the total GHG emissions for the Project would be well below the AB 32 reporting threshold; therefore, the Project would not be subject to the AB 32 mandatory reporting requirements.

Market-Based "Cap-and-Trade" Compliance Mechanism

AB 32 allows the use of market-based compliance mechanisms to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. AB 32 also requires CARB to monitor compliance with and enforce any rule, regulation, order, emissions limitation, emissions reduction measure, or market-based compliance mechanism that it adopts. In response, CARB adopted a cap-and-trade program that covers major sources of GHG emissions, such as refineries and power plants. The program includes an annual emissions cap that declines over time. CARB's cap-and-trade program applies to facilities that would emit 25,000 metric tons or more of CO_2e per year. Because the total estimated GHG emissions for the Project would be well below this level, as detailed later in this section, the cap-and-trade program would not apply to the Project.

Executive Order B-30-15 and SB 32

In April 2015, Governor Edmund G. (Jerry) Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. Reaching this emissions reduction target will make it possible for California to reach its ultimate goal of reducing emissions 80 percent under 1990 levels by 2050, as identified in Executive Order S-3-05. Executive Order B-30-15 also specifically addresses the need for climate adaptation and directs state government to:

- Incorporate climate change impacts into the state's Five-Year Infrastructure Plan.
- Update the Safeguarding California Plan, the state climate adaption strategy to identify how climate change will affect California infrastructure and industry and what actions the state can take to reduce the risks posed by climate change.
- Factor climate change into state agencies' planning and investment decisions.
- Implement measures under existing agency and departmental authority to reduce GHG emissions (Office of the Governor, 2015).

Executive Order B-30-15 required CARB to update the AB 32 Scoping Plan to incorporate the 2030 target. Subsequently, SB 32, which codifies the executive order's 2030 emissions reduction target, was approved by the Governor on September 8, 2016. SB 32 requires CARB to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions to ensure that statewide GHG emissions are reduced to at least 40 percent below the 1990 statewide GHG emissions limit no later than December 31, 2030, the target established by Executive Order B-30-15.

CARB adopted the 2017 Scoping Plan Update for achieving the requirements for SB 32, which takes into account the key programs associated with implementation of the AB 32 Scoping Plan—such as GHG reduction programs for cars, trucks, fuels, industry, and electrical generation—and builds upon, in particular, existing programs related to the cap-and-trade regulation; the low carbon fuel standard; much cleaner cars, trucks, and freight movement; power generation for the state using cleaner renewable energy; and

strategies to reduce methane emissions from agricultural and other waste by using it to meet the state's energy needs. The 2017 Scoping Plan Update also addresses, for the first time, GHG emissions from natural and working lands, including the agriculture and forestry sectors (CARB, 2017). The 2017 Scoping Plan Update's strategy for meeting the state's 2030 GHG target incorporates the full range of legislative actions and state-developed plans that have relevance to the year 2030, including the following:

- Extending the low carbon fuel standard beyond 2020 and increasing the carbon intensity reduction requirement to at least 18 percent by 2030.
- SB 350, which increases the RPS to 50 percent and requires a doubling of energy efficiency for existing buildings by 2030.
- The 2016 Mobile Source Strategy is estimated to reduce emissions from mobile sources, including an 80 percent reduction in smog-forming emissions and a 45 percent reduction in diesel particulate matter from 2016 levels in the South Coast Air Basin, a 45 percent reduction in GHG emissions, and a 50 percent reduction in the consumption of petroleum-based fuels.
- The Sustainable Freight Action Plan to improve freight efficiency and transition to zero emissions freight handling technologies.
- SB 1383, which requires a 50 percent reduction in anthropogenic black carbon and a 40 percent reduction in hydrofluorocarbon and methane emissions below 2013 levels by 2030.
- AB 398, which extends the state Cap-and-Trade Program through 2030.

Local Regulations

BAAQMD CEQA Guidelines

The Bay Area Air Quality Management District (BAAQMD) *CEQA Air Quality Guidelines* (BAAQMD Guidelines) advise lead agencies on how to evaluate potential air quality impacts during the environmental review process consistent with CEQA requirements, including establishing quantitative and qualitative thresholds of significance (BAAQMD, 2017a).

The BAAQMD considers GHG emissions and global climate change to represent cumulative impacts. GHG emissions contribute, on a cumulative basis, 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. The combination of GHG emissions from past, present, and future projects contribute substantially to global climate change and its associated environmental impacts. BAAQMD's approach to developing a Threshold of Significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions. If a project would generate GHG emissions above the threshold level, it would be considered

to contribute substantially to a cumulative impact, and would be considered significant. The BAAQMD Guidelines include operational thresholds of 10,000 MT CO_2e per year for stationary sources and 1,100 MT CO_2e per year for land use development projects not including stationary sources and does not include any GHG thresholds for construction emissions.

2017 Clean Air Plan

The 2017 Clean Air Plan, Spare the Air, Cool the Climate (2017 Plan) was adopted by the BAAQMD on April 19, 2017. It focuses on two closely related goals: protecting public health and protecting the climate. Consistent with the GHG reduction targets adopted by the state of California, the 2017 Plan lays the groundwork for a long-term effort to reduce Bay Area GHG emissions by 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050 (BAAQMD, 2017b). The 2017 Plan includes a range of proposed control measures, which consist of actions to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. The 2017 Plan updates the *Bay Area 2010 Clean Air Plan* and complies with state air quality planning requirements as codified in the California Health and Safety Code. It includes 85 measures to address the reduction of several pollutants, including GHGs. Of the 85 measures included in the 2017 CAP, two emissions control measures address the water sector. Measure WR-1 initiates a process to better understand and quantify GHG emissions, explore rulemaking to reduce GHGs, and promote the use of biogas recovery systems at publicly owned treatment works. Measure WR-2 addresses the use of best practices that reduce water consumption and increase on-site water recycling in new and existing buildings and incorporation into local planning guidance.

City of Orinda General Plan

There are no policies in the *City of Orinda General Plan* related to GHGs. Policies that address air quality and energy conservation also address GHG emissions. As such, the following *City of Orinda General Plan* policy is relevant to the Project:

Guiding Policy K: Promote energy conservation programs and practices.

> ***Implementing Policy N*:** Develop a comprehensive energy conservation plan. The plan should be coordinated with those of adjoining communities and utility companies and with experts in the field. It should include policies, ordinances and informational elements.

EBMUD Climate Mitigation Action Plan

In 2008, EBMUD adopted a climate change objective in EBMUD's Strategic Plan, focusing on using resources (economic, environmental, and human) in a responsible manner that meets current needs without compromising the ability to meet future needs. In response to the climate change objective, EBMUD prepared the *Climate Change Monitoring and Response Plan* (EBMUD 2014), which provides guidance to inform EBMUD of decisions regarding water supply, water quality, and infrastructure planning.

As set forth in the Energy Policy adopted by EBMUD's Board of Directors, EBMUD's goal is to be carbon free for indirect emissions and achieve a 50 percent reduction in direct emissions compared to 2000 levels by 2040. EBMUD tracks GHG emissions pursuant to The Climate Registry (TCR) general reporting protocols (EBMUD, 2014) and, if necessary to meet its emissions reduction goals, takes action to mitigate its GHG emissions (such as through the purchase of carbon offsets). In 2018, GHG emissions generated by EBMUD were 18,817 MT CO_2e, which was 59 percent below 2000 GHG emission levels (EBMUD, 2019).

EBMUD Energy Policy 7.07

EBMUD has adopted Energy Policy 7.07 to encourage and promote energy management and energy efficient practices within its water and wastewater system operations, service area, and watersheds, and reduce GHG emissions, minimize reliance on fossil fuels, provide reliable energy sources, reduce energy costs, and support EBMUD's goal to be carbon free for indirect emissions and achieve 50 percent reduction in direct emissions compared to 2000 levels by 2040, in accordance with its environmental principles and sustainability policy (EBMUD, 2018).

Objectives of the Energy Policy that support energy conservation and GHG reduction include:

- Efficiently use energy including electricity, petroleum-based fuels, and natural gas to reduce costs and energy consumption, conserve natural resources, and minimize impacts on the environment;
- Increase use and generation of renewable energy to preserve natural resources, reduce environmental pollution, and support EBMUD's mission to protect and preserve the environment for future generations; and
- Support the state's renewable energy goals.

3.8.3 Impact Analysis

Methodology for Analysis

For quantifying a project's GHG emissions, BAAQMD recommends that all GHG emissions from a project be estimated, including a project's direct and indirect GHG emissions from operations. Direct emissions refer to emissions produced from the on-site combustion of energy, such as natural gas used in furnaces and boilers, emissions from industrial processes, and fuel combustion from mobile sources. Indirect emissions are emissions produced off site from energy production and water conveyance due to a project's energy use and water consumption. BAAQMD has provided guidance on detailed methods for modeling GHG emissions from proposed projects (BAAQMD, 2017a).

The Project would generate GHG emissions during construction and operation. During construction, direct GHG emissions would be generated from construction equipment and

vehicle trips made to and from the Project site and staging areas to transport workers and materials. In addition, indirect GHG emissions would be generated from short-term electricity usage associated with pumping and distribution of water used for dust suppression activities during construction. Once operational, indirect GHG emissions would be generated from the increase in electricity use at the Orinda WTP site due to the Project. Operational emissions would also include direct emissions from the testing and maintenance of the proposed emergency generator.

The BAAQMD Guidelines include significance thresholds for land use development projects and other projects with stationary sources that generate GHGs. The BAAQMD recommends an operational significance threshold of 10,000 MT CO_2e per year for stationary source projects. For projects other than stationary sources, the BAAQMD operational screening threshold is 1,100 MT CO_2e per year (BAAQMD, 2017a). The BAAQMD Guidelines do not include significance thresholds for construction-related GHG emissions, but recommend that construction-related GHG emissions be quantified and disclosed. BAAQMD has not developed a significance threshold for GHG emissions from construction. The California Emissions Estimator Model (CalEEMod, Version 2016.3.2) was used to estimate GHG emissions from construction activities including off-road equipment emissions, and on-road construction worker, haul, and vendor truck emissions. Model outputs are provided in Appendix E. Emissions associated with construction water use were estimated using emissions and use factors established by the California Energy Commission (CEC) and TCR (CEC, 2005; TCR, 2016). Annual GHG emissions were estimated in units of MT CO_2e per year. Indirect GHG emissions that would be generated from the increase in electricity use at the Orinda WTP site from the operation of Project facilities are estimated using GHG emissions factors for electricity generation from the Pacific Gas and Electric Company (PG&E) and U.S. EPA's Emissions and Generation Resource Integrated Database summary tables (PG&E, 2018; U.S. EPA, 2020). Operational direct emissions from testing of the proposed emergency generator were estimated using CalEEMod.

Fuel combustion is the primary source of GHG emissions for the Project. Combustion emissions mainly include CO_2 with smaller amounts of N_2O and CH_4. GHG emissions were estimated for CO_2, N_2O, and CH_4; the total CO_2e associated with Project power demand was calculated by multiplying the N_2O and CH_4 emissions by their respective global warming potential, and then those values were added to the CO_2 emissions. Refer to Appendix E for all emissions factors and assumptions used to estimate GHG emissions that would be associated with the Project.

Project GHG emissions are analyzed in context of the goals of AB 32 and the 2017 Scoping Plan Update, SB 32, and the BAAQMD's 2017 Clean Air Plan to determine whether the Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Both BAAQMD and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts, in that no single project could, by itself, result in a substantial change in climate (BAAQMD, 2017a

and CAPCOA, 2008). Therefore, the evaluation of GHG impacts evaluates whether the Project would make a considerable contribution to cumulative climate change effects.

Significance Criteria

Consistent with *CEQA Guidelines* Sections 15064.4 and 15064.4(c), as well as Appendix G of the *CEQA Guidelines*, a GHG emissions impact would be considered significant if the Project would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Adopted WTTIP Mitigation Measures

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. Although the WTTIP EIR did not include any mitigation measures specifically related to GHGs, adopted WTTIP mitigation measures related to air quality and public services and utilities would also reduce GHG emissions. Table 3.8-2 presents adopted mitigation measures from the WTTIP EIR that relate to air quality and public services and utilities and are applicable to GHG emissions at and in the vicinity of the Orinda WTP.

TABLE 3.8-2
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR AIR QUALITY/PUBLIC SERVICES AND UTILITIES/ GREENHOUSE GASES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.9-1c	To limit exhaust emissions, the District will incorporate into the contract specifications the following requirements: *BAAQMD Exhaust Controls* • Use line power instead of diesel generators at all construction sites where line power is available. ~~Line power will be used at the tunnel entry and exit shafts for the Orinda-Lafayette Aqueduct project.~~ • As specified in EBMUD Policy 7.05, limit the idling of all mobile and stationary construction equipment to five minutes; as specified in Sections 2480 and 2485, Title 13, California Code of Regulations, limit the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds, both California- or non-California-based trucks) to 30 seconds at a school or five minutes at any location. In addition, limit the use of diesel auxiliary power systems and main engines to five minutes when within 100 feet of homes or schools while driver is resting. • For operation of any stationary, diesel-fueled, compression-ignition engines ~~as part of construction of WTTIP facilities~~, comply with Section 93115, Title 17, California Code of Regulations, Airborne Toxic Control Measure for Stationary Compression Ignition Engines, which specifies fuel and fuel additive requirements as well as emission standards. • If stationary equipment (such as generators for ventilation fans) must be operated continuously, locate such equipment at least 100 feet from homes or schools where possible. • Require low-emissions tuneups and perform such tuneups regularly for all equipment, particularly for haul and delivery trucks. Submit a log of required tuneups to EBMUD on a quarterly basis for review.
3.12-4a	The District will require project facility design and construction methods that produce less waste, or that produce waste that could more readily be recycled or reused.

TABLE 3.8-2 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR AIR QUALITY/PUBLIC SERVICES AND UTILITIES/ GREENHOUSE GASES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.12-4b	The District will include in its construction specifications a requirement for the contractor to describe plans for recovering, reusing, and recycling 50 percent of projected solid waste through construction, demolition, and excavation activities.
3.12-5	The District will implement adopted WTTIP Mitigation Measures 3.12-4a and 3.12-4b.

NOTE: Strikethrough text indicates text in the adopted WTTIP mitigation measures that does not relate to the Project. Text that is underlined is included to address typographical errors in the original mitigation language or to add clarifying language to the adopted WTTIP Mitigation Measures.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. (Criterion 1)

Construction

Construction of the Project would generate GHG emissions. Construction-related emissions would result from off-road construction equipment and vehicular traffic generated by commuting workers and trucks used for material hauling and disposal. Approximately 7 million gallons of water is expected to be used for dust suppression and soil compaction activities over the construction period. Indirect GHG emissions would be created by the generation of electricity used to supply this water to the Project site.

Following Project completion, the construction emissions would cease. The Project's total estimated GHG emissions associated with construction activities over the approximate 4.5-year construction period are shown in Table 3.8-3. Refer to Appendix E for all emissions factors and assumptions used to estimate GHG emissions that would be associated with construction of the Project.

TABLE 3.8-3
ESTIMATED ANNUAL GREENHOUSE GAS EMISSIONS FROM CONSTRUCTION

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2021	460.9	0.09	<0.01	463.2
2022	1,305.6	0.24	<0.01	1,311.6
2023	990.5	0.18	<0.01	994.9
2024	1,183.9	0.18	<0.01	1,188.4
2025	278.3	0.05	<0.01	279.7

SOURCE: Calculations provided by ESA 2020 (Appendix E)

Neither the state nor BAAQMD has adopted a quantitative threshold, such as those that exist for criteria pollutants, to evaluate the significance of an individual project's construction-related contribution to GHG emissions. Instead, the BAAQMD Guidelines recommend that construction-related GHG emissions be quantified and disclosed and encourage incorporation of best management practices (BMPs) to reduce GHG emissions during construction, where feasible and applicable. Consistent with this, adopted WTTIP Mitigation Measure 3.9-1c would be implemented, which would reduce GHG emissions by implementing BAAQMD recommended exhaust controls. Therefore, the impact of GHG emissions associated with Project construction would be less than significant.

Operation

Once the Project is operational, direct emissions of GHG would be primarily from the operation of the emergency generator for testing and maintenance, which would be limited to a maximum of 1 hour per day and 50 hours per year according to BAAQMD permit restrictions. With regard to indirect GHG emissions, operation of the new Project facilities is estimated to increase energy demand at the Orinda WTP by approximately 1,400 megawatts per year over existing conditions. Annual GHG emissions from emergency generator testing and electricity use are shown in Table 3.8-4 below. Maintenance activities at Project facilities would require one or two EBMUD employees per day and would be staffed by the existing crew, creating no new worker commute trips. Although most maintenance activities would be conducted by staff already on site, one truck trip per month on average is anticipated for operation and maintenance activities. Emissions associated with these trips would be minimal and are not quantified in this analysis.

TABLE 3.8-4
TOTAL PROJECT OPERATION ANNUAL GHG EMISSIONS

Source	CO_2e (metric tons/year)
Indirect operational emissions from electricity use	188
Direct operational emissions from emergency generator testing	38
Total Project emissions	226
BAAQMD Operational Threshold	1,100

SOURCE: Calculations provided by ESA 2020 (Appendix E).

Project operational emissions would amount to approximately 226 MT of CO_2e per year, which would be less than the BAAQMD's 1,100 MT per year operational screening threshold.

Because project operational emissions would be less than the BAAQMD threshold criteria, the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and the impact would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.9-1c (Refer to Table 3.8-2 for the full text of mitigation measures).

Impact GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. (Criterion 2)

Project GHG emissions are analyzed in the context of the GHG reduction goals of AB 32, SB 32, the 2017 Scoping Plan Update, and the BAAQMD's 2017 CAP to determine whether the Project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

As directed by Executive Order B-30-15, CARB's 2017 Scoping Plan Update describes how the state plans to achieve the 2030 GHG emission reduction goal for California of 40 percent below 1990 levels by 2030, as mandated by SB 32.

Construction

Construction of the Project would involve operation of diesel-fueled off-road construction equipment and on-road vehicles associated with worker commute, material delivery, and hauling that would directly generate GHG emissions. Actions in the 2017 Scoping Plan Update pertinent to Project construction relate to emissions controls imposed in the future, including; future implementation of Phase 2 controls to reduce GHG emissions in new heavy-duty vehicles beyond 2018 and continued implementation of diesel controls to reduce black carbon emissions from heavy-duty on-road engines as well as off-road engines. These actions would be implemented by CARB as new standards and policies and the BAAQMD through the implementation of its 2017 CAP. Heavy-duty vehicles used during Project construction would comply with all applicable emission standards. In addition, adopted WTTIP Mitigation Measure 3.9-1c would be implemented, which would reduce GHG emissions by implementing BAAQMD recommended exhaust controls.

The 2017 CAP also identifies goals requiring the adoption of ordinances to promote community-wide zero waste goals and recycling of construction and demolition materials in commercial and public construction projects. EBMUD would not be subject to the City of Orinda's Construction Waste Reduction Ordinance. However, consistent with adopted WTTIP Mitigation Measures 3.12-4a, 3.12-4b, and 3.12-5 EBMUD would require construction contractors to a prepare plan for recovering, reusing, and recycling 50 percent of projected solid waste through demolition, excavation, and construction activities, as feasible. The plan would identify ways to reuse or recycle building materials to the extent feasible and identify materials to be hauled away for off-site disposal and

approved receiving sites. Disposal would occur to be consistent with all applicable local, state, and federal regulations. Implementation of these adopted mitigation measures would ensure that the Project is consistent with the goals of the 2017 CAP to reduce construction and demolition waste and its associated emissions.

With implementation of adopted WTTIP Mitigation Measures 3.9-1c, 3.12-4a, 3.12-4b, and 3.12-5, and compliance with existing regulations, the Project's construction-related GHG emissions would not conflict with any plans, policies, or regulations adopted for the purpose of reducing GHG emissions, and the impact would be less than significant.

Operation

According to EBMUD's *Climate Change Monitoring and Response Plan*, the majority of EBMUD's total operational GHG emissions are indirect GHG emissions associated with the use of electrical energy, and 22 percent of EBMUD's total GHG emissions are direct GHG emissions associated with fleet operations (vehicles and portable equipment) (EBMUD, 2014). After construction, operational and maintenance practices for the Project would be the same as existing conditions, which would include periodic maintenance. GHG emissions associated with operation and maintenance would increase vehicle trips generated by approximately 1 trip per month and would therefore not result in a substantial increase in direct operational GHG emissions due to the Project. EBMUD's heavy-duty maintenance vehicles would comply with the latest vehicle emission standards established by CARB pursuant to the 2017 Scoping Plan Update. Therefore, the Project's direct operational GHG emissions would not conflict with 2017 Scoping Plan Update actions or the 2017 CAP.

The increase in energy use at the Orinda WTP site due to proposed facilities would result in an increase in indirect operational GHG emissions associated with the generation of electrical energy. However, as set forth in the Energy Policy adopted by EBMUD's Board of Directors, EBMUD's goal is to be carbon free for indirect emissions and achieve a 50 percent reduction in direct emissions compared to 2000 levels by 2040 (EBMUD, 2018). Through the increased use of renewable diesel, purchase of electricity from greener, more sustainable, sources, and reduced raw water pumping, EBMUD has reduced total GHG emissions since 2000. To meet EBMUD's indirect emissions GHG goal, the Energy Policy requires EBMUD to focus on energy conservation, development of economical renewable energy projects, GHG offset projects, and the purchase of renewable energy credits (EBMUD, 2018). Due to implementation of the Energy Policy, EBMUD consistently meets its annual indirect GHG emissions reduction goals and would continue to comply with the Energy Policy, thus ensuring that indirect emissions associated with the Project would be minimized. Accordingly, the Project's indirect operational GHG emissions would not conflict with the state's 2017 Climate Change Scoping Plan actions, 2017 CAP, or the BAAQMD-recommended CEQA significance thresholds, resulting in a less-than-significant impact.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.9-1c, 3.12-4a, 3.12-4b, and 3.12-5 (Refer to Table 3.8-2 for the full text of mitigation measures).

3.8.4 References

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3.9 Hazards and Hazardous Materials

This section describes the physical environmental and regulatory setting for hazards and hazardous materials, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts associated with hazards and hazardous materials that could result from construction and operation of the Project.

Definitions of Hazardous Materials

Definitions of terms used in the characterization of baseline conditions, regulatory framework, and impact analysis for hazards and hazardous materials are provided below.

- **Hazardous Material:** The term "hazardous material" has varying definitions depending on the regulatory programs. For the purposes of this Supplemental EIR, the term refers to both hazardous materials and hazardous wastes. The California Health and Safety Code Section 25501(n) defines hazardous material as: any material that because of its quantity, concentrations, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

- **Hazardous Waste:** A "hazardous waste" is a waste that because of its quantity, concentration, or physical, chemical, or infectious characteristic, causes or significantly contributes to an increase in mortality or illness or poses substantial or potential threats to public health or the environment (42 United States Code [U.S.C.] 6903(5)). Hazardous wastes are further defined under the Resource Conservation and Recovery Act (RCRA) as substances exhibiting the characteristics of ignitability, reactivity, corrosivity, or toxicity. Chemical-specific concentrations used to define whether a material is a hazardous, designated, or nonhazardous waste include Total Threshold Limit Concentrations (TTLCs), Soluble Threshold Limit Concentrations (STLCs), and Toxic Characteristic Leaching Procedures (TCLPs), listed in California Code of Regulations (CCR) Title 22, Chapter 11, Article 3, Section 66261, and are used as waste acceptance criteria for landfills. Waste materials with chemical concentrations above TTLCs, STLCs, and TCLPs must be sent to Class I disposal facilities, may be sent to Class II disposal facilities depending on the waste material, and may not be sent to Class III disposal facilities.[1]

- **Screening Levels for Hazardous Materials in Soil, Soil Gas, or Groundwater:** The United States Environmental Protection Agency (U.S. EPA) Regional Screening

[1] Class I disposal facilities are specifically for hazardous waste, as defined by CCR Title 22, Class II facilities are "designated" waste facilities and must acquire special permitting to accept designated types of hazardous materials, and Class III disposal facilities are strictly for non-hazardous waste (CCR Title 23, Division 3, Chapter 15).

Levels (RSLs) and San Francisco Bay Area Regional Water Quality Control Board (SFBRWQCB) Environmental Screening Levels (ESLs) are guidelines used to evaluate the potential risk associated with chemicals in soil or groundwater where a release of hazardous materials has occurred. Although developed and maintained by the SFBRWQCB, ESLs are used by regulatory agencies throughout the state. Screening levels have been established for both residential and commercial/industrial land uses, and for construction workers. Residential screening levels are the most restrictive. Soil with chemical concentrations below these ESLs generally would not require remediation and would be suitable for unrestricted uses if disposed of offsite.

Commercial/industrial screening levels are generally less restrictive than residential screening levels because they are based on potential worker exposure to hazardous materials in the soil (and these are generally less than residential exposures). Screening levels for construction workers are also less restrictive than for commercial/industrial workers because construction workers are only exposed to the chemical of concern during the duration of construction, while industrial workers are assumed to be exposed over a working lifetime. Chemical concentrations below these screening levels generally would not require remediation and would be suitable for unrestricted uses. In addition, there are other more specific but similar screening levels used for more narrowly focused human health or ecological risk assessment considerations.

3.9.1 Environmental Setting

Hazards and the use and presence of hazardous materials on the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.11, Hazards and Hazardous Materials (EBMUD, 2006). The environmental and regulatory setting in the WTTIP EIR was based on the existing data available, including data from the Department of Toxic Substances Control (DTSC), State Water Resources Control Board (SWRCB), and SFBRWQCB.

Potential Presence of Hazardous Materials in Soil and Groundwater

At the time of the WTTIP EIR, the Orinda WTP was identified on the Hazardous Waste and Substances Sites (Cortese List), a planning document used by the DTSC, SWRCB, and other agencies to comply with CEQA requirements in providing information about the location of hazardous materials release sites.[2] Although no reason for the listing was provided, the Cortese List typically includes leaking underground storage tank (UST) sites, cleanup sites, landfills, and sites with Waste Discharge Requirements (WDRs), among other types of sites. A WDR is part of the operating permit package issued by the SFBRWQCB under which the WTP operates, hence the inclusion of the Orinda WTP on

[2] Sites identified as meeting the Cortese List requirements are listed in the Department of Toxic Substances Control EnviroStor database, SWRCB GeoTracker database, SWRCB list of solid waste disposal sites with constituents above hazardous waste levels outside the waste management unit, SWRCB list of active Cease and Desist and Cleanup and Abatement Orders, and DTSC list of hazardous waste facilities subject to corrective action pursuant to California Health and Safety Code Section 25187.5.

the Cortese List. In addition, the Orinda WTP has permitted hazardous materials uses, but no spills of hazardous materials were indicated. No environmental cases were identified within American Society for Testing and Materials (ASTM) search distances from the Orinda WTP site.

The Project site is currently identified on a list of Cease and Desist Orders and Cleanup and Abatement Orders[3], a component of the Cortese List (CalEPA, 2020a). As was the case at the time of the WTTIP EIR, no reason for the listing is provided. None of the staging areas are included on any Cortese List sites (CalEPA, 2020a).

A Phase I Environmental Site Assessment (Phase I assessment) for the Orinda WTP was prepared by Forensic Analytical Consulting Services (FACS) in February 2020 (FACS, 2020). The Phase I assessment identified USTs that had leaked in the past and were removed from the Project site. However, based on the file review for the leaking USTs, lack of documentation on the removal of the USTs, and associated sampling data, the USTs are considered in the Phase I assessment as a recognized environmental condition (REC) in connection with the Project site (FACS, 2020). The Phase I assessment also confirms the Project site's listing on the Cortese List due to WDR at the Project site. The recommendation in the Phase I assessment is that additional investigation is required to evaluate the location of the former USTs (FACS, 2020).

Schools and Airports

The closest Project component of the Orinda WTP is approximately 0.35 mile southeast of Wagner Ranch Elementary School, the nearest school to the Project site. The North Orinda Sports Field staging area is approximately 0.2 mile south of Wagner Ranch Elementary School. The nearest airports to the Project site are the Oakland International Airport, located 11.4 miles southwest, and the Buchanan Field Airport in Concord, located 10 miles northeast of the Project site.

Wildland Fire Hazards

The Project site is mapped by the California Department of Forestry and Fire Protection (CAL FIRE) as a Very High Fire Hazard Severity Zone (CAL FIRE, 2009). As indicated in Section 3.9.3 below, this section analyzes the Project's potential to expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. The environmental and regulatory setting related to wildfire is described in full detail in Section 3.15, Wildfire.

Asbestos and Lead-Containing Materials

As described in Chapter 2, *Project Description*, the Project would involve the demolition of the Los Altos Pumping Plant No. 1 (LAPP1) and existing maintenance and storage

[3] Note that this list of Cease and Desist Orders and Cleanup and Abatement Orders may contain sites with discharges that are not necessarily hazardous waste discharges—for example, discharges of domestic sewage, food processing wastes, or sediment that do not contain hazardous materials (CalEPA, 2020b).

buildings at the Orinda WTP site. An asbestos and lead survey was conducted by FACS in June 2019, and the results of the investigation indicate the presence of asbestos-containing and lead-containing materials in these structures (FACS, 2019a, 2019b, 2019c, and 2019d).

3.9.2 Regulatory Framework

The regulatory framework for hazards and hazardous materials in the vicinity of the Orinda WTP site is described in Section 3.11.2, and Appendices D and H of the WTTIP EIR. This Supplemental EIR highlights changes in implementation of those laws and regulations that have occurred since the release of the WTTIP EIR in December 2006. Elements of the regulatory framework for hazards and hazardous materials identified in the WTTIP EIR that are not described below have not notably changed since 2006.

Federal Regulations

The primary federal agencies with responsibility for hazardous materials management include the U.S. EPA, U.S. Department of Labor Occupational Safety and Health Administration (Fed/OSHA), and the U.S. Department of Transportation (USDOT). Federal laws, regulations, and responsible agencies are summarized in Table 3.9-1.

TABLE 3.9-1
FEDERAL LAWS AND REGULATIONS RELATED TO HAZARDOUS MATERIALS MANAGEMENT

Classification	Law or Responsible Federal Agency	Description
Hazardous Materials Management	Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act [SARA])	Imposes requirements to ensure that hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to human health or the environment in the event that such materials are accidentally released.
Hazardous Waste Handling	Resource Conservation and Recovery Act of 1976	Under RCRA, the U.S. EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste from “cradle to grave.”
	Hazardous and Solid Waste Act	Amended RCRA in 1984, affirming and extending the “cradle to grave” system of regulating hazardous wastes. The amendments specifically prohibit the use of certain techniques for the disposal of some hazardous wastes.
Hazardous Materials Transportation	U.S. Department of Transportation	USDOT has the regulatory responsibility for the safe transportation of hazardous materials. The USDOT regulations govern all means of transportation, except packages shipped by mail (49 Code of Federal Regulations [CFR]).
	U.S. Postal Service	U.S. Postal Service regulations govern the transportation of hazardous materials shipped by mail.
Occupational Safety	Occupational Safety and Health Act of 1970	Fed/OSHA sets standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries (29 CFR 1910).
Structural and Building Components (Lead-based paint, polychlorinated biphenyls, and asbestos)	Toxic Substances Control Act	Regulates the use and management of polychlorinated biphenyls in electrical equipment, and sets forth detailed safeguards to be followed during the disposal of such items.
	U.S. Environmental Protection Agency	The U.S. EPA monitors and regulates hazardous materials used in structural and building components and their effects on human health.

State and local agencies often have either parallel or more stringent rules than federal agencies. In most cases, state law mirrors or overlaps federal law, and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated. For these reasons, the requirements of the law and its enforcement are described under either the state or local agency section.

State Regulations

The primary state agencies with responsibility for the management of hazardous materials in the region include the DTSC and the SFBRWQCB within the California Environmental Protection Agency (Cal EPA), California Division of Occupational Safety and Health (Cal/OSHA), California Department of Health Services, California Highway Patrol (CHP), and the California Department of Transportation (Caltrans). State laws, regulations, and responsible agencies are summarized in Table 3.9-2.

Hazardous Building Materials Regulations

Numerous existing regulations require that demolition and renovation activities that may disturb or require the removal of materials that consist of, contain, or are coated with asbestos-containing material (ACM), lead-based paint (LBP), polychlorinated biphenyls (PCBs), or other hazardous materials must be inspected and/or tested for the presence of hazardous materials. If present, the hazardous materials must be managed and disposed of in accordance with applicable laws and regulations.

The identification, removal, and disposal of ACM are regulated under CCR Title 8, Division 1, Chapter 4, Article 4, Section 1529 and 5208. The identification, removal, and disposal of LBP are regulated under CCR Title 8, Division 1, Chapter 4, Article 4, Section 1532.1. All work must be conducted by a state-certified professional, which would ensure compliance with applicable regulations. If ACM and/or LBP are determined to exist on site, a site-specific Hazard Control Plan must be prepared detailing the removal methods and specific instructions for providing protective clothing and equipment for abatement personnel. A state-certified LBP and/or an ACM removal contractor would be retained to conduct the appropriate abatement measures as required by the plan. Wastes from abatement and demolition activities would be transported to and disposed of at a landfill permitted to accept such waste and in compliance with applicable local, state, and federal laws and regulations. Once abatement measures have been implemented, the contractor would conduct a clearance examination and provide written documentation to the local Bay Area Air Quality Management District (BAAQMD) that testing and abatement have been completed in accordance with federal, state, and local laws and regulations.

In the case of PCBs, the identification, removal, and disposal are regulated under RCRA (4 CFR 7610), Toxic Substances Control Act (TSCA) (15 U.S.C. 2695), and California regulations (CCR Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24). Electrical transformers and older fluorescent light ballasts not previously tested and verified to not contain PCBs must be tested. If PCBs are detected above action levels, the materials must be transported to and disposed of at a licensed facility permitted to accept the materials in compliance with applicable local, state, and federal laws and regulations.

TABLE 3.9-2
STATE LAWS AND REGULATIONS RELATED TO HAZARDOUS MATERIALS MANAGEMENT

Classification	Law or Responsible State Agency	Description
Hazardous Materials Management	Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program); CUPA (Health and Safety Code Sections 25404 et seq.)	In January 1996, Cal EPA adopted regulations that implemented a Unified Program at the local level. The agency responsible for implementation of the Unified Program is called the Certified Unified Program Agency (CUPA), which for the City of Orinda is the Contra Costa County Health Services Department (CCCHSD). The following programs are consolidated under the Unified Program: • Hazardous Materials Release Response Plans, and Inventory (also referred to as Hazardous Materials Business Plans). • California Accidental Release Program. • Underground Storage Tanks. • Aboveground Petroleum Storage Spill Prevention Control and Countermeasures. • Hazardous Waste Generation and On-site Treatment. • Uniform Fire Code Plan and Inventory Requirements.
	State Hazardous Waste and Substances List (Cortese List); DTSC, SFBRWQCB, CCCHSD	The oversight of hazardous materials sites often involves several different agencies that may have overlapping authority and jurisdiction. For the on-site hazardous materials cases and issues, the SFBRWQCB is the lead agency. Other cases may be overseen by the DTSC, CCCHSD, or other agencies.
Hazardous Waste Handling	California Hazardous Materials Release Response Plan and Inventory Law of 1985; CUPA	The California Hazardous Materials Release Response Plan and Inventory Law of 1985 (Business Plan Act) requires that businesses that store hazardous materials on site prepare a Hazardous Materials Business Plan and submit it to the local CUPA, which in this case is the CCCHSD.
	California Hazardous Waste Control Act; DTSC	Under the California Hazardous Waste Control Act, California Health and Safety Code, Division 20, Chapter 6.5, Article 2, Section 25100, et seq., DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in California. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills. DTSC is also the administering agency for the California Hazardous Substance Account Act. California Health and Safety Code, Division 20, Chapter 6.8, Sections 25300 et seq., also known as the state Superfund law, providing for the investigation and remediation of hazardous substances pursuant to state law.
	California Fire Code	The California Fire Code regulates the storage and handling of hazardous materials, including the requirement for secondary containment, separation of incompatible materials, and preparation of spill response procedures.
Hazardous Materials Transportation	Titles 13, 22, and 26 of the California Code of Regulations	Regulates the transportation of hazardous waste originating in and passing through the state, including requirements for shipping, containers, and labeling.
	CHP and Caltrans	These two state agencies have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies.

TABLE 3.9-2 (CONTINUED)
STATE LAWS AND REGULATIONS RELATED TO HAZARDOUS MATERIALS MANAGEMENT

Classification	Law or Responsible State Agency	Description
Workplace Safety	Cal/OSHA	Cal/OSHA has primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in Title 29 of the CFR. Cal/OSHA standards are generally more stringent than federal regulations.
	Cal/OSHA Regulations (Title 8 CCR)	Concern the use of hazardous materials in the workplace and require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation.
Construction Storm Water General Permit (Construction General Permit; Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ)	SFBRWQCB	Dischargers whose project disturbs 1 or more acres of soil or where projects 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 *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit; Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). Construction activity subject to this permit includes clearing, grading, grubbing, and other disturbances to the ground such as excavation and stockpiling, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of a facility. The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific best management practices (BMPs) designed to prevent sediment and pollutants from contacting stormwater from moving off site into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management, and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area.
Underground Infrastructure	CCR Section 4216-4216.9	Section 4216-4216.9 "Protection of Underground Infrastructure" requires an excavator to contact a regional notification center (e.g., Underground Services Alert or Dig Alert) at least 2 days prior to excavation of any subsurface installations. Any utility provider seeking to begin a project that could damage underground infrastructure can call USA North 811, the regional notification center for northern California. Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities are then notified and are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area.

State Wildfire Regulations

As indicated above, under "Wildland Fire Hazards," and in Section 3.9.3 below, this section analyzes the Project's potential to expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Refer to Section 3.15.2 in Section 3.15, Wildfire, for a discussion of state of California regulations addressing wildfire which include:

- California Fire Code – Title 24, Chapter 9, Fire Protection Systems, of the California Code of Regulations

- 2019 Strategic Fire Plan for California
- California Emergency Response Plan

Local Regulations

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance. As such, the *City of Orinda General Plan* policies in Appendix D of the WTTIP EIR remain relevant to the Project.

Hazardous Materials Business Plan (HMBP)

In accordance with the community right-to-know laws, because EBMUD is a business that handles specified quantities of chemicals at the Orinda WTP, EBMUD is required to submit a Hazardous Materials Business Plan (HMBP) for the Orinda WTP. HMBPs allow local agencies to plan appropriately for a chemical release, fire, or other incident. The HMBP must include the following:

- An inventory of hazardous materials with specific quantity data, storage or containment descriptions, ingredients of mixtures, and physical and health hazard information
- Site and facility layouts that must be coded for chemical storage areas and other facility safety information
- Emergency response procedures for a release or threatened release of hazardous materials
- Procedures for immediate notification of releases to the administering agency
- Evacuation plans and procedures for the facility
- Descriptions of employee training in evacuation and safety procedures in the event of a release or threatened release of hazardous materials consistent with employee responsibilities, and proof of implementing such training on an annual basis
- Identification of local emergency medical assistance appropriate for potential hazardous materials incidents

Under the Certified Unified Program Agency (CUPA) regulations, the Contra Costa County Health Services Department is responsible for implementing the HMBP requirements in Contra Costa County.

Emergency Response

The Contra Costa County Office of Emergency Services coordinates the county-wide response effort in the event of a disaster situation and also implements the Contra Costa County Emergency Operations Plan (EOP). The plan does not provide any specific evacuation routes, as these would be coordinated by local law enforcement and emergency services (Contra Costa County, 2015).

In 2019, the Moraga-Orinda Fire District (MOFD) developed the *MOFD Wildfire Prevention Strategic Plan* (MOFD, 2019). The plan identified seven "lines of effort" to manage wildfire risk in the MOFD service area. These lines of effort include external and internal fuels mitigation, wildfire preplanning, evacuation planning, building code updates, community outreach and education, and early detection and notification systems. While the evacuation planning effort identifies components (e.g., notification, time phased evacuation orders, etc.), it does not identify specific evacuation or emergency response routes within the MOFD service area, including the area surrounding the Project site.

3.9.3 Impact Analysis

Methodology for Analysis

The following analysis focuses on impacts related to hazards and hazardous materials and evaluates whether there would be a new significant environmental impact or a substantial increase in the severity of a significant impact identified in the WTTIP EIR, given: (a) the proposed design and operating characteristics of the Project, and (b) any changes in significance criteria. The analysis below is based in part on the Phase I Environmental Site Assessment conducted by FACS (FACS, 2020).

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines,* an impact would be considered significant if the Project would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

4. Be located on a site that 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.

5. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, the project

would result in a safety hazard or excessive noise for people residing or working in the project area.

6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

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

Criteria Requiring No Further Evaluation

- ***Criterion 5: For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, the project would result in a safety hazard or excessive noise for people residing or working in the project area.*** The Project site is not within the footprint of an adopted airport land use plan and is not within 2 miles of any public airport. As indicated in Section 3.9.1, the nearest airports to the Project site are the Oakland International Airport, located 11.4 miles southwest, and the Buchanan Field Airport in Concord, located 10 miles northeast of the Project site. The Project would not result in a safety hazard or excessive noise for people working or residing in the area; therefore, there would be no impact.

Adopted WTTIP Mitigation Measures

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. Table 3.9-3 presents the adopted mitigation measures from the WTTIP EIR that relate to hazards and hazardous materials at and in the vicinity of the Orinda WTP. Implementation of adopted WTTIP mitigation measures from WTTIP EIR Section 3.8, Traffic and Circulation, and Section 3.12, Public Services and Utilities, would reduce or avoid significant impacts related to interference with an emergency response and the accidental release of hazardous materials into the environment and are, therefore, included in Table 3.9-3.

TABLE 3.9-3
WTTIP MITIGATION MEASURES IDENTIFIED FOR HAZARDS AND HAZARDOUS MATERIALS FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.11-1	For construction of all facilities requiring excavation of more than 50 cubic yards of soil, the District or contractor will use a qualified professional to conduct a Phase I environmental site assessment in conformance with standards adopted by ASTM International. If the Phase I environmental site assessment indicates that a release of hazardous materials could have affected soil or groundwater quality at the site, the District will retain a qualified environmental professional to conduct a Phase II environmental site assessment to evaluate the presence and extent of contamination at the site, in conformance with state and local guidelines and regulations. If the results of the subsurface investigation(s) indicate the presence of hazardous materials, alteration of facility design or site remediation may be required by the applicable state or local regulatory agencies, and the contractors will be required to comply with all regulatory requirements for facility design or site remediation. The Phase I environmental site assessment will be completed within twelve months prior to construction to accurately estimate the conditions that could be expected during construction.

TABLE 3.9-3 (CONTINUED)
WTTIP MITIGATION MEASURES IDENTIFIED FOR HAZARDS AND HAZARDOUS MATERIALS FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.11-1 (cont.)	~~For pipeline projects, the District or contractor will conduct an environmental database review to identify environmental cases, permitted hazardous materials uses, and spill sites within one-quarter mile of the pipeline alignment. Regulatory agency files will be reviewed for those sites that could potentially affect soil and groundwater quality within the pipeline alignment. The environmental database review will be completed within six months prior to construction to accurately estimate the conditions that could be expected during construction.~~
3.11-2	The District will perform or incorporate into contract specifications for all ~~WTTIP~~ project components involving demolition or renovation of existing facilities the requirement that the contractor(s) have a hazardous building materials survey completed for each of the structures by a registered environmental assessor or a registered engineer prior to demolition or renovation activities. If any friable asbestos-containing materials, lead-containing materials, or hazardous components of reservoir liner materials are identified, adequate abatement practices, such as containment and/or removal, will be implemented prior to demolition or renovation.
3.8-1	The District will incorporate into contract specifications for the project the following requirements: • The contractor(s) will obtain any necessary road encroachment permits prior to construction and will comply with conditions of approval attached to project implementation. As part of the road encroachment permit process, the contractor(s) will prepare a traffic safety / traffic management plan (for work in the public right of-way), in accordance with professional traffic engineering standards, for review and approval by EBMUD. The plan will be submitted to the agencies having jurisdiction over the affected roads. Elements of the plan will likely include, but are not necessarily limited to, the following: – Develop circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible. Use flaggers and/or signage to guide vehicles through and/or around the construction zone. – Control and monitor construction vehicle movements through the enforcement of standard construction specifications by periodic onsite inspections. – To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours. – Limit lane closures during peak hours to the extent possible (and unless otherwise approved by the local agency). Restore roads and streets to normal operation by covering trenches with steel plates outside of allowed working hours or when work is not in progress. ~~– As approved by the local agency, limit, where possible, the pipeline construction work zone to a width that, at a minimum, maintains alternate one-way traffic flow past the construction zone. Parking may be prohibited if necessary to facilitate construction activities or traffic movement. If the work zone width will not allow a 10-foot-wide paved travel lane, then the road will be closed to through traffic (except emergency vehicles) and detour signing on alternative access streets will be used.~~ – As approved by the local agency, include signage to direct pedestrians and bicyclists around construction work zones that displace sidewalks or bike lanes. – As approved by the local agency, store all equipment and materials in designated contractor staging areas on or adjacent to the worksite, in such a manner to minimize obstruction to traffic. – As approved by the local agency, identify locations for parking by construction workers within the construction zone or, if needed, at a nearby location with transport to and from the worksite provided. – Comply with roadside safety protocols. Provide "Road Work Ahead" warning signs and speed control (including signs informing drivers of state-legislated double fines for speed infractions in a construction zone) to achieve required speed reductions for safe traffic flow through the work zone. – Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, transit stations, hospitals, and schools. Provide advance notification to the facility owner or operator of the timing, location, and duration of construction activities and the locations of detours and lane closures.

TABLE 3.9-3 (CONTINUED)
WTTIP MITIGATION MEASURES IDENTIFIED FOR HAZARDS AND HAZARDOUS MATERIALS FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.8-1 (cont.)	– Coordinate construction activities, to extent possible, to minimize traffic disturbances adjacent to schools (e.g., do work during summer months when there is less activity at schools). ~~For construction activities that occur during the school year, then at the start and end of the school day at schools adjacent to a pipeline project (e.g., Bentley School on El Nido Ranch Road, and Campolindo High School on Moraga Road), the contractor(s) will provide flaggers in the school areas to ensure traffic and pedestrian safety.~~ During periods when school children at the Wagner Ranch Elementary School are walking to and from school in the morning and in the afternoon on the asphalt trail along the north side of Camino Pablo, when construction truck traffic is present near the trail, the contractor(s) will provide flaggers and crossing guards (the latter as needed to supplement the school-provided crossing guards) to ensure pedestrian and traffic safety. School arrival and departure schedules will be monitored for changes such as vacation periods, and the school traffic and pedestrian safety plan will be modified as needed. – Coordinate with the County Connection so the transit provider can temporarily relocate bus routes or bus stops in work zones as it deems necessary. – To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule construction of project elements to avoid overlapping maximum trip-generation construction phases. – ~~The District will hold coordination meetings with the City of Orinda, the Orinda Unified School District, and the Moraga-Orinda Fire District to minimize the impact of road closures on Miner Road.~~ – As part of the coordination with school administrators, the District will coordinate with providers of school bus service regarding road closures, delays and detours during times that school buses run. – The contractor(s) will post all construction sites with signs that state the permitted hours of construction. Those signs will identify the construction project as initiated by EBMUD, and will provide contact information for inquiries or comments. – ~~Provide advance notification to property owners along Glen Road, Nordstrom Lane, Hilltop Drive and Hastings Court regarding road closures associated with the Glen Pipeline Improvements project. Signs will be posted at the location of the road closure at least two weeks in advance, and notices will be mailed to property owners at least three weeks in advance.~~
3.8-4	Implement <u>adopted WTTIP Mitigation</u> Measure 3.8-1, which stipulates actions required of contractor(s) to reduce potential traffic safety impacts to a less-than-significant level.
3.12-1c	The District or its contractors will confirm the specific location of all high priority utilities (i.e. pipelines carrying petroleum products, oxygen, chlorine, toxic or flammable gases; natural gas in pipelines greater than 6 inches in diameter, or with normal operating measures, greater than 60 pounds per square inch gauge; and underground electric supply lines, conductors, or cables that have a potential to ground more than 300 volts that do not have effectively grounded sheaths) and such locations will be highlighted on all constructions drawings. In the contract specifications, the District will require that the contractor provide weekly updates on planned excavation for the upcoming week and identify when construction will occur near a high priority utility. On days when this work will occur, District construction managers will attend tailgate meetings with contractor staff to review all measures—those identified in the Mitigation Monitoring and Reporting Program and in the construction specifications—regarding such excavations. The contractor's designated health and safety officer will specify a safe distance to work near high-pressure gas lines, and excavation closer to the pipeline will not be authorized until the designated health and safety officer confirms and documents in the construction records that: (1) the line was appropriately located in the field by the utility owner using as-built drawings and a pipeline-locating device, and (2) the location was verified by hand by the construction contractor. The designated health and safety officer will provide written confirmation to the District that the line has been adequately located, and excavation will not start until this confirmation has been received by the District.

NOTE: Strikethrough text indicates text in the adopted WTTIP mitigation measures that does not relate to the Project. Text that is underlined is included to address typographical errors in the original mitigation language or to add clarifying language to the adopted WTTIP Mitigation Measures.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (Criterion 1)

Construction

As stated above in Section 3.9.1, Environmental Setting, asbestos and lead-containing materials were found at the LAPP1 and the existing maintenance building at the Project site. As stated in Chapter 2, *Project Description*, these structures are planned to be demolished as part of the Project. If the proper procedures are not followed for the handling and disposal of asbestos and lead-containing materials, there could be a potential significant impact on the public or the environment. Implementation of adopted Mitigation Measure 3.11-2 from the WTTIP EIR requires abatement practices such as the containment and/or removal of any identified asbestos and lead-containing materials prior to the demolition of any structure (i.e., LAPP1 and the existing storage and maintenance buildings) where these materials are present.

To ensure that all applicable regulations are followed to prevent the exposure of the public or environment to hazardous materials, Mitigation Measures HAZ-1a through HAZ-1d would require the preparation and implementation of a Safety and Health Plan, Construction Demolition Waste and Disposal Plan, Water Control and Disposal Plan, and Spill Prevention and Response Plan. The Project Safety and Health Plan would include proper procedures to protect the safety of the construction personnel that come into contact with any hazardous materials (including asbestos and lead). Adherence to Mitigation Measures HAZ-1a through HAZ-1d and adopted WTTIP Mitigation Measure 3.11-2 would ensure that all applicable regulations are followed to prevent the exposure of the public or environment to hazardous materials, resulting in a less-than-significant impact.

Operation

As discussed in Section 2.7.1, in Chapter 2, *Project Description*, less than 50 gallons of phosphoric acid would be stored in the new Ultraviolet (UV) Structure. As also discussed in Section 2.7.1, sodium hypochlorite would be used at the Orinda WTP as a disinfectant; however, the sodium hypochlorite dose at the Orinda WTP would be similar to existing conditions, but would be injected in the Chlorine Contact Basin (CCB), rather than upstream of the Orinda WTP. Any hazardous materials stored on site (including phosphoric acid and sodium hypochlorite) would be managed safely to protect public health, in accordance with existing and future regulatory-approved HMBPs, which would include (but not be limited to) an inventory of hazardous materials on site, coded chemical storage areas, and emergency response procedures in case of release, as well as procedures for immediate notification in the event of a release.

As discussed above in Section 3.9.2, Regulatory Framework, the transport of hazardous materials and wastes is regulated by Caltrans and CHP. Caltrans and CHP regulate container types and packaging requirements, as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. No increase in chemical deliveries to the Orinda WTP would be required for long-term operation of the Project

after construction. Because EBMUD and all service providers would be required to comply with existing and future hazardous materials laws and regulations for the transport of hazardous materials, the risk of accidental releases of hazardous materials during the normal transport operations is the same as under existing conditions, which does not constitute a significant hazard. Therefore, operational impacts would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (Including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.11-2 (Refer to Table 3.9-3 for the full text of adopted mitigation measures).

Mitigation Measure HAZ-1a: Project Safety and Health Plan.

Before the start of construction, the construction contractor(s) shall prepare a Project Safety and Health Plan in accordance with 29 CFR 1910.120 and approved by EBMUD that addresses anticipated hazards related to hazardous substances, fall protection, confined spaces, and trenches or excavations. The plan must designate a Project Safety and Health Representative and a qualified person to take air samples and measurements of known or suspected hazardous materials. All personnel who will likely be exposed to hazardous substances must have appropriate training. The plan shall include an Emergency Action Plan in the event of an accident or serious unplanned event that requires notifying any responsive agencies (e.g., fire department, utilities, rescue teams).

Mitigation Measure HAZ-1b: Construction Demolition Waste and Disposal Plan.

Prior to construction, the construction contractor(s) shall prepare and implement a site-specific Construction Demolition Waste and Disposal Plan and submit a copy of the plan prior to disposing of any material (except for water wastes, which shall be addressed in the Water Control and Disposal Plan). The plan shall identify how the construction contractor(s) will remove, handle, transport, and dispose of all materials required to be removed under this contract (including, but not limited to asbestos-containing and lead-containing materials) in a safe, appropriate, and lawful manner in compliance with all applicable regulations of local, state, and federal agencies having jurisdiction over the disposal of removed materials. The construction contractor(s) shall procure the necessary permits required by the local, state, and federal agencies having jurisdiction over the handling, transportation, and disposal of construction and demolition waste and include a list of reuse, recycling, and processing facilities that will be receiving recovered materials. The plan must identify materials that are not recyclable or not recovered that will be disposed of in a landfill (or other means acceptable by the state of California and local ordinance and regulations) and list the permitted

landfill, or other permitted disposal facilities, that will be accepting the disposed waste materials. The plan must also identify each type of waste material to be reused, recycled, or disposed of, estimate the amount by weight, and include the sampling and analytical program for characterization of any waste material, as needed, prior to reuse, recycle, or disposal. Materials or wastes shall only be disposed of at facilities approved by EBMUD. Prior to disposition of wastes, the contractor must submit permission to reuse, recycle, reclaim, or dispose of material from the reuse, recycling, reclamation, or disposal site owner, along with any other information needed by the EBMUD to evaluate the acceptability of the proposed reuse, recycling, or disposal site. The contractor shall disclose all information pertinent to the characterization of the material or waste to EBMUD.

Mitigation Measure HAZ-1c: Water Control and Disposal Plan.

The construction contractor(s) shall prepare and implement a site-specific Water Control and Disposal Plan (WCDP) prior to any work at the worksite. The WCDP shall comply with all EBMUD requirements and applicable discharge permit requirements. The construction contractor(s) shall maintain proper control of the discharge at the discharge point to prevent erosion, scouring of bank, nuisance, contamination, and excess sedimentation in the receiving waters.

Mitigation Measure HAZ-1d: Spill Prevention and Response Plan.

The construction contractor(s) shall prepare and implement a site-specific Spill Prevention and Response Plan prior to any work at the worksite. The plan shall detail the means and methods for preventing and controlling the spilling of known hazardous substances used on the worksite or staging areas. The plan shall include a list of the hazardous substances proposed for use or generated by the construction contractor(s) on site, including petroleum products, and measures that will be taken to prevent spills, monitor hazardous substances, and provide immediate response to spills. Spill response measures shall address notification of the engineer and appropriate agencies including phone numbers; spill-related worker, public health, and safety issues; and spill control and cleanup. A Safety Data Sheet (SDS) shall be submitted for each hazardous substance proposed to be used prior to delivery of the material to the worksite.

Significant Determination After Mitigation

Less than significant.

Impact HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (Criterion 2)

The WTTIP EIR concluded that all of the WTTIP projects, including the Orinda WTP, are located near a creek or storm system that discharges to a surface water body, and if

hazardous materials are accidentally released, surface water quality could be degraded. The WTTIP EIR also concluded that the potential for encountering hazardous materials in the soil or groundwater is low because of a lack of documentation of contamination within ASTM search distances.

The Project site is adjacent to San Pablo Creek. If any hazardous materials at the Project site were accidentally released, they could potentially degrade the water quality and create a significant hazard to the public and/or the environment, resulting in a potentially significant impact.

Construction

As discussed under Impact HAZ-1, Mitigation Measures HAZ-1a through HAZ-1d would require the preparation and implementation of a required Project Safety and Health Plan, Construction Demolition Waste and Disposal Plan, WCDP, and Spill Prevention and Response Plan. Adherence to the requirements included in these plans would ensure that all applicable regulations are followed to prevent the exposure of the public or environment to hazardous materials. Additionally, adopted WTTIP Mitigation Measure 3.12-1c, which requires EBMUD or its contractor to confirm and highlight on drawings the specific location of all high-priority utilities, and provide written confirmation by a designated health and safety office before allowing excavation near priority utilities, would reduce the potential for creating a significant hazard to the public or the environment through the accidental release of hazardous materials into the environment. Therefore, construction-related impacts would be less than significant.

Operation

As discussed in Section 2.7.1 in Chapter 2, *Project Description*, less than 50 gallons of phosphoric acid would be stored in the new UV Structure. As also discussed in Section 2.7.1, sodium hypochlorite would be used at the Orinda WTP as a disinfectant; however, the sodium hypochlorite dose at the Orinda WTP would be similar to existing conditions, but would be injected in the CCB rather than upstream of the Orinda WTP. Any hazardous materials stored on site (including phosphoric acid and sodium hypochlorite) would be managed safely to protect public health, in accordance with existing and future regulatory-approved HMBPs, which would include (but not be limited to) an inventory of hazardous materials on site, coded chemical storage areas, and emergency response procedures in case of release and procedures for immediate notification in the event of a release.

As discussed above in Section 3.9.2, the transport of hazardous materials and wastes is regulated by Caltrans and CHP. Caltrans and CHP regulate container types and packaging requirements, as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. No increase in chemical deliveries to the Orinda WTP would be required for long-term operation of the Project after construction. Because EBMUD and all service providers would be required to comply with existing and future hazardous materials laws and regulations for the transport of hazardous materials, the risk of accidental releases of hazardous materials during normal transport

operations is the same as under existing conditions, which does not constitute a significant hazard. Therefore, operational impacts would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (Including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.12-1c (Refer to Table 3.9-3 for the full text of adopted mitigation measures).

Mitigation Measures HAZ-1a through HAZ-1d. (Refer to Impact HAZ-1 above for the full text of Mitigation Measures HAZ-1a through HAZ-1d.)

Significant Determination After Mitigation

Less than significant.

Impact HAZ-3: Emit hazardous emission or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. (Criterion 3)

Construction

The WTTIP EIR concluded that the Orinda WTP is located within one-quarter mile of Wagner Ranch Elementary School. However, current data indicates that the Project site is just beyond that, at approximately 0.35 mile from the school.

The North Orinda Sports Field staging area is approximately 0.2 mile from Wagner Ranch Elementary School, and would be used to temporarily locate EBMUD Grounds and Mechanical Maintenance staff, equipment, and fleet vehicles during construction because their existing buildings would be demolished as part of the Project. Any use of hazardous materials would be managed safely to protect public health, in accordance with existing and future regulatory-approved HMBPs, which would include (but not be limited to) emergency response procedure and evacuation plans, in case of hazardous materials release and procedures for immediate notification of release. Adherence to the required HMBP and compliance with all applicable federal, state, and local regulations would reduce any potentially significant impacts to less than significant.

Operation

The WTTIP EIR concluded there would be no change in the quantity of hazardous materials stored as a result of the WTTIP. The risk of a release of hazardous materials due to the Project is the same as under existing conditions, and there is no need for specific mitigation associated with implementation of the WTTIP (EBMUD, 2006). This

is true, with the exception of the less-than 50 gallons of phosphoric acid that would be stored at the UV Structure (refer to Section 2.7.1, Operations, in Chapter 2, *Project Description*). The phosphoric acid would be stored and used on site and would not pose a threat to Wagner Ranch Elementary School. Other chemicals needed for operation consist of chemicals currently stored on site. There would be no permanent Project components at the North Orinda Sports Field staging area.

As discussed under Impact HAZ-1, Mitigation Measures HAZ-1a through HAZ-1d would require the preparation and implementation of a required Project Safety and Health Plan, Construction Demolition Waste and Disposal Plan, WCDP, and Spill Prevention and Response Plan. Adherence to the requirements included in these plans would ensure that all applicable regulations are followed to prevent the exposure of the public or environment to hazardous materials, resulting in a less-than-significant impact. Additionally, adherence to the required HMBP and compliance with all applicable federal, state, and local regulations would reduce any potentially significant impacts to less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (Including Adopted WTTIP Mitigation Measures)

> **Mitigation Measures HAZ-1a through HAZ-1d:** (Refer to Impact HAZ-1, above, for the full text of Mitigation Measures HAZ-1a through HAZ-1d.)

Significant Determination After Mitigation

Less than significant.

Impact HAZ-4: Be located on a site that 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. (Criterion 4)

Construction

The WTTIP EIR noted that the Orinda WTP was identified on a list of Cease and Desist Orders and Cleanup and Abatement Orders, a component of the Cortese List, and that there were no other environmental cases with documented groundwater contamination within ASTM search distances. Although the potential to encounter contaminated soil or groundwater during construction is considered low, the WTTIP EIR included Mitigation Measure 3.11-1 (included in Table 3.9-3) to address the potential impacts associated with encountering contaminated soil or groundwater.

As required by adopted WTTIP Mitigation Measure 3.11-1, a Phase I assessment was prepared by FACS to determine potential impacts associated with encountering

contaminated soil or groundwater (FACS, 2020). The Phase I assessment identified USTs that have leaked in the past and were removed from the Project site. No surface evidence of former USTs was observed. Based on the finding in the Phase I assessment, FACS recommended additional investigation at the Project site to evaluate the location of the former USTs and test soil and groundwater for contaminants associated with the USTs.

Adopted WTTIP Mitigation Measure 3.11-1 further requires that if any contaminants are discovered during the Phase I assessment, a qualified professional would be retained to conduct a Phase II Environmental Site Assessment. In accordance with adopted WTTIP Mitigation Measure 3.11-1, and in response to the recommendation in the Phase I assessment, a qualified professional was retained to conduct a Phase II Environmental Site Assessment at the Project site. If the results of the Phase II assessment indicate the presence of contaminants in the soil or groundwater, adopted WTTIP Mitigation Measure 3.11-1 would then require alteration of facility design or site remediation by the applicable state or local regulatory agencies, and the contractors would be required to comply with all regulatory requirements for facility design or site remediation.

Operation

As with the construction phase, adherence to adopted WTTIP Mitigation Measure 3.11-1 is incorporated into the Project, and would ensure that any contaminants in the soil or groundwater are identified and managed accordingly. Additionally, as discussed in Section 3.9.2, Regulatory Framework, a SWPPP would also be required and would further protect the public and/or environment against any exposure to hazardous materials. There would be a less-than-significant impact related to this criterion during operation.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

> **Adopted WTTIP Mitigation Measures**: 3.11-1 (Refer to Table 3.9-3 for the full text of adopted mitigation measures.)

Impact HAZ-5: Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Criterion 6)

Construction

The Contra Costa County EOP described above in Section 3.9.2 does not designate specific evacuation routes to be used in the case of emergency, as these would be coordinated by local law enforcement and emergency services (Contra Costa County, 2015). Likewise, the *MOFD Wildfire Prevention Strategic Plan* does not identify specific

evacuation or emergency response routes within the MOFD service area, including the area surrounding the Project site (MOFD, 2019).

The WTTIP EIR addressed interference with an emergency response in Section 3.8, Traffic and Circulation, and concluded that although construction-related truck traffic on roadways (specifically during peak periods) could impede access for emergency response vehicles and therefore interfere with an emergency response plan or emergency evacuation plan, adopted WTTIP Mitigation Measures 3.8-1 and 3.8-4 would be implemented to reduce impacts to less than significant. As stated in Section 3.13, Transportation, and above in Table 3.9-3, adopted WTTIP Mitigation Measure 3.8-1 requires a Traffic Control Plan, including a description of emergency response vehicle access. The Traffic Control Plan would include specific measures to control traffic and provide guidance to motorists as to when and how to safely move around the Project site during construction. Additionally, the Traffic Control Plan would require coordination with facility owners or administrators of nearby police and fire stations and hospitals, providing advance notification of the timing, location, and duration of construction activities and the locations of detours and lane closures to ensure that emergency responders have access during the construction period. Adopted WTTIP Mitigation Measure 3.8-4 requires the contractor to reduce potential safety impacts to a less-than-significant level and relies on adopted WTTIP Mitigation Measure 3.8-1 to achieve that. Because there are no specific evacuation or emergency response routes identified in the Project area, and because adopted WTTIP Mitigation Measures 3.8-1 and 3.8-4 would be implemented, impacts related to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan would be less than significant during Project construction.

Operation

After completion, the Project would be routinely inspected by EBMUD operations and maintenance staff. Vehicle trips generated by Project operations would remain the same as existing conditions; maintenance activities would require the dedication of one or two EBMUD employees per day, which would be staffed by the existing crew sited at the Orinda WTP. Although most maintenance activities would be conducted by staff already on site, one truck trip per month on average is anticipated for operation and maintenance activities. The existing street network currently accommodates access by emergency vehicles that travel to and around the Project site. Emergency vehicles would be able to access the roadways surrounding the Project site, and citizens would be able to evacuate via surrounding roadways in the same way as they would under existing conditions. Therefore, the Project operational impacts on an emergency response plan or emergency evacuation plan would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.8-1 and 3.8-4 (Refer to Table 3.9-3 for the full text of adopted mitigation measure).

Impact HAZ-6: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. (Criterion 7)

Construction

The WTTIP EIR concluded that the Orinda WTP is within an area designated by CAL FIRE as a Very High Fire Hazard Severity Zone, and that the use of construction equipment and temporary on-site storage of diesel fuel could pose a wildland fire risk. The conclusion from the WTTIP EIR is based on the requirement that Project construction conform to the fire safety regulations provided in the California Public Resources Code. The WTTIP EIR analysis relies on the requirement that the construction contractor comply with relevant regulatory requirements (described above, in Section 3.9.2, Regulatory Framework) during construction of the Project.

As detailed in Section 3.15, Wildfire, the increase in sources of potential ignition associated with Project construction (e.g., equipment with internal combustion engines, gasoline-powered tools, and equipment or tools that produce a spark, fire, or flame) could exacerbate the risk of wildland fire in the area. Therefore, even with adherence to the federal or state regulations cited in the WTTIP EIR and above in Section 3.9.2, Regulatory Framework, the wildfire risk associated with Project construction would be considered potentially significant.

As described in detail in Section 3.15, Wildfire, Mitigation Measure WF-1, Construction Fire Prevention Plan, requires implementation of a Final Project-specific Construction Fire Prevention Plan (CFPP), which would reduce potential sources of ignition. When a Red Flag Warning is issued by the National Weather Service, the CFPP would require that EBMUD and its contractor consult with the MOFD to respond to changes in fire risk and modify construction activities as required. Additionally, the CFPP would prepare work crews with emergency suppression equipment and plans to respond quickly to any on-site incidents caused by construction activities.

With compliance with Mitigation Measure WF-1, and the requirements of the Public Resources Code (detailed in Section 3.15.2, in Section 3.15, Wildfire), which would reduce the risk of wildfire during construction by restricting the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on equipment with an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire-suppression equipment that must be provided on site for various types of work in fire-prone areas, potential impacts related to wildland fires due to construction activities would be less than significant.

Operation

Once in operation, Project maintenance activities would require the dedication of one or two EBMUD employees per day, which would be staffed by the existing crew sited at the Orinda WTP. Project structures would be constructed to adhere to the California Fire Code, which requires fire safety and suppression measures such as sprinklers, alarms, etc., in occupied structures. This would not increase the potential of the Orinda WTP to contribute to the ignition of a wildfire. Therefore, the Project would not increase the risk of exposure of people or structures due to wildfires; this impact would be less than significant.

Significance Determination Before Mitigation

Potentially significant.

Mitigation Measures

> **Mitigation Measure WF-1: Construction Fire Prevention Plan.** (Refer to the discussion of Impact WF-2 in Section 3.15, Wildfire, for the full text of Mitigation Measure WF-1)

Significant Determination After Mitigation

Less than significant.

3.9.4 References

CalEPA (California Environmental Protection Agency), 2020a. List of "active" Cease and Desist Orders and Cleanup and Abatement Orders.

CalEPA, 2020b. Cortese List Data Resources. Available: https://calepa.ca.gov/sitecleanup/corteselist/. Accessed on March 3, 2020.

CAL FIRE (California Department of Fire and Forestry), 2009. Very High Fire Hazard Severity Zones in LRA. January 7, 2009. Map. Scale 1: 16,000.

CAL FIRE, 2019. *2019 Strategic Fire Plan for California*. California Department of Forestry and Fire Protection. January 22, 2019.

Cal OES (California Governor's Office of Emergency Services), 2017. *State of California Emergency Plan* (SEP). October 1, 2017.

City of Orinda, 1987. *City of Orinda General Plan 1987–2007* – Environmental Resources Element, adopted May 20, 1987. Available: https://cityoforinda.app.box.com/s/zb07kq9r9eiafrwu6i9w.

Contra Costa Clean Water Program, 2017. *Contra Costa Clean Water Program Stormwater C.3 Guidebook*. Stormwater Quality Requirements for Development Applications. 7th Edition, May 17, 2017. Available: https://www.cccleanwater.org/userfiles/kcfinder/files/Stormwater_C3_Guidebook_7th_Edition_2017-05-12%281%29.pdf.

Contra Costa County, 2015. *Contra Costa County Emergency Operations Plan* (EOP). June 16.

EBMUD (East Bay Municipal Utility District), 2006. *Water Treatment and Transmission Improvements Program Final Environmental Impact Report*, SCH # 2005092019. November 2006.

FACS (Forensic Analytical Consulting Services), 2019a. *Asbestos & Lead Survey Report;* East Bay Municipal Utility District, Orinda Water Treatment Plant, Los Altos Pumping Plant #1 Demolition Project, 190 Camino Pablo, CA *94563*. June 5, 2019.

FACS, 2019b. *Asbestos & Lead Survey Report;* East Bay Municipal Utility District, Orinda Water Treatment Plant, Gardener Building Demolition Project, 190 Camino Pablo, CA 94563. June 5, 2019.

FACS, 2019c. *Asbestos & Lead Survey Report*; East Bay Municipal Utility District, Orinda Water Treatment Plant, Mechanical Building Demolition Project, 190 Camino Pablo, CA 94563. June 5, 2019.

FACS, 2019d. *Asbestos & Lead Survey Report;* East Bay Municipal Utility District, Orinda Water Treatment Plant, Pesticide & Metal Sheds Demolition Project, 190 Camino Pablo, CA 94563. June 5, 2019.

FACS, 2020. *Phase I Environmental Site Assessment, Orinda Water Treatment Plant*. February 5, 2020.

MOFD (Moraga-Orinda Fire District), 2019. Item 9.7 – *MOFD Wildfire Prevention Strategic Plan*. February 20.

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3.10 Hydrology and Water Quality

This section describes the physical environmental and regulatory setting for hydrology and water quality, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts on hydrology and water quality that could result from construction and operation of the Project.

3.10.1 Environmental Setting

Existing hydrology and water quality conditions and the applicable environmental setting on the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.5, Hydrology and Water Quality (EBMUD, 2006). The environmental setting in the WTTIP EIR was based on field observations and a review of existing EBMUD permits.

General Hydrologic Setting

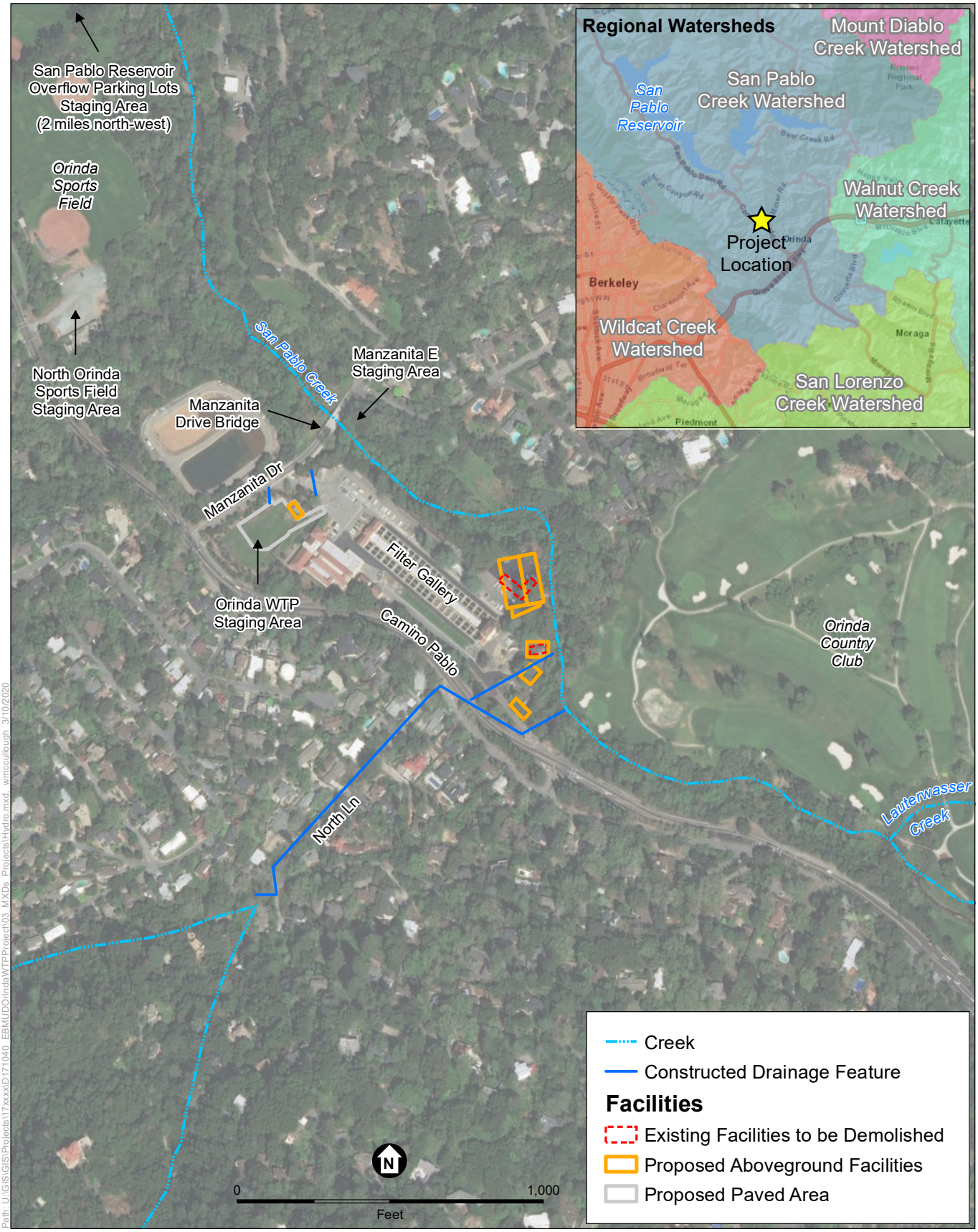
San Pablo Creek Hydrology and Flooding

The Orinda WTP and the Project's proposed staging areas are located within the San Pablo Creek watershed. The Orinda WTP is adjacent to San Pablo Creek, approximately 1.1 mile upstream of San Pablo Reservoir, as shown on Figure 3.10-1. San Pablo Reservoir is a water storage reservoir formed by a reinforced earthfill dam and operated by EBMUD.

In San Pablo Creek, the Federal Emergency Management Agency (FEMA) has mapped a 1 percent annual chance exceedance flood zone (Zone AE) with a base flood elevation (BFE) of 363 feet at the northeast end of the Orinda WTP site and between 371 and 375 feet at the southeast end of the Orinda WTP site (FEMA, 2009).[1] The 2009 FEMA flood map shows all existing Orinda WTP facilities above the BFE. Flood stage discharge volumes were calculated for San Pablo Creek in the vicinity of the Manzanita Road Bridge.[2] The 1 percent annual chance event discharge at Manzanita Road Bridge is estimated as 7,360 cubic feet per second (cfs); the 0.2 percent annual chance event discharge in this same location is estimated as 9,300 cfs (WRECO, 2018). In the 2009 FEMA flood map, the San Pablo Creek channel in the Project vicinity is designated as a regulatory floodway by FEMA. FEMA defines a floodway as the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1 percent annual chance flood can be carried without substantial increases in flood heights.

[1] These are areas subject to flooding by the flood event with a 1 percent chance of occurring in any individual year, commonly referred to as the 100-year flood.

[2] "Discharge" used in this sentence refers to a measure of the water flow at a particular point, such as a river gaging station.



SOURCE: USGS, 2015

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.10-1
Hydrology in the Project Vicinity

ESA

Under existing conditions, overland flooding does not occur during the 1 percent annual chance flood event at the northern end of the Project site, but overland flooding does occur on the southern end of the Project site during the 1 percent annual chance flood event when stormwater run-off exceeds the capacity of the two existing culverts that begin near North Lane (North Lane culverts) owned by the City of Orinda (WRECO, 2020). The North Lane culverts consist of two culverts (one 48-inch diameter and one 60-inch diameter) west of Camino Pablo that direct run-off from the residential hillsides along North Lane to pipelines that cross Camino Pablo and run below the Orinda WTP site to outfalls in San Pablo Creek.[3]

Orinda WTP Discharges to San Pablo Creek

Stormwater and partially treated or untreated water are discharged from the Orinda WTP to San Pablo Creek, as shown on Figure 3.10-2.

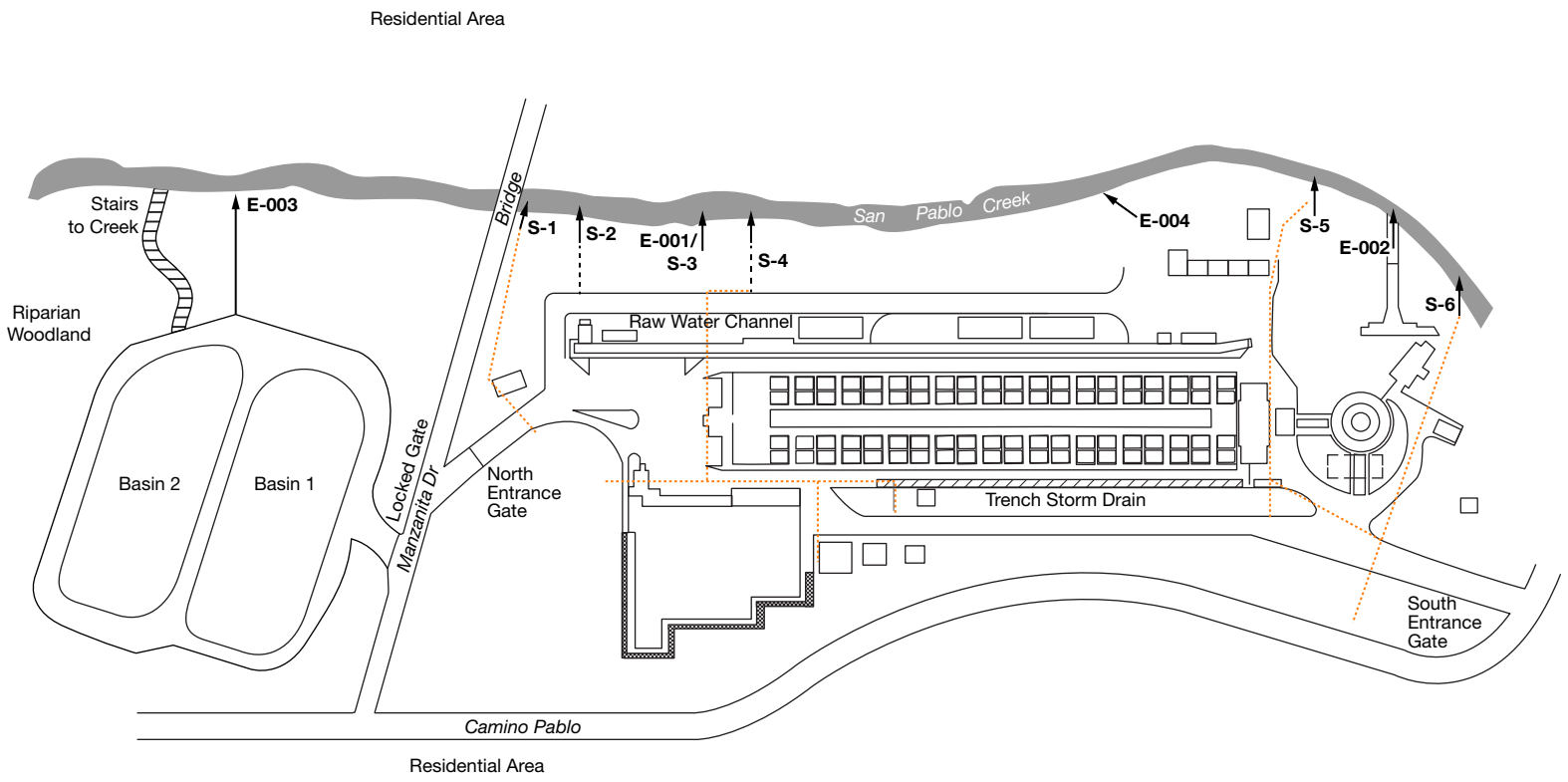
Under existing conditions, stormwater is discharged from the Orinda WTP site at six outfall locations between the Manzanita Drive Bridge in the north to the vicinity of the golf course to the south, including four stormwater pipeline outfall points and two concrete swales. Under current conditions at the northern end of the Project site, surface water flows from the west across the existing pervious staging area and into existing drainage infrastructure that discharges to San Pablo Creek. Under current conditions at the southeastern corner of the site, near the proposed Maintenance and UV Electrical (MAUVE) Building, surface water flows overland into San Pablo Creek directly or is routed to existing drainage infrastructure that discharges to San Pablo Creek. The Project would remove one existing stormwater outfall and one concrete swale outfall from use, but new drain inlets and below-ground stormwater pipelines south of the filter gallery would direct stormwater run-off from the existing outfall locations south of the existing maintenance building to E-004 (described below). Proposed stormwater management components are described in greater detail in Section 3.10.3 below.

Excess untreated water[4] or clarified filter backwash water is discharged from the Orinda WTP to San Pablo Creek through four discharge points (referred to as E-001, E-002, E-003, and E-004; SFBRWQCB, 2015 and SFBRWQCB, 2009).

- **Discharge Point E-001.** E-001 originally discharged untreated water flows in excess of Orinda WTP intake. In the late 1990s, E-001 was eliminated as a primary discharge mechanism for excess untreated water supply to the Orinda WTP. However, E-001 is still used in two capacities: 1) overflow for any excess untreated water as needed during unplanned or emergency releases, and 2) emergency overflow for excess backwash water that is prevented from reaching the settling ponds north of

[3] The North Lane Orinda Storm Water Improvement Project installed 900 feet of 60-inch diameter reinforced concrete pipe (RCP) and was completed in 2016 by the City of Orinda. The 60-inch diameter RCP was installed to provide additional stormwater infrastructure to divert run-off from west of Camino Pablo below the Orinda WTP for discharge to San Pablo Creek to minimize overland flooding at the Orinda WTP.

[4] As described in Section 2.2.2 in Chapter 2, *Project Description*, EBMUD's principal water source is the Mokelumne River watershed.



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SOURCE: EBMUD and ESA, 2020

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.10-2
Stormwater and WTP Discharge Locations

ESA

Manzanita Drive. Also, the existing stormwater drainage system piped from drain inlets at the north end of the Orinda WTP uses the existing E-001 outfall structure as a discharge point. The Project will connect stormwater run-off from the new Grounds Maintenance Building parking area to the existing storm drain system that discharges at E-001 which is described in greater detail under in Section 3.10.3 below.

- **Discharge Point E-002 (Upper Spillway).** E-002 is the primary discharge point for untreated water in excess of the Orinda WTP intake, and releases untreated water from the raw water channel to San Pablo Creek through six existing siphons. As described in the Project Description, Section 2.5.8, "Influent Channel Bifurcation Gates and Additional Spillway Siphons," the Project would add one additional siphon for overflow to San Pablo Creek. After the Project, E-002 would continue to discharge excess untreated water for diversion and maintenance purposes.

- **Discharge Point E-003.** As described in the Project Description, clarified filter backwash from the settling ponds north of Manzanita Drive is dechlorinated and intermittently released to San Pablo Creek; E-003 is the discharge point for outflows from the settling ponds. The Project would not change the discharges at E-003.

- **Discharge Point E-004.** As described in the Project Description, three existing 60-inch wasteway pipelines are currently used to drain Lafayette Aqueduct No. 1 to San Pablo Creek for diversion and maintenance purposes; E-004 is the discharge point to San Pablo Creek for the wasteway pipelines. Discharge through E-004 may occur when the Orinda WTP transitions from normal operations using water from Pardee Reservoir at the Orinda WTP to using untreated water from other sources (e.g., Sacramento River water during droughts) that must bypass the Orinda WTP. As described in the Project Description, Section 2.5.3, "Pipelines," the Project will install the Lafayette 1 Drain that will to discharge to E-004 for diversion and maintenance purposes. E-004 is currently used under drought conditions and is anticipated to be used once every 10 years. The Project would also discharge stormwater at E-004 which is described in greater detail in Section 3.10.3 below.

Discharge points E-001, E-002, and E-004 are subject to existing Drinking Water Systems Discharges permits from the State Water Resources Control Board (SWRCB), enforced by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). All discharges from E-001, E-002, and E-004 (unplanned and planned) require sodium bisulfite dechlorination. Discharge point E-003 is subject to a facility-specific permit from the Regional Water Quality Control Board which requires monitoring of chlorine, pH, and acute and chronic toxicity. See the "Regulatory Framework" section below for discussion of discharge permit requirements.

Beneficial Uses of Local Water Bodies

The SFBRWQCB's *San Francisco Bay Basin Water Quality Control Plan* (Basin Plan), identifies beneficial use categories of local water bodies within the San Francisco Bay Basin. The SFBRWQCB lists San Pablo Creek as a significant surface water with beneficial uses of San Pablo Creek and its tributaries that include cold freshwater habitat, fish migration, fish spawning, freshwater replenishment, preservation of rare and

endangered species, warm freshwater habitat, wildlife habitat, water contact recreation, and non-contact water recreation (SFBRWQCB, 2017).

Beneficial uses of San Pablo Reservoir include municipal and domestic supply, commercial and sport fishing, cold freshwater habitat, fish spawning, warm freshwater habitat, wildlife habitat, water contact recreation, and non-contact water recreation.

Although the Basin Plan, described below in Section 3.10.2, identifies water contact recreation (such as swimming) as a beneficial use for San Pablo Creek and San Pablo Reservoir, EBMUD prohibits water contact recreation activities in the reservoir because of possible threat to human health since the reservoir serves as water supply (SFBRWQCB, 2017).

Water Quality

The SWRCB lists San Pablo Creek as a Category 4a impaired water body for diazinon (an insecticide) from urban run-off/storm sewers and trash (SWRCB, 2017a), and lists San Pablo Reservoir as a Category 5 impaired water body for chlordane, dieldrin, heptachlor epoxide, mercury, polychlorinated biphenyls (PCBs), and toxaphene (SWRCB, 2017b).[5] Background concentrations of mercury at the Orinda WTP are consistently at least one order of magnitude below water quality objectives.

Groundwater

Based on groundwater levels encountered in geotechnical borings near San Pablo Creek, groundwater levels generally range from 15 to 19 feet below ground surface (McMillen Jacobs, 2019). The Project does not overlie a groundwater basin identified by the state of California in Bulletin 118 (DWR, 2016); therefore, no groundwater sustainability plan has been prepared for the Project area.

Tsunami and Seiche

A tsunami is a series of large ocean waves generated either by large submarine earthquakes generating significant upward movement of the sea floor, or landslides within or falling into the ocean. Because of Orinda's inland location, and because of the shape of the San Francisco Bay, a mostly enclosed body of water, energy from seismic events would likely dissipate, and severe damage from tsunamis in Orinda are unlikely. The Project is not in a tsunami inundation area, as mapped by the California Department of Conservation (CDC, 2009).

Seiches are waves in body of water resulting from seismic activity. Seiches have not been identified as a significant hazard to the Project site (City of Orinda, 2011).

[5] "Category 4a" impaired water bodies are water bodies for which all 303(d) listings are being addressed by either a total maximum daily load (TMDL) for a given pollutant or actions other than a TMDL. "Category 5" impaired water bodies are water bodies for which water quality standards are not met and a TMDL is required, but not yet completed, for at least one of the pollutants present in the water body.

3.10.2 Regulatory Framework

The regulatory framework for hydrology and water quality in the vicinity of the Orinda WTP is described in Section 3.5.2 and Appendix D of the WTTIP EIR. This Supplemental EIR highlights the changes in implementation of those laws and regulations that have occurred since the certification of the WTTIP EIR in December 2006. Elements of the regulatory framework for hydrology and water quality identified in the WTTIP EIR that are not described below have not notably changed since 2006.

The regulatory framework includes a discussion of the following: impaired water bodies and TMDLs, National Pollutant Discharge Elimination System (NPDES) waste discharge regulations, the Contra Costa County Clean Water Program, and existing EBMUD permits and discharges.

Federal Regulations

Clean Water Act

Under the Clean Water Act (CWA) of 1977, the United States Environmental Protection Agency (U.S. EPA) seeks to restore and maintain the chemical, physical, and biological integrity of the nation's waters by implementing water quality regulations. The NPDES permit program under Section 402(p) of the CWA controls water pollution by regulating sources that discharge pollutants into waters of the United States (U.S.). The U.S. EPA has delegated authority for issuing NPDES permits in California to the SWRCB, which has nine regional boards. The SFBRWQCB regulates water quality in the Project area.

Section 303(d) List of Impaired Water Bodies and Total Maximum Daily Loads

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., do not meet one or more of the water quality standards established by the state, even after point sources of pollution have been equipped with the minimum required levels of pollution control technology). Inclusion of a water body on the Section 303(d) List of Impaired Water Bodies triggers development of a TMDL for that water body and a plan to control the associated pollutant/stressor on the list. The TMDL is the maximum amount of a pollutant/stressor that a water body can assimilate and still meet the water quality standards. Typically, a TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. As mentioned previously in Section 3.10.1, Environmental Setting, San Pablo Creek is listed as a Category 4a impaired water body for diazinon from urban run-off/storm sewers and trash (SWRCB, 2017a), an impairment that applies to all tributaries of the creek including the surface water features of the Project site.

Federal Antidegradation Policy

The federal Antidegradation Policy, established in 1968 under Section 303 of the CWA, is designed to protect existing uses, water quality, and national water resources. Implementation of antidegradation by the states is based on a set of procedures to be followed when evaluating activities that may impact the quality of the Waters of the

U.S. Antidegradation implementation is an integral component of a comprehensive approach to protecting and enhancing water quality of both surface water and groundwater.

National Flood Insurance Program

FEMA determines flood elevations and floodplain boundaries based on U.S. Army Corps of Engineers studies. FEMA also distributes the Flood Insurance Rate Maps (FIRM) used in the National Flood Insurance Program. FIRMs identify the locations of special flood hazard areas, including 100-year floodplains. The Project is not located in a floodway or in an identified FIRM flood hazard area (FEMA, 2009).

Federal regulations governing development in a floodplain are set forth in Title 44, Part 60 of the Code of Federal Regulations (CFR). Those regulations enable FEMA to require municipalities participating in the National Flood Insurance Program to adopt certain flood hazard reduction standards for construction and development in 100-year floodplains.

State Regulations

Porter-Cologne Water Quality Control Act

The State of California's Porter-Cologne Water Quality Control Act provides the basis for water quality regulation within California and assigns primary responsibility for the protection and enhancement of water quality to the SWRCB and the nine RWQCBs. Under the Porter-Cologne Act, the SWRCB and RWQCBs also have the responsibility of granting CWA NPDES permits and Waste Discharge Requirements for certain point-source and nonpoint discharges to waters. The Porter-Cologne Act allows the California SWRCB to adopt statewide Water Quality Control Plans and Basin Water Quality Control Plans, which serve as the legal, technical, and programmatic basis of water quality regulation statewide or for a particular region. The water quality control plans limit impacts on water quality from a variety of sources.

San Francisco Bay Basin Water Quality Control Plan (Basin Plan)

San Francisco Bay waters are under the jurisdiction of the SFBRWQCB, which established regulatory standards and objectives for water quality in the San Francisco Bay in the Basin Plan (SFBRWQCB, 2017). The Basin Plan identifies existing and potential beneficial uses for surface and groundwaters, and provides numerical and narrative water quality objectives designed to protect those uses. The preparation and adoption of Water Quality Control Plans are required by the California Water Code (Section 13240) and supported by the federal CWA. Because beneficial uses, together with their corresponding water quality objectives, can be defined pursuant to federal regulations as water quality standards, the Basin Plan is a regulatory reference for meeting the state and federal requirements for water quality control. Adoption or revision of surface water standards is subject to the approval of the U.S. EPA.

NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities

Because Project construction would disturb more than one acre of land surface, potentially affecting the quality of stormwater discharges, the Project would be subject to the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ) (also referred to as the Construction General Permit). The Construction General Permit (CGP) regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground/overhead projects, including the installation of water pipelines and other utility lines.

The CGP requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the risk to receiving waters during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The risk level to receiving waters reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, the construction projects could be subject to the following requirements:

- Effluent standards
- Good site management "housekeeping"
- Non-stormwater management
- Erosion and sediment controls
- Run-on and run-off controls
- Inspection, maintenance, and repair
- Monitoring and reporting requirements

The CGP also requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific construction best management practices (BMPs) designed to prevent sediment and pollutants from contacting stormwater from moving off site into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management, and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the CGP. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

The SWPPP must be prepared before the construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the Project

area. The SWPPP must list BMPs and the placement of those BMPs that the applicant would use to protect stormwater run-off. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for non-visible pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, and vehicle and equipment washing and fueling. The CGP also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site following construction).

In addition to stormwater discharges, the CGP covers other non-stormwater discharges, including irrigation of vegetative erosion control measures, water to control dust, uncontaminated groundwater from dewatering, and other discharges not subject to a separate general NPDES permit adopted by the SFBRWQCB. The discharge of non-stormwater is authorized under the following conditions:

- The discharge does not cause or contribute to a violation of any water quality standard.
- The discharge does not violate any other provision of the CGP.
- The discharge is not prohibited by the applicable Basin Plan.
- The discharger has included and implemented specific BMPs required by the CGP to prevent or reduce the contact of the non-stormwater discharge with construction materials or equipment.
- The discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants.
- The discharge is monitored and meets the applicable numeric action levels.[6]
- The discharger reports the sampling information in the annual report (as described below).

In the Project area, the CGP is implemented and enforced by the SFBRWQCB, which administers the stormwater permitting program. Dischargers are required to electronically submit a notice of intent and permit registration documents in order to obtain coverage under this CGP. Dischargers are responsible for notifying the SFBRWQCB of violations or incidents of non-compliance, as well as for submitting annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. The sediment risk

[6] Numeric action levels are threshold levels of water quality properties that, when met, require additional actions for water quality control on the part of a permittee. The level is used as a warning to evaluate if best management practices are effective, and to take necessary corrective actions.

level assessment and SWPPP must be prepared by a State Qualified SWPPP Developer, and implementation of the SWPPP must be overseen by a State Qualified SWPPP Practitioner meeting the requirements set forth in the CGP. A Legally Responsible Person, who is legally authorized to sign and certify permit registration documents, is responsible for obtaining coverage under the CGP.

NPDES Municipal Regional Stormwater Permit

In 2009, to control pollution from urban run-off, the SFBRWQCB issued Municipal Regional Stormwater NPDES Permit (MRP; Order R2-2015-0049, NPDES Permit No. CAS612008, as revised). The MRP governs stormwater discharges from municipalities and local agencies in Alameda, Contra Costa, San Mateo, and Santa Clara Counties, and the cities of Fairfield, Suisun City, and Vallejo. The MRP prohibits the discharge of non-stormwater (materials other than stormwater) into storm drain systems and watercourses. Stormwater discharges are also restricted to those that would not adversely affect state waters or contribute to a violation of water quality standards for receiving waters (such as the San Francisco Bay). Some provisions require regional action and collaboration, but others relate to specific municipal activities over which the municipalities have individual responsibility and control. The MRP includes provisions applicable to new development and redevelopment (Provision C.3), which require permittees to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address stormwater run-off pollutant discharges and prevent increases in run-off flows from new development and redevelopment projects.

MRP Provision C.3.c mandates the use of Low Impact Development (LID) for stormwater treatment, with narrow exceptions. LID aims to mimic a site's pre-development hydrology by minimizing imperviousness and then by detaining, infiltrating, and filtering run-off in landscape-based features—principally bioretention facilities.

Contra Costa County developed guidance for implementing the MRP requirements in its *Contra Costa Clean Water Program Stormwater C.3 Guidebook*. The guidance states that for a project that would alter more than 50 percent of the impervious surface of a previously developed site, and the existing development was not subject to stormwater treatment measures, then the entire project must be addressed by stormwater treatment measures. However, if the project would result in alteration of less than 50 percent of the impervious surface of a previously developed site, and the existing development was not subject to stormwater treatment measures, then only the new or replaced impervious surface must be addressed by stormwater treatment measures. The Project would implement low impact design elements consistent with the Contra Costa County Clean Water Program C.3 guidelines.

Statewide NPDES Permit for Drinking Water System Discharges to Waters of the United States (No. WQ 2014-0194-DWQ)

The Statewide NPDES Permit for Drinking Water System Discharges to Waters of the U.S. (No. WQ 2014-0194-DWQ) provides regulatory coverage for short-term or seasonal planned and emergency (unplanned) discharges resulting from a water purveyor's

essential operations and maintenance activities undertaken to comply with the federal Safe Drinking Water Act, the California Health and Safety Code, and the SWRCB's Division of Drinking Water permitting requirements for providing reliable delivery of safe drinking water.

Planned discharges include regularly scheduled, automated, or non-regularly scheduled activities that must take place to comply with mandated regulations and that the water purveyor knows in advance will result in a discharge to surface water. Emergency discharges include unplanned discharges that occur due to facility leaks, system failures, operational errors, or catastrophic events for which the water purveyor is not aware of the discharge until after the discharge has commenced. Discharges authorized under this order are determined to not adversely affect beneficial uses of the receiving waters when properly managed through BMPs.

The order requires dischargers, including EBMUD, to implement BMPs that treat or control pollutants from its discharges covered by the order (discharge points E-001, E-002, and E-004, described in Section 3.10.1, are covered by this order). EBMUD must implement proven BMPs provided by professional associations or institutes, such as the American Water Works Association, to protect beneficial uses of San Pablo Creek. At a minimum, the BMPs for planned discharges must prevent aquatic toxicity caused by chlorine, prevent riparian erosion and hydromodification, and minimize sediment discharge and turbidity. EBMUD must modify the BMPs as necessary to maintain compliance with the order, and must monitor discharge events and submit annual reports of monitoring results to the SFBRWQCB.

Waste Discharge Requirements for the Orinda WTP, NPDES Permit No. CA0038342 (SFBRWQCB Order No. R2-2015-0041)

Clarified filter backwash water decanted from the settling pond is dechlorinated and discharged to San Pablo Creek at discharge point E-003 (as described in Section 3.10.1). Water is discharged daily; however, the volume varies based on the frequency of filter backwashing. During 2018, the average daily discharge was approximately 2.39 MGD. Discharge of clarified filter backwash water to San Pablo Creek is permitted if conducted in accordance with SFBRWQCB Order No. R2-2015-0041, which requires implementation of a BMPs Plan to control the discharge of pollutants. The BMPs Plan is designed to prevent abnormal discharges caused by temporary upsets or malfunctions. EBMUD reviews and updates the effectiveness and adequacy of the implemented BMPs Plan annually and reports a summary of the review and update to the SFBRWQCB. Pursuant to this permit, EBMUD also maintains a Spill Prevention Plan to prevent accidental discharges and minimize the effects of such events.

Local Regulations

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local

environmental protection policies for guidance. As such, the *City of Orinda General Plan* policies related to the preservation and protection of hydrology and water quality noted on page 3.5-20 and in Appendix D of the WTTIP EIR remain relevant to the Project.

East Bay Watershed Master Plan

The purpose of the East Bay Watershed Master Plan (EBWMP) is to provide long-term management direction for the approximately 29,000 acres of East Bay watershed land that is owned and managed by EBMUD. EBMUD-owned lands surround the Briones, San Pablo, Upper San Leandro, Chabot, and Lafayette reservoirs, and the Pinole Valley basin area. The San Pablo Reservoir Overflow Parking Lots staging area is the only Project component that lies within EBMUD watershed lands (San Pablo Reservoir watershed).

The General Management Direction section of the EBWMP includes objectives and management guidelines that apply to all EBMUD-owned lands. Management guidelines are divided into 12 separate management programs; the water quality management program is one such program, which involves activities EBMUD will undertake to maximize drinking water quality. The management guidelines that are presented in Table 3.10-1 are guidelines from the water quality management program within the EBWMP (EBMUD, 2018). Project activities in the San Pablo Reservoir Overflow Parking Lots staging area are subject to the management guidelines presented in Table 3.10-1.

TABLE 3.10-1
NATURAL RESOURCES MANAGEMENT PROGRAMS FOR WATER QUALITY

Natural Resources Management Programs for Water Quality
General Guidelines
WQ.1: Identify and quantify contaminants sources before developing management and control strategies and prioritizing implementation. Monitoring programs should identify sources of following water quality constituents: particulates, microorganisms, general minerals, metals, DBP precursors, nutrients, and synthetic organic compounds (including volatile organic compounds [VOCs], pesticides, and herbicides). Patrol watershed lands to identify potential sources of contamination and take action to minimize pollutant impacts on watershed lands and source water quality.
WQ.2: Assess water quality impacts of various management practices before developing comprehensive management strategies (e.g., water quality impacts of different grazing regimes or vegetation management/fuel reduction techniques).
WQ.3: Establish or continue the following prohibitions to protect public water supplies: • Prohibit body-contact recreation in reservoirs and tributary streams. • Prohibit untreated sewage from entering reservoirs or tributary streams, through either surface or subsurface flow. • Prohibit new easements or rights-of-way for pipelines and/or conveyances transmitting hazardous substances through District [EBMUD] watershed lands. • Prohibit the use of motorboat engines on reservoirs that have the potential to discharge fuel pollutants into the water in quantities of concern for human consumption or the environment. • Prohibit watercraft not inspected for invasive species, e.g., quagga and zebra mussels, from launching in District water bodies in accordance with state and federal regulations. • Prohibit the disposal of materials (bait and aquaria) that may contain invasive species into District reservoirs.
WQ.4: Implement management measures, standard plans and specifications, and best management practices (BMPs) as appropriate for land uses, activities, and District watershed control and management techniques that provide water quality protection guidelines for livestock grazing, equestrian stables, and other concentrated animal facilities, fishing, boating, and marina management, golf courses, residential neighborhoods, onsite waste systems, stormwater runoff from roads and parking lots, commercial zones, hazardous materials storage and transfer facilities, erosion control, fire road and hiking trail routing, construction, and maintenance, vegetation management, forestry, and fire and fuels management. Relevant BMPs are identified in the Range Resource Management Plan, Fire Management Plan, and Low Effect HCP [Habitat Conservation Plan].

TABLE 3.10-1 (CONTINUED)
NATURAL RESOURCES MANAGEMENT PROGRAMS FOR WATER QUALITY

Natural Resources Management Programs for Water Quality
General Guidelines (cont.)
WQ.5: Maintain an updated list of prioritized parcels for water quality protection (e.g., potential sites for stormwater management, wetland treatment, protection from development) that are candidates for restriction (via conservation easements) or land acquisition because of the soils, slope, and/or location within the hydrologic system.
WQ.6: Review pet access policy and conditions on watershed trails to ensure water quality protection.
Erosion Control
WQ.7: Implement erosion control standards and BMPs to reduce soil erosion, sedimentation, and nutrient impacts throughout the watershed. Standards and BMPs should be adhered to by all staff, contractors, researchers, recreationists, visitors, and others performing construction, maintenance, or other activities on watershed lands.
WQ.8: Conduct erosion control analysis and planning before initiating construction or other land disturbance activities.
WQ.9: Identify sediment sources and their contribution to the reservoirs and watercourses on District lands (e.g., active landslides and debris flows). Prepare a sediment budget, develop BMPs, set priorities for remediation, and implement measures. Give priority to Briones, San Pablo, and Upper San Leandro Reservoirs and their tributaries, and then Chabot and Lafayette Reservoirs. Identify management strategies and BMPs to minimize pollutant loading to tributary streams and reservoirs.
WQ.10: Inspect erosion-prone sites within the watershed annually and implement erosion control measures when and where necessary. Locate existing landslides, gullies, trail damage, or other sources of excessive sediment. Stabilize and vegetate streambanks and floodplains. Use drainage structures, grading, planting, or other site-specific methods to control erosion when needed.
WQ.11: Prevent construction-related water quality impacts such as erosion from exposed soil and pollutants from equipment.
Nonpoint Source
WQ.12: Coordinate as necessary with other land use management agencies, the National Pollution [sic] Discharge Elimination System stormwater permittee, and the Regional Water Quality Control Board to ensure proper selection and implementation of nonpoint-source control management practices on non-District land in reservoir basins, including the gunnery range on Miller Road.
Buffer Areas
WQ.29: Establish buffer zones or setbacks from watershed margins along sensitive urban interface areas to ease the encroaching development pressures on the watershed core and to protect the watershed, tributary streams, and reservoirs. Identify areas that are likely to be developed and consider alternative protection strategies.
WQ.30: Review alternatives and establish standards to protect land/water interface areas. Develop a program for protecting riparian corridors, wetlands, seeps, springs, ponds, banks of reservoirs, tributary streams and corridors, and other water bodies.
WQ.31: Identify activities adjacent to the developed watershed interface that may affect water quality, such as agriculture, construction, recreation, and rights-of-way. Implement pollution prevention practices (e.g., improving the vegetative buffer between District lands and urban development).
WQ.32: Protect riparian corridors from direct and indirect water quality impacts. Direct impacts include cattle access, trail crossings, and loss of vegetation. Indirect impacts may include overgrazing, runoff from prescribed burns, animal waste, and runoff from trails and roads.

SOURCE: EBMUD, 2018.

3.10.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to hydrology and water quality and evaluates whether there would be a new significant environmental impact or a substantial increase in the severity of a significant impact identified in the WTTIP EIR, given: (a) the proposed design and operating characteristics of the Project, and (b) any changes in significance criteria.

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines*, an impact would be considered significant if the Project would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.
3. Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:
    a. Result in substantial erosion or siltation on or off site.
    b. Substantially increase the rate or amount of surface run-off in a manner that would result in flooding on or off site.
    c. Create or contribute run-off water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted run-off.
    d. Impede or redirect flood flows.
4. In a flood hazard, tsunami, or seiche zone, risk the release of pollutants due to Project inundation.
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Adopted WTTIP Mitigation Measures

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. Table 3.10-2 presents adopted mitigation measures from the WTTIP EIR that relate to hydrology and water quality at and in the vicinity of the Orinda WTP.

TABLE 3.10-2
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR HYDROLOGY AND WATER QUALITY FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.5-1a	EBMUD will incorporate into contract specifications the requirement for the grading of construction staging areas to contain surface runoff so that contaminants such as oil, grease, and fuel products do not drain towards receiving waters. If heavy-duty construction equipment is stored overnight at the construction staging areas, drip pans will be placed beneath the machinery engine block and hydraulic systems to prevent any leakage from entering runoff or receiving waters.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact HYD-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. (Criterion 1)

Construction

The WTTIP EIR concluded that the Project could result in the discharge of construction-related sediments and pollutants to San Pablo Creek, either directly or through the on-site stormwater system because the Project would involve temporary land disturbance directly adjacent to San Pablo Creek, and construction activities could result in the discharge of construction-related sediments and pollutants into San Pablo Creek.

Construction activities involving soil disturbance, such as excavation, stockpiling, and grading, adjacent to or near creeks or storm drains could result in increased erosion and sedimentation, particularly if construction occurred during the rainy season. Groundwater dewatering during construction could also result in release of sediment if the pumped groundwater is turbid.

Where construction or trenching activities would occur in the proximity of the creek banks, such as at the MAUVE Building and the Manzanita East staging area, the potential for effects on creeks would increase because of the proximity of construction activities and the limited space for the construction easement. Release of sediment into the creeks would not only degrade water quality, but could also increase channel siltation, reduce the flood-carrying capacity, and affect associated habitats. In addition, the temporary storage of diesel and use of construction equipment could accidentally release construction-related chemicals, such as oil, grease, and fuel, which could degrade water quality. The WTTIP EIR included mitigation to address the potential impacts associated with surface and groundwater quality. Adopted WTTIP Mitigation Measure 3.5-1a (refer to Table 3.10-2, above) requires that contract specifications include measures to contain surface run-off and prevent any contaminants associated with construction staging areas from entering receiving waters. As specified in adopted WTTIP Mitigation Measure 3.5-1a, the contractor would be required to contain surface run-off and control leakage of hydraulic fluids, oil, grease, or fuels from reaching an adjacent waterway or stormwater collection system. For projects that disturb 1 or more acres of land, such as the Project,

the contractor would also be required to comply with NPDES stormwater permitting requirements. In accordance with NPDES stormwater permitting requirements described in detail in Section 3.10.2, Mitigation Measure HYD-1, Implement Stormwater Pollution Prevention Plan, would require the contractor(s) to submit the required notices, develop a SWPPP, and implement site-specific BMPs in accordance with the SWPPP to control and reduce discharges of construction-related sediments and pollutants in stormwater run-off into storm drains and receiving waters. The SWPPP would also include protection measures for the temporary on-site storage of diesel fuels used during construction. The protection measures would include requirements for secondary containment and berming of the diesel storage area or any chemical storage areas to contain a potential release and to prevent any such release from reaching an adjacent waterway or stormwater collection system. Non-stormwater discharges to the storm sewers and receiving waters would be eliminated or reduced, and monitoring would be conducted to ensure that all BMPs are implemented, maintained, and effective. The control measures would also be consistent with the Contra Costa Clean Water Program.

The MAUVE/UV/CCB Structure would be constructed approximately 10 to 30 feet from the top of bank of San Pablo Creek and approximately 20 to 30 feet from the toe of the nearest bank of San Pablo Creek. As discussed in Chapter 2, *Project Description*, the Project would include subsurface secant pile shoring that would create a three-foot thick permanent concrete wall that would support the MAUVE/UV/CCB Structure. With the placement of the MAUVE/UV/CCB Structure at this location relative to San Pablo Creek, the subsurface shoring would occur near the west bank of San Pablo Creek. The tiebacks supporting the shoring would extend below ground out from the MAUVE/UV/CCB Structure by approximately 55 feet at its base on all sides. There would be at least 15 feet of existing soil and rock above the tieback shoring supports. Thus, while the shoring installation work would occur from outside the creek proper, the tiebacks would extend outward from the north and east sides of the MAUVE/UV/CCB Structure beneath the west bank of San Pablo Creek and ending at least 15 feet beneath the creek bed.

Installation of the below-ground tiebacks between the secant piles has the potential to adversely affect water quality through “frac-outs,” which are conditions where the grout used to fill the tieback borehole is released through fractured bedrock into the surrounding environment. The tiebacks would be grouted by gravity (i.e., grout simply poured inside the tieback borehole) and not grouted using pressure injection which could over-pressurize the grout and lead to a “frac-out.” By using this gravity method, the risk of grout leakage into the surrounding groundwater and/or San Pablo Creek would be low (McMillen Jacobs, 2020). Fracturing of the ground is not expected due to the low pressure used to apply the grout, and the characteristics of the bedrock beneath San Pablo Creek indicate the grout is unlikely to result in permeation into the rock and leak at ground surface. However, since ground conditions can vary from those indicated by field investigations, unanticipated conditions could be encountered which may pose a significant impact if a frac-out occurs. Mitigation Measure HYD-2 would require tieback installation be monitored and modifications to the tieback installation process or remedial measures be implemented if a frac-out is observed.

In addition, as described in Chapter 2, *Project Description*, Section 2.6.4, Construction Water Supply and Discharge, any dewatered groundwater from construction-related activities would be filtered through Baker tanks on site. Any filtered discharge from groundwater dewatering would be released into existing storm drains on site that outfall into San Pablo Creek. All other filtered discharges during construction (other than groundwater dewatering) would be released into the Central Contra Costa Sanitary District sewer system on site. With compliance with NPDES stormwater permitting requirements through Mitigation Measure HYD-1, implementation of Mitigation Measure HYD-2 requiring monitoring of tieback installation and remedial action if a frac-out is observed, and implementation of adopted WTTIP Mitigation Measure 3.5-1a, water quality impacts related to construction to San Pablo Creek would be less than significant.

Operation

The WTTIP EIR identified discharges of chloraminated water as a potential impact of operations of the potential future improvements at the Orinda WTP. The WTTIP EIR concluded that these impacts would be less than significant, because discharges would be managed in accordance with the then-current Regionwide General NPDES Permit for Discharges from Surface Water Treatment Facilities for Potable Supply, or the NPDES permit in effect at the time of operation. Since certification of the WTTIP, new NPDES permits have been adopted by the SWRCB and SFBRWQCB that apply to discharges from the Orinda WTP.

As discussed in Section 3.10.2, discharges of untreated aqueduct water or other untreated water sources are regulated by the Statewide NPDES Permit for Drinking Water System Discharges to Waters of the United States (No. WQ 2014-0194-DWQ). Discharge of clarified filter backwash water to San Pablo Creek is permitted if conducted in accordance with EBMUD's waste discharge requirements permit for the Orinda WTP, NPDES Permit No. CA0038342 (SFBRWQCB Order No. R2-2015-0041).

While the Project would alter the disinfection process of water distributed to EBMUD's customers, it would not alter any water treatment components that would affect the quality of the Orinda WTP discharges to San Pablo Creek, which would remain either untreated water or filter backwash water as is permitted under current operations (both sources would continue to be generated upstream of the new ultraviolet [UV] disinfection process). The Project would not alter the volume of water discharged from the Orinda WTP to San Pablo Creek.

As discussed in greater detail in Impact HYD-3a, the Project would add impervious area to the Orinda WTP site at the proposed Grounds Maintenance Building and parking. Stormwater flow control improvements would be incorporated into the Grounds Maintenance Building and parking and designed to be consistent with the *Contra Costa Clean Water Program Stormwater C.3 Guidebook*, which sets standards to prevent increases in run-off flows from new development and redevelopment projects consistent with the MRP.

Chemicals commonly used in water treatment (caustic soda, sodium hypochlorite, ammonia, and fluoride) would be stored in the MAUVE Building for use in the CCB. In compliance with EBMUD's waste discharge requirements permit for the Orinda WTP (SFBRWQCB Order No. R2-2015-0041), EBMUD would revise the Orinda WTP SWPPP and/or Spill Prevention Plan, which is reviewed annually and must identify pollutant sources that may affect the quality of stormwater discharges and identify control measures and management practices to reduce pollutants in stormwater discharges. The SWPPP would be revised to reflect the Project, including specific control measures to address new chemical storage. Because the Project would not change the quality of water discharged to San Pablo Creek, would include flow control improvements consistent with Contra Costa Clean Water Program C.3 guidelines, and would be consistent with Orinda WTP's waste discharge requirements, the water quality impacts of Project operation would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (Including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.5-1a (Refer to the Table 3.10-2 for the full text of adopted mitigation measures).

Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan.

EBMUD or its contractor shall obtain authorization of discharges of stormwater associated with construction activity from the California State Water Resources Control Board under the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ; "construction general permit") or more recent general permit as relevant. The construction general permit requires all dischargers to comply with all applicable water quality standards, including any more stringent standards applicable to a water body.

A site-specific Stormwater Pollution Prevention Plan (SWPPP) shall be prepared. The SWPPP shall include the information needed to demonstrate compliance with all requirements of the construction general permit, and must be kept on the construction site and be available for review.

A qualified SWPPP developer (QSD) shall develop the SWPPP prior to the beginning of construction. The QSD shall determine relevant BMPs for the SWPPP based on sediment transport risk and risk to receiving waters. The SWPPP must also contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the Project area.

A qualified SWPPP practitioner shall oversee implementation of the BMPs included in the SWPPP. All BMPs shall be inspected routinely. The SWPPP shall contain a visual monitoring program, and a chemical monitoring program for non-visible pollutants to be implemented if there is a failure of BMPs. EBMUD or its contractor shall electronically submit a notice of intent and permit registration documents in order to obtain coverage under the construction general permit. EBMUD or its contractor shall notify the SFBRWQCB of violations or incidents of non-compliance, as well as submit annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected.

Mitigation Measure HYD-2: Tieback Installation Monitoring and Remedial Actions.

EBMUD or its contractor shall engage a California-licensed geotechnical engineer to monitor tieback installation (i.e., drilling, grouting). The California-licensed geotechnical engineer shall develop and maintain detailed drilling and grouting records. Grout placement volumes shall be observed to ensure grout volumes do not exceed the theoretical placed volume, which could be an indication of grout leakage. The following tieback installation remediation process shall be implemented if a frac-out or drilling fluid or grout loss is encountered. If a visible frac-out or grout leakage occurs, work shall cease at the tieback drilling location and EBMUD shall be immediately notified to determine the appropriate course of remedial action. Remedial measures shall include, but not be limited to:

- Staging the grout filling of the tieback anchor to limit hydrostatic head at the bottom of the tieback borehole.
- Pre-treating the tieback anchor borehole by using a thixotropic grout to reduce grout leakage into the bedrock.
- Thickening the grout mix by reducing the water to cement ratio.
- Using a grouting "sock" to minimize grout penetration into the bedrock.
- Including additives, such as bentonite, in the grout mix to reduce grout penetration.
- If a frac-out (i.e., grout) is encountered on dry ground surface outside the San Pablo Creek channel and it is determined that containment is necessary, stormwater BMPs, such as straw wattles, shall be deployed completely around the grout. The grout shall be collected, removed from the site, and disposed of in a manner according to applicable regulations. If the volume of grout is too small to warrant containment, it shall be allowed to dry and disposed of in a manner according to applicable regulations.
- If a frac-out (i.e., grout) is encountered within the San Pablo Creek channel, the regulatory agencies with jurisdiction in the channel shall be notified by

EBMUD to determine appropriate remedial action (i.e., U.S Army Corps of Engineers, Regional Water Quality Control Board, California Fish and Wildlife). The frac-out remedial actions shall comply with the requirements pertaining to regulated waterways, including associated water quality requirements of the RWQCB.

Significance Determination After Mitigation

Less than significant.

Impact HYD-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin. (Criterion 2)

Construction

The WTTIP EIR concluded that impacts related to groundwater dewatering, if required, would be less than significant with compliance with EBMUD construction specifications requiring a water control and disposal plan and applicable regulatory requirements for the discharge of the groundwater (likely to San Pablo Creek). As described in Chapter 2, *Project Description*, excavations would require groundwater dewatering during construction to maintain dry working conditions. Dewatering of open excavations, when necessary, would involve pumping water out of the excavated area and discharging it as discussed in detail under Impact HYD-1, above. The affected groundwater for Project excavations would be from the shallow aquifer, which is not used as a source of municipal drinking water. Such dewatering activities would be limited to as-needed pumping, would be temporary, and would only affect unconfined groundwater, and thus would not substantially affect local groundwater levels such that there would be a net deficit in aquifer volume or lowering of the local groundwater table. Additionally, any impact on groundwater during construction would be confined to the vicinity of the excavation. Groundwater levels would return to pre-Project conditions once construction is completed resulting in a less-than-significant impact.

Operation

An impermeable, synthetic membrane would be wrapped around the roof and sides of the CCB, preventing groundwater intrusion to the CCB. The bottom perimeter around the CCB would remain open, allowing groundwater to continue to flow as it does under existing conditions, including around the secant pile wall tiebacks. Thus, from the outside in, multiple impermeable barriers (consisting of 3-foot thick concrete secant piles, the impermeable membrane, and the 3-foot thick concrete walls of the CCB) would prevent groundwater intrusion to the structure while still allowing groundwater to flow around and below the structure. As a result, operational dewatering is not expected.

In the unlikely event that groundwater accumulates below ground outside the CCB, and/or the need arises to dewater the exterior of the CCB for facility maintenance,

EBMUD would either comply with appropriate regulatory permitting requirements for discharge of groundwater to San Pablo Creek, or seek beneficial reuse alternatives for the groundwater, if reuse is determined to be feasible. The unconfined (shallow) groundwater is not used as a source of municipal drinking water, and pumping would be used to reduce the accumulation of groundwater by routing the water around the CCB. Therefore, pumping during operations would not substantially reduce groundwater supplies such that sustainable groundwater management would be impeded, and the impact would be less than significant.

Significance Determination Before Mitigation

Less than significant. No mitigation measures required.

Mitigation Measures

None required.

Impact HYD-3a: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would result in substantial erosion or siltation on or off site. (Criterion 3a)

Construction

The WTTIP EIR determined that construction activities would generally be confined within existing roadways or would occur adjacent to developed areas, and direct disruption to creek beds or surface waters would therefore be limited. However, construction activities involving soil disturbance, such as excavation, stockpiling, and grading, adjacent to or near creeks or storm drains could result in increased erosion and sedimentation, particularly if construction occurred during the rainy season.

As discussed in Impact HYD-1, with implementation of adopted WTTIP Mitigation Measure 3.5-1a, which requires that contract specifications include measures during construction to contain and slow surface run-off and prevent any contaminants associated with construction from entering receiving waters, and Mitigation Measure HYD-1, which requires implementation of BMPs identified in a SWPPP prepared by a qualified SWPPP developer, impacts related to changes in drainage patterns due to the addition of impervious surfaces during construction would be less than significant because implementation of the BMPs would reduce the potential for substantial erosion or sedimentation on or off site.

Operation

The WTTIP EIR concluded that hydrology and water quality impacts related to the addition of impervious surfaces at the Orinda WTP site would be less than significant. The WTTIP EIR also concluded that changes in impervious surfaces at the Orinda WTP site as a result of program-level improvements (such as the Project) would not be subject

to separate treatment measure/source control requirements because stormwater management would be addressed under the then-current Regionwide General NPDES Permit for Discharges from Surface Water Treatment Facilities for Potable Supply and the site-specific BMPs Plan, or the NPDES permit in effect at the time of construction. Project stormwater management improvements for long-term operation of the MAUVE/UV/CCB Structure have been designed to be consistent with the Contra Costa County Clean Water Program C.3 guidelines.

During operations, the Project's new impervious surfaces would alter drainage patterns at the proposed Grounds Maintenance Building and parking and the MAUVE Building and vicinity (refer to Figure 3.10-3 for post-construction stormwater drainage patterns). Generally, drainage pattern changes can result in new erosion or siltation on or off site.

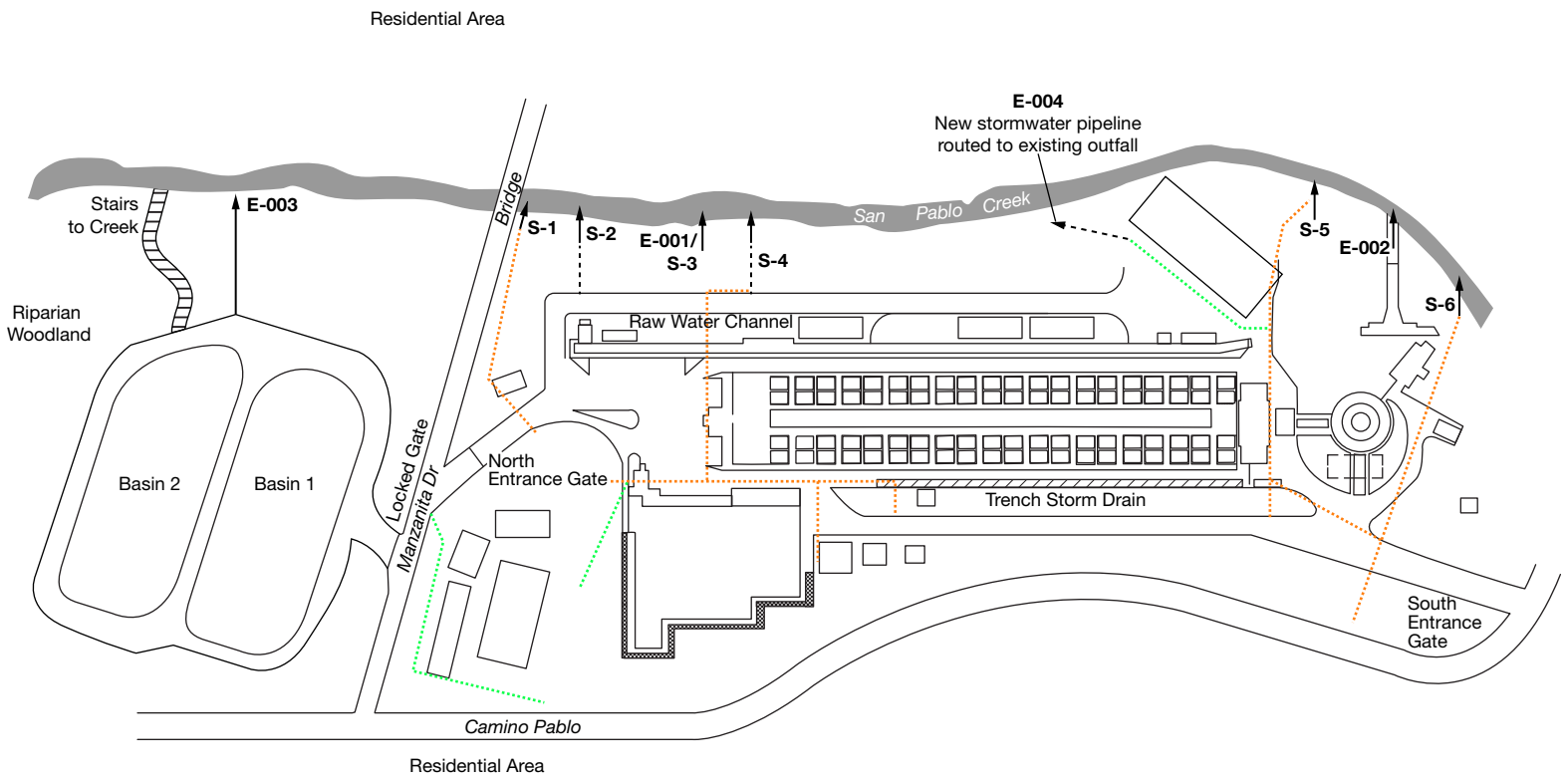
Grounds Maintenance Building and Parking

Water that flows across the northern portion of the site would be routed around the proposed Grounds Maintenance Building and drain to San Pablo Creek via either existing stormwater collection facilities along Manzanita Drive or existing Orinda WTP stormwater collection facilities, as under existing conditions. The Grounds Maintenance Building and parking include a new subsurface flow control vault with 6,000 cubic feet of storage capacity, which would discharge to the existing Orinda WTP stormwater collection system outfall in San Pablo Creek at a maximum rate of approximately 4 gallons per minute. The discharge of approximately 4 gallons per minute is equivalent to a discharge of 0.006 million gallons per day, or less than 1 percent of the average daily discharge from the existing filter backwash operations. The capacity and discharge rate of the subsurface flow control vault were designed consistent with the requirements in the *Contra Costa Clean Water Program Stormwater C.3 Guidebook,* which is designed to be consistent with the MRP. The vault would be approximately 5,000 square feet in area and 1.5 feet deep, and open on the bottom to allow stormwater to infiltrate into the ground. The combination of infiltration, plus the maximum discharge rate of approximately 4 gallons per minute, would ensure that post-construction stormwater flow rates at the northern end of the Project site would not exceed preconstruction flow rates.

Because the post-construction stormwater flow rate would be designed to be consistent with the *Contra Costa Clean Water Program Stormwater C.3 Guidebook*, which sets standards to prevent increases in run-off flows from new development and redevelopment projects, the addition of impervious area at the north end of the Project site would result in less-than-significant impacts in erosion or sedimentation.

MAUVE Building and Vicinity

Additional stormwater collection pipelines and a new vegetated swale would be installed to collect and redirect run-off from an existing stormwater discharge point south of the proposed MAUVE Building to one of three existing wasteway pipelines (discharge point E-004) just north of the proposed MAUVE Building. Stormwater flows near the MAUVE Building would also be allowed to flow over the top-of-bank to the creek as stormwater does under existing conditions in this area. In the vicinity of the South Electrical Building, the Los Altos Power Building, and the South Standby Generator, stormwater



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SOURCE: Carollo, 2019

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.10-3
Post-Construction Stormwater Drainage Within Project Modification Areas

ESA

run-off would continue to be directed to existing underground storm drain pipelines and an aboveground concrete swale that currently flow to San Pablo Creek. Improvements surrounding the MAUVE Building would not increase impervious surface in the area, but would direct stormwater to a different existing outlet that drains to San Pablo Creek. The improvements would include components designed to slow and infiltrate stormwater (vegetated swale). Given that the stormwater would be routed to an existing pipeline or over the top-of-bank to San Pablo Creek as under existing conditions, and the volume of run-off would not increase, the drainage alterations in the vicinity of the MAUVE Building would result in less-than-significant impacts on erosion or sedimentation.

Summary

The proposed changes in drainage patterns would not be due to new impervious area, with the exception of the proposed Grounds Maintenance Building and parking. Only the Grounds Maintenance Building and parking would generate new run-off from the Project. The collection system changes at the MAUVE Building may increase the concentration of run-off compared with current conditions, but are unlikely to increase the total volume of run-off. All stormwater would continue to flow into San Pablo Creek. Because the Project would direct all stormwater run-off to existing outfalls to San Pablo Creek or to stormwater features that promote infiltration before overland flow to the creek, and because flows from impervious areas would be restricted to preconstruction rates, impacts on erosion or sedimentation would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (Including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.5-1a (Refer to the Table 3.10-2 for the full text of adopted mitigation measures).

Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan. (Refer to Impact HYD-1, above, for the full text of Mitigation Measure HYD-1.)

Significance Determination After Mitigation

Less than significant.

Impact HYD-3b: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would substantially increase the rate or amount of surface run-off in a manner that would result in flooding on or off site. (Criterion 3b)

The WTTIP EIR concluded that while the Project would include the addition of impervious surfaces, it would not be subject to separate treatment measure/source control requirements because stormwater management would be addressed under the Regionwide General NPDES Permit for Discharges from Surface Water Treatment Facilities for Potable Supply and the site-specific BMPs Plan (or the NPDES permit in effect at the time of construction). The BMPs Plan would be revised to address any changes in stormwater run-off and potential stormwater pollutant sources, subject to approval by the SFBRWQCB.

Construction

As discussed in Impact HYD-1, during construction, adopted WTTIP Mitigation Measure 3.5-1a requires that contract specifications include measures to contain surface run-off and prevent any contaminants associated with construction from entering receiving waters. Other stormwater control BMPs identified in a SWPPP prepared by a qualified SWPPP developer, pursuant to the CGP would also be implemented as part of Mitigation Measure HYD-1. Containing or slowing surface run-off consistent with CGP requirements, as discussed in Mitigation Measure HYD-1, would reduce potential changes in surface run-off rates or volumes during construction, resulting in less-than-significant impacts.

Operation

As discussed in Impact HYD-3a, the Project would alter drainage patterns during operation by adding impervious area or rerouting stormwater drainage. Stormwater flow control improvements would be incorporated into the Grounds Maintenance Building and parking and designed to be consistent with the *Contra Costa Clean Water Program Stormwater C.3 Guidebook*, which sets standards to prevent increases in run-off flows from new development and redevelopment projects that are consistent with the requirements of the MRP. Improvements at the MAUVE Building would include a vegetated bioswale to slow run-off and encourage infiltration, and would not increase the total impervious area at the site, resulting in less-than-significant impacts related to flooding caused by drainage pattern alterations.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (Including Adopted WTTIP Mitigation Measures)

> **Adopted WTTIP Mitigation Measures:** 3.5-1a (Refer to Table 3.10-2 for the full text of adopted mitigation measures).

Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan. (Refer to Impact HYD-1, above, for the full text of Mitigation Measure HYD-1.)

Significance Determination After Mitigation

Less than significant.

Impact HYD-3c: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would create or contribute run-off water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted run-off. (Criterion 3c)

The WTTIP EIR concluded that construction activities would generally be confined within existing roadways or would occur adjacent to developed areas, and direct disruption to creek beds or surface waters would be limited. However, construction activities involving soil disturbance, such as excavation, stockpiling, and grading, adjacent to or near creeks or storm drains could result in increased erosion and sedimentation, particularly if construction occurred during the rainy season.

Where construction or trenching activities would occur along the banks of San Pablo Creek, the potential for effects to San Pablo Creek would increase because of the proximity of construction activities and the limited space for the construction easement. Release of sediment into San Pablo Creek could increase channel siltation and reduce the flood-carrying capacity. In addition, the temporary storage of diesel and use of construction equipment could accidentally release construction-related chemicals, such as oil, grease, and fuel, which could degrade water quality.

Construction

As discussed in Impact HYD-1, adopted WTTIP Mitigation Measure 3.5-1a requires that contract specifications include measures during construction to contain and slow surface run-off and prevent any contaminants associated with construction from entering receiving waters. EBMUD would also implement Mitigation Measure HYD-1, which requires implementation of BMPs identified in a SWPPP prepared by a qualified SWPPP developer, pursuant to the CGP. Implementation of typical BMPs, such as scheduling or limiting certain activities to dry periods, or installing sediment barriers such as silt fence and fiber rolls, or other practices to be selected by the qualified SWPPP developer, would reduce potential changes in surface run-off rates or volumes during construction, resulting in less-than-significant impacts on stormwater drainage systems. To minimize the threat of an unanticipated frac-out, EBMUD or its contractor would implement Mitigation Measure HYD-2 which requires monitoring of tieback installation and implementation of remedial actions should frac-out or grout leakage occur. Controlling the release of contaminants from the construction sites, as required by adopted Mitigation Measure 3.5-1a, would also reduce the Project's potential to generate additional polluted

run-off by preventing contaminants from construction staging areas from entering run-off or receiving waters, resulting in a less-than-significant impact related to stormwater quality during construction.

Operation

As discussed in Impact HYD-3a, the Project would alter drainage patterns during operation by adding impervious area and rerouting stormwater drainage. Stormwater flow control improvements would be incorporated into the Grounds Maintenance Building and parking and designed to be consistent with the *Contra Costa Clean Water Program Stormwater C.3 Guidebook*, which sets standards to prevent increases in run-off flows from new development and redevelopment projects. Improvements at the MAUVE Building would include a vegetated bioswale to slow run-off and encourage infiltration and would not increase the total impervious area at the site. The stormwater retention basin and vegetated bioswale would be designed such that run-off from the Project would not exceed the capacity of downstream drainage features (San Pablo Creek) and would be allowed to infiltrate before being discharged to San Pablo Creek. Therefore, the Project would result in less-than-significant impacts related to additional run-off caused by drainage pattern alterations.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (Including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.5-1a (Refer to Table 3.10-2 for the full text of adopted mitigation measures).

Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan. (Refer to Impact HYD-1, above, for the full text of Mitigation Measure HYD-1.)

Mitigation Measure HYD-2: Tieback Installation Monitoring and Remedial Actions. (Refer to Impact HYD-1, above, for the full text of Mitigation Measure HYD-2.)

Significance Determination After Mitigation

Less than significant.

Impact HYD-3d: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows. (Criterion 3d)

The WTTIP EIR concluded that improvements at the Orinda WTP would have no effect related to the diversion of flood flows because the Project would not alter any structures or ground surface within the floodway. As discussed above, the Project would not include any alterations to structures or ground surface within the regulatory floodway.

Construction

Soil-disturbing activities, such as excavation and site clearing, could increase sediment entrained in stormwater run-off to downstream water bodies and storm drains. Increased sedimentation in San Pablo Creek could impede or redirect flood flows. However, as detailed in Impact HYD-1, EBMUD or its contractor would be required to comply with NPDES stormwater permitting requirements for construction activities and implement adopted WTTIP Mitigation Measure 3.5-1a, which requires control of site activities to manage surface water flows, including containing surface run-off. As discussed further in Impact HYD-1, Mitigation Measure HYD-1 would require the implementation of site-specific BMPs in accordance with the SWPPP to control stormwater on site and off site such that discharges of construction-related sediments and pollutants in stormwater run-off are reduced. With implementation of adopted WTTIP Mitigation Measure 3.5-1a and Mitigation Measure HYD-1, BMPs would reduce the entrainment of sediment in run-off, and the impact would be less than significant.

Operation

Grounds Maintenance Building and Parking

As discussed in Impact HYD-3a, the Project would redirect run-off that crosses the northern portion of the site such that it flows around the Project site, but the run-off would be directed to the same drainage infrastructure through which run-off currently collects and discharges to San Pablo Creek. The proposed improvements would be above the elevation of the floodway. Impact HYD-3b evaluates the potential flood impacts of additional run-off caused by new impervious area at the Project site.

MAUVE Building and Vicinity

Under existing conditions, when the capacity of the North Lane culverts is exceeded, stormwater run-off flows over Camino Pablo and enters the Orinda WTP across from the North Lane intersection with Camino Pablo. Stormwater run-off across the Orinda WTP site is split north and south by the existing Grounds Maintenance Building (located at the site of the proposed MAUVE Building). Under Project conditions, stormwater would continue to follow the current path across the Orinda WTP but be split north and south instead by the MAUVE Building. Stormwater run-off to the south of the MAUVE Building would continue to flow to San Pablo Creek adjacent to the Upper Spillway (Discharge Point E-002). Stormwater run-off to the north of the MAUVE Building would also continue to flow ultimately to San Pablo Creek as under existing conditions.

Assuming, conservatively, that the 60-inch diameter North Lane culvert is operating at 50 percent capacity during the 1 percent annual chance flood event, and that water levels in San Pablo Creek are very high (equivalent to water levels during a 0.2 percent annual chance flood event), flood water depths would increase on the Project site west of the MAUVE Building along the length of the existing Filter Gallery Building (WRECO, 2020). Flood water depths would also increase northwest of the South Standby Generator Building. The maximum change in flood water depth on site would be an increase of approximately 0.7 foot at the southwest corner of the MAUVE Building. The Project would not result in changes in flood water depths or extents in San Pablo Creek, on Camino Pablo, or anywhere off site due to impeding or redirecting flood water (WRECO, 2020).

As described in Chapter 2, *Project Description*, the Project includes flood protection measures for structures on site that would be affected by overland flooding. Permanent support rails would be installed at each entryway of the MAUVE Building, and removable flood shields (stop logs) would be stored in site. During a flood, the flood shields would be manually installed in the support rails to prevent the interior of the MAUVE Building from flooding (Carollo, 2020). All flood shields and access hatches to the proposed CCB would be raised to a minimum of 6 inches above the maximum floodwater depth to prevent floodwater intrusion into the treated water supply. The finished floor elevations of the South Electrical Building and Los Altos Pumping Plant Power Building would be raised above the maximum floodwater depths, and access ramps and stairs would be provided accordingly.

While the MAUVE Building would redirect flood flows on site at the Orinda WTP such that on-site flooding depths increase to the west of the MAUVE Building, the Project would not alter floodwater depths or inundation areas outside the Orinda WTP boundary, including in San Pablo Creek, during flood events (WRECO, 2020). The Project would not redirect or impede flood flows outside of areas where flood protection measures would be installed by the Project resulting in a less than significant impact.

In an extreme high flow or scour event in San Pablo Creek, which could occur regardless of the presence of the MAUVE/UV/CCB Structure, creek banks could be destabilized and experience bank erosion in the vicinity of the Project in a manner that could redirect or impeded flood flows in the channel. The Project would be designed and constructed such that construction of the MAUVE/UV/CCB Structure would not destabilize the creek banks. As discussed under Impact HYD-1, the subsurface shoring and tieback installations for the MAUVE/UV/CCB Structure would be in close proximity to San Pablo Creek. Both vibrations associated with construction and tieback installation and long-term operation were found to have little to no potential for destabilizing creek banks, due to the estimated construction equipment vibration and the presence of shallow bedrock that may limit the potential vertical scour that occurs at the Project site (McMillen Jacobs, 2020).

To ensure that Project construction does not contribute to or increase the potential for creek bank instability, Mitigation Measure HYD-3, San Pablo Creek Bank Monitoring and Remediation Program, would require development of a creek bank monitoring and remediation program to be implemented during and after construction. Mitigation Measure HYD-3 would include, but not be limited to: baseline creek cross-section

surveys, visual creek bank stability evaluations at pre-determined construction milestones and for five years annually after Project completion, development of specific bank stability thresholds and appropriate bank stabilization remedial actions, and coordination with regulatory waterway agencies in the event of bank failure in San Pablo Creek.

With implementation of Mitigation Measure HYD-3, a creek bank monitoring program would be implemented and remedial actions would be taken by EBMUD to address potential failure of the creek bank; therefore, the potential for the Project to redirect or impede flood flows is less than significant.

If creek banks did fail in the Project vicinity due to natural, on-going stream processes, the secant pile wall would protect the MAUVE/UV/CCB Structure from creek scour and the MAUVE/UV/CCB Structure would be founded such that the structure would not shift in response to creek scour (Carollo, 2019). If the creek banks were to scour away and San Pablo Creek were to flow against the MAUVE/UV/CCB Structure, it is unclear whether the structure could impede or redirect floodwaters in San Pablo Creek. The presence of shallow bedrock may limit the vertical scour that occurs at the Project site on the west bank of San Pablo Creek; thus, scour along the west bank of San Pablo Creek may increase the capacity of the creek channel, potentially resulting in a greater cross-sectional area of channel for the floodwaters to pass through. No changes are proposed to the eastern bank of San Pablo Creek. Though complete creek bank failure to the MAUVE/UV/CCB Structure is unlikely, to ensure that the Project does not contribute in some way to increased scour potential in San Pablo Creek or redirect flood flows in San Pablo Creek, implementation of Mitigation Measure HYD-3 requires monitoring creek bank stability during and after construction. Mitigation Measure HYD-3 would include, but not be limited to: baseline creek cross-section surveys, visual creek bank stability evaluations at pre-determined construction milestones and for five years annually after Project completion, and development of specific bank stability thresholds and appropriate bank stabilization remedial actions. Mitigation Measure HYD-3 also requires EBMUD to take action if the monitoring indicates the potential for creek bank failure at the MAUVE/UV/CCB Structure. Those responsive actions would be developed and implemented per the creek bank monitoring and remediation program and be specific to the potential failure issue in consultation with resource agencies having jurisdiction in San Pablo Creek. With implementation of Mitigation Measure HYD-3, a creek bank monitoring program would be developed and implemented, and responsive actions would be taken by EBMUD to address potential failure of the creek bank before San Pablo Creek would flow directly against the MAUVE/UV/CCB Structure, therefore impacts of the Project would not impede or redirect flood flows in San Pablo Creek, resulting in a less than significant impact.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (Including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.5-1a (Refer to Table 3.10-2 for the full text of adopted mitigation measures).

Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan. (Refer to Impact HYD-1, above, for the full text of Mitigation Measure HYD-1.)

Mitigation Measure HYD-3: San Pablo Creek Bank Monitoring and Remediation Program.

Prior to ground excavation activities for the MAUVE/UV/CCB Structure, EBMUD shall retain a fluvial geomorphologist to develop and implement a creek bank monitoring and remediation program for the reach of San Pablo Creek adjacent to the MAUVE/UV/CCB Structure site, and EBMUD shall implement the creek bank monitoring and remediation program. The bank monitoring shall occur for the extent of the tiebacks and anchors on the west and east banks of San Pablo Creek (approximately from the upper spillway downstream to the Lafayette 1 Drain outfall) to reduce the potential for creek bank instability as a result of Project construction. This program shall include, but not be limited to:

- Baseline creek cross-section surveys;
- Visual creek bank stability evaluations to be conducted at specific construction milestones and for five years annually after Project completion. If warranted through visual evaluation by the fluvial geomorphologist, follow-up cross-section surveys to be conducted;
- Preparation of a technical memo after each creek bank stability evaluation to include, but not limited to, documented field conditions, established photo viewpoints, and recommended remedial actions, if any;
- Development of specific bank stability thresholds to determine when remedial actions are required, including, but not limited to, visual evidence of bank erosion and changes in channel cross-section;
- Development of bank stabilization remedial actions, to be taken if bank stability thresholds are exceeded, including, but not limited to, biotechnical bank stabilization methods (e.g., live willow stake planting) and native riparian bank re-vegetation. Remedial actions to be determined based on the specific bank instability issue and Project-specific permit requirements or – if no Project-specific permit has been issued – applicable regulatory requirements in force at that time. If at any monitoring or reporting point, signs of potential creek bank instability become evident, EBMUD shall engage the regulatory agencies with jurisdiction over San Pablo Creek to confirm EBMUD's proposed remedial bank stabilization actions. EBMUD shall comply with all permitting or other regulatory requirements identified by

the regulatory agencies to ensure that the remedial actions will not significantly adversely affect San Pablo Creek or its riparian corridor.

Significance Determination After Mitigation

Less than significant.

Impact HYD-4: In a flood hazard, tsunami, or seiche zone, risk the release of pollutants due to Project inundation. (Criterion 4)

The WTTIP EIR concluded that although 100-year flood zones are mapped adjacent to the Project, construction at the Orinda WTP and the North Orinda Sports Field would occur at elevations higher than the base flood elevation.

While the Grounds Maintenance Building and associated parking would be above the relevant BFE of 363 feet, the MAUVE Building would be constructed in areas where shallow, overland flooding is known to occur during high-precipitation events when the capacity of the North Lane culverts is exceeded (although the MAUVE Building location is not mapped within the regulatory floodway). As described in Section 3.10.1, the Project is not within a tsunami or seiche zone.

Construction

As discussed in Impact HYD-1, adopted WTTIP Mitigation Measure 3.5-1a requires that contract specifications include measures during construction to contain surface run-off and prevent contaminants associated with construction from entering receiving waters. Other stormwater control BMPs identified in a SWPPP prepared by a qualified SWPPP developer would also be implemented, pursuant to Mitigation Measure HYD-1. Pursuant to the CGP, the SWPPP must include measures to ensure that all pollutants and their sources are controlled; non-stormwater discharges are identified and either eliminated, controlled, or treated; site BMPs are effective and reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges; and BMPs installed and maintained to reduce or eliminate pollutants after construction is completed. Non-stormwater discharges include those from improper dumping, accidental spills, and leakage from storage tanks or transfer areas. With implementation of BMPs identified in the SWPPP required in Mitigation Measure HYD-1, the impact would be less than significant.

Operation

As discussed in Impact HYD-3a, elements of the Grounds Maintenance Building and parking improvements would direct off-site drainage around the northern portion of the Project site, instead of allowing the drainage to flow across the northern portion of the Project site, eliminating inundation caused by off-site flows in the northern area of the Orinda WTP. While new run-off from the Grounds Maintenance Building parking area may contain additional pollutants (such as oil from vehicles), the vegetated bioswales

incorporated into the Project would be designed to reduce the concentration of pollutants in run-off.

As discussed in Impact HYD-1, chemicals commonly used in water treatment (caustic soda, sodium hypochlorite, ammonia, and fluoride) would be stored in the MAUVE Building for use in the CCB. In compliance with SFBRWQCB Order No. R2-2015-0041, EBMUD would revise the Orinda WTP SWPPP and/or Spill Prevention Plan, which is reviewed annually and must identify pollutant sources that may affect the quality of stormwater discharges and identify control measures and management practices to reduce pollutants in stormwater discharges. The SWPPP would be revised to reflect the Project, including specific control measures to address new chemical storage.

Furthermore, the Project includes flood protection measures for structures on site that would be affected by overland flooding. As discussed in Chapter 2, *Project Description*, permanent support rails would be installed at each entryway of the MAUVE Building, and removable flood shields (stop logs) would be stored nearby. During a flood, the flood shields would be manually installed in the support rails to prevent the MAUVE Building from flooding (Carollo, 2020). All access hatches to the proposed CCB would be raised to a minimum of 6 inches above the maximum floodwater depth to prevent floodwater intrusion into the treated water supply. The finished floor elevations of the South Electrical Building and Los Altos Pumping Plant Power Building would be raised above the maximum floodwater depths, and access ramps and stairs would be provided accordingly.

Impact HYD-3a evaluates the potential for release of additional sediment into San Pablo Creek due to the Project, and concludes that impacts related to erosion or sedimentation would be less than significant during Project operations.

Summary

Because the Project would include treatment measures for newly generated stormwater run-off, update chemical storage control measures, and include flood protection measures for new structures, the Project would have a less-than-significant impact related to the release of pollutants caused by flooding.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (Including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.5-1a (Refer to Table 3.10-2 for the full text of adopted mitigation measures).

Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan. (Refer to Impact HYD-1, above, for the full text of Mitigation Measure HYD-1.)

Significance Determination After Mitigation

Less than significant.

Impact HYD-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. (Criterion 5)

Section 3.10.2 describes the Basin Plan, which is the water quality control plan relevant to the Project. As discussed in Impact HYD-1, EBMUD would implement adopted WTTIP Mitigation Measure 3.5-1a, which requires that contract specifications include measures during construction to contain and slow surface run-off and prevent any contaminants associated with construction from entering receiving waters, and Mitigation Measure HYD-1, which requires implementation of BMPs identified in a SWPPP prepared by a qualified SWPPP developer. Pursuant to Mitigation Measure HYD-1, EBMUD would be required to apply for and obtain coverage under the CGP. Implementation of adopted WTTIP Mitigation Measure 3.5-1a and Mitigation Measure HYD-1 would reduce water quality impacts associated with construction adjacent to San Pablo Creek by requiring the contractor to contain surface run-off and control leakage of hydraulic fluids, oil, grease, or fuels from reaching an adjacent waterway or stormwater collection system. Project operations would be required to comply with applicable federal and state water quality regulations, such as the federal CWA and the state Porter-Cologne Water Quality Control Act (both detailed above in Section 3.10.2), which establish beneficial uses of surface and groundwaters, and water quality standards and objectives for waters of the state that are protective of water quality. Therefore, the Project would not conflict with or obstruct implementation of the water quality control plan.

As discussed under Impact HYD-2, the Project would have less-than-significant impacts with respect to groundwater supplies and would not impede sustainable groundwater management of the groundwater basin because the Project would not result in long-term changes in groundwater levels or quality. The Project also would not affect an aquifer for which a sustainable groundwater management plan is required. Therefore, the Project would not conflict with implementation of a sustainable groundwater management plan, and the impact would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (Including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.5-1a (Refer to Table 3.10-2 for the full text of adopted mitigation measures).

Mitigation Measure HYD-1: Implement Stormwater Pollution Prevention Plan. (Refer to Impact HYD-1, above, for the full text of Mitigation Measure HYD-1.)

Significance Determination After Mitigation

Less than significant.

3.10.4 References

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3.11 Noise and Vibration

This section describes the physical environmental and regulatory setting for noise and vibration, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts from noise and vibration that could result from construction and operation of the Project.

3.11.1 Environmental Setting

Noise and vibration levels and the applicable environmental setting for the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.10, Noise and Vibration (EBMUD, 2006). The environmental setting in the WTTIP EIR was based on noise measurements taken at and around the Orinda WTP site to characterize ambient noise.

Existing Noise Environment

A noise survey was conducted by Illingworth& Rodkin (I&R) in 2015 to establish the then existing (baseline) weekday and weekend noise environment for construction work at the Orinda WTP. Ambient noise measurements were conducted at six locations at the Orinda WTP site and in the vicinity of nearby noise-sensitive receptors over a 1- and 2-week period between Wednesday, October 7, 2015 and Wednesday, October 21, 2015 (I&R, 2015). The noise measurement locations are shown in Figure 3.11-1. Data gathered at each location is summarized in Table 3.11-1.

TABLE 3.11-1
2015 NOISE SURVEY RESULTS

	Overall			Weekday			Weekend		
Location	L_{dn} (dBa)	Daytime Average L_{eq} (dBA)	Nighttime Average L_{eq} (dBA)	L_{dn} (dBa)	Daytime Average L_{eq} (dBA)	Nighttime Average L_{eq} (dBA)	L_{dn} (dBa)	Daytime Average L_{eq} (dBA)	Nighttime Average L_{eq} (dBA)
LT-1	60	58	53	61	58	53	59	56	52
LT-2	55	51	48	55	52	48	53	49	46
LT-3	70	69	62	71	69	63	68	67	59
LT-4	54	51	46	54	51	47	52	50	45
LT-5	60	56	53	60	56	53	59	55	52
LT-6	57	57	47	58	58	48	51	49	43

SOURCE: Illingworth & Rodkin, 2015.

As there have been no changes in the facilities and operations at the Orinda WTP and there has been no moderate to substantial development within 0.5 mile of the Orinda WTP site since the 2015 noise survey, the noise results gathered from the 2015 survey are considered representative of the existing noise baseline levels at these monitoring locations.



SOURCE: Illingworth & Rodkin, 2015; ESA, 2019; ESRI, 2019.

NOTES: Long Term (LT) Measurement locations in 2015 Illingworth & Rodkin noise study.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.11-1
Noise Measurement Locations and Noise Sensitive Uses

ESA

Sensitive Receptors

Some land uses are generally regarded as more sensitive to noise than others due to the types of population groups or activities involved. Land uses sensitive to noise generally include residences, schools, churches, hospitals, elderly care facilities, hotels, and libraries, as well as certain types of passive recreational open space. Outdoor recreational areas are usually considered less sensitive to noise than the other uses listed.

Figure 3.11-1 shows the locations of existing sensitive receptors adjacent to the Orinda WTP site, which include the following:

- Single-family residences along Hacienda Circle to the north of the Orinda WTP boundary. Residences are located as close as 230 feet from the Project construction areas.
- Single-family residences to the south of Camino Pablo. Residences are located as close as 170 feet from the Project construction areas.

The North Orinda Sports Field and Wagner Ranch Elementary School, located approximately 1,000 feet and 1,800 feet to the northwest respectively, and the Orinda Country Club, adjacent to the eastern boundary of the Orinda WTP, are shown on Figure 2-1 in Chapter 2, *Project Description*.

3.11.2 Regulatory Framework

The regulatory framework for noise and vibration in the vicinity of the Orinda WTP site is described in Section 3.10.2 and Appendix D of the WTTIP EIR. There have been no notable changes in the regulatory framework as it applies to the Project since the WTTIP EIR. However, this Supplemental EIR highlights information required for this noise analysis (primarily local regulations).

No federal or state standards related to noise are applicable to the Project; therefore, the regulatory framework for noise and vibration focuses only on local regulations related to noise.

Local Regulations

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance. As such, the City of Orinda Municipal Code related to noise and vibration noted below remains relevant to the Project and are shown in Table 3.11-2. The *City of Orinda General Plan* noise policies relevant to the Project are listed below.

Guiding Policy A: Where practical, mitigate traffic noise to acceptable levels.

Guiding Policy B: Prevent unnecessary noise from all sources.

TABLE 3.11-2
CITY OF ORINDA NOISE ORDINANCE TIME LIMITS AND NOISE STANDARDS

Construction Time Limits[a]			Ordinance Noise Limits for Various Activities in Single-Family Residential Zones (dBA)[b]	
			L_{dn}	Nighttime L_{eq}
Weekdays	**Saturdays**	**Sundays and Holidays**	**Day/Night**	**10 p.m. to 7 a.m.**
8 a.m. to 6 p.m.	10 a.m. to 5 p.m.	Not Allowed	60	55

NOTES:

[a] *Construction* - Orinda Municipal Code, Section 17.39.3 specifies construction time limits. Operation of heavy construction equipment is not allowed on Sundays and holidays. Orinda Municipal Code, Section 17.39.2 specifies a general noise limit of 60 dBA as measured at a listening point on any other property. However, construction activities that occur during the times specified in Section 17.39.3 are exempt from this limit.

[b] *Operation* - Orinda Municipal Code, Section 17.15.2 stipulates a maximum noise standard of 60 dBA (day-night average sound level. or Ldn) in all zoning districts including residential, park, recreation, and open space districts. To account for duration and timing, for residential districts, the ordinance reduces the noise standard by 5 decibels (dB) between 10 p.m. and 7 a.m. relative to the 60 Ldn. Noise that is produced for cumulative periods of no more than 5 minutes and 1 minute in any hour may exceed the standards by 5 dB and 10 dB, respectively, to levels of 65 and 70 dBA, respectively.

SOURCE: City of Orinda Municipal Code.

As shown in Table 3.11-2, Section 17.15.2 of the City of Orinda Municipal Code prescribes noise standards for activities that would generate noise in single-family residential zones. The ordinance prescribes a 60 dBA day-night average sound level (L_{dn})[1] as the standard. To account for the effects of noise during the more noise-sensitive nighttime hours between 10 p.m. and 7 a.m., the ordinance reduces the standard by 5 dBA relative to the 60 dBA L_{dn} for comparison of nighttime noise calculated as hourly L_{eq}.[2]

Section 17.39.9 of the City of Orinda Municipal Code specifies noise limits applicable to mechanical equipment that is permanently fixed to a structure or on the ground such as air conditioners, pool equipment, and spa equipment. The City's Municipal Code requires mechanical equipment to be screened or enclosed with sound-insulated materials so that it does not create noise that exceeds 45 decibels (dB) at the property line. This standard does not apply to emergency backup generators.

3.11.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to noise and vibration and evaluates whether there would be a new significant environmental impact or a substantial increase in the severity of a significant impact identified in the WTTIP EIR, given: (a) the proposed design and operating characteristics of the Project, and (b) changes in significance criteria.

Potential impacts related to noise and vibration are analyzed based on the potential for the Project to result in substantial changes in the noise environment during construction or

[1] L_{dn} is a 24-hour noise descriptor with an artificial dBA increment added to the nighttime hours to account for the increased sensitivity of nighttime hours to noise.

[2] L_{eq} is the steady-state energy level that represents the acoustical energy over a specified period.

operation. Existing site conditions prior to construction of the Project are compared to site conditions both during construction activities and after the Project facilities are operational.

Noise

Project construction would result in temporary noise increases in the vicinity of the Orinda WTP. The noise impact assessment evaluates the temporary impacts associated with the construction of Project facilities. For Criterion 1 below, the determination of impact significance for noise takes into account the combined construction noise from the simultaneous use of on-site equipment, noise ordinance standards, proximity of noise-sensitive uses, and the potential duration that sensitive receptors would be subject to construction noise. Analysis of the Project's temporary construction noise impacts is based on the estimated types and numbers of construction equipment and duration of use. The analysis accounts for attenuation of noise due to the distances separating the location where construction activity would occur and the nearest sensitive land uses. Construction noise at nearby sensitive land uses was estimated using the Federal Highway Administration's (FHWA) Roadway Construction Noise Model, Attenuated noise at the receptors are compared to applicable noise and vibration standards described below.

There are no local standards for assessing construction noise impacts. As stated earlier in this section in Table 3.11-2, the City of Orinda Municipal Code restricts the days and hours that construction activities can take place; however, there are no quantitative standards that can be applied for the evaluation of construction noise impacts on receptors within the allowed hours of construction. Therefore, consistent with the analysis in the WTTIP EIR, this analysis uses a daytime speech interference threshold of 70 dBA L_{eq} for the evaluation of construction noise.

Speech Interference

Speech interference is an indicator of the impact on typical daytime and evening activities. A speech interference criterion, in the context of impact duration and time of day, was used to identify "substantial" increases in noise from temporary construction activities. Noise peaks generated by construction equipment could result in speech interference within nearby buildings if the noise level in the interior of the building exceeds 45 to 60 dBA.[3] A typical building can reduce noise levels by 25 dBA with the windows closed (U.S. EPA, 1974). This noise reduction could be maintained only on a temporary basis in some cases, since it assumes that windows must remain closed at all times. Because a typical building can reduce noise levels by 25 dBA (with closed windows), an exterior noise level of 70 dBA at receptors would maintain an acceptable interior noise environment of 45 dBA.

[3] For indoor noise environments, the highest noise level that permits relaxed conversation with 100 percent intelligibility throughout the room is 45 dBA. Speech interference is considered to become intolerable when normal conversation is precluded at 3 feet, which occurs when background noise levels exceed 60 dBA. For outdoor environments, the highest noise level that permits normal conversation at 3 feet with 95 percent sentence intelligibility is 56 dBA (U.S. EPA, 1974).

Noise impacts associated with increased traffic volumes on local roadways leading to the Project site generated during Project construction were estimated based on data from the *Traffic and Circulation Report* (Traffic Report) for the Project (Fehr & Peers, 2020) using algorithms from the FHWA *Traffic Noise Model 3.0 Technical Manual* (FHWA, 2019), which calculates the traffic noise levels at a fixed distance from the centerline of a roadway based on the traffic volume, speed, and truck percentage that is predicted to occur under each condition.

According to FHWA, an increase in noise of 3 dBA is barely perceptible to the human ear while a 5 dBA increase is readily perceptible. Therefore, for this analysis, an increase in traffic noise associated with Project construction traffic would be considered significant if the increase over existing conditions exceeds 5 dBA (FHWA, 2017).

Operational noise from Project mechanical equipment is evaluated based on noise levels provided by Carollo Engineers (Carollo, 2019) or gathered from specification sheets for similar equipment available on-line (Kohler Rental, 2010). Attenuated noise at the nearest receptors is estimated using a 6 dBA reduction in noise with every doubling of distance and takes into account no further attenuation from topography or intervening structures.

Operational noise from Project mechanical equipment is evaluated by comparison to the 45 dBA property line standard as specified by the City of Orinda Municipal Code and discussed in Section 3.11.2, Regulatory Framework.

Vibration

The impact significance for vibration (Criterion 2 below) evaluates the potential for construction to result in excessive groundborne vibration or groundborne noise. Groundborne noise is experienced inside a building or structure, but is the result of vibrations produced outside of the building and transmitted as ground vibration between the source and receiver. Groundborne noise can be problematic in situations where the primary airborne noise path is blocked, as in the case of a subway tunnel passing near homes or other noise-sensitive structures. However, the proposed noise- and vibration-generating construction activities associated with the Project would involve activities (e.g., pavement cutting, drilling, excavation, and paving) that generate airborne noise and surface vibration. Groundborne noise is generally associated with underground railway operations and with unique construction activities such as blasting, neither of which would take place as part of the Project. Groundborne noise is not described further since any potential groundborne noise from construction activities would be imperceptible because environmental vibration is rarely of sufficient magnitude to be perceptible or cause audible groundborne noise unless there is a specific vibration source close by, such as rail transit line (FTA, 2018). Therefore, no impacts related to groundborne noise would occur.

The analysis of groundborne vibration impacts uses standard analytical methodologies, such as estimating vibration levels at sensitive receptors for a given vibration source and setback distance, comparing the estimated vibration levels with recommended limits or significance thresholds, determining potential significant impacts on nearby sensitive receptors, and providing mitigation where applicable.

Vibration impacts were assessed using the evaluation approach in Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment Manual*. Construction vibration impacts are considered significant if vibration levels would damage nearby structures or buildings (as indicated in Table 3.11-3), or if vibration levels exceed the FTA groundborne vibration impact criteria for human annoyance (presented in Table 3.11-4). Construction vibration impacts would also be considered significant if vibrations cause sleep disturbance during nighttime hours (Category II receptor uses where people sleep; refer to Table 3.11-4).

TABLE 3.11-3
FTA GROUNDBORNE VIBRATION IMPACT CRITERIA FOR BUILDING DAMAGE

Building Category	PPV (in/sec)	VdB
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

NOTES: in/sec = inches per second; PPV = peak particle velocity; VdB = vibration decibels (referenced to 1-microinch per second).

SOURCE: FTA, 2018.

TABLE 3.11-4
FTA GROUNDBORNE VIBRATION IMPACT CRITERIA FOR HUMAN INTERFERENCE

Land Use Category	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Category I: Buildings where vibration would interfere with interior operations	65 VdB[d]	65 VdB[d]	65 VdB[d]
Category II: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB
Category III: Institutional land uses with primarily daytime use	75 VdB	78 VdB	83 VdB

NOTES:

[a] More than 70 vibration events of the same source per day.
[b] Between 30 and 70 vibration events of the same source per day.
[c] Less than 30 vibration events of the same source per day.
[d] This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research should always require detailed evaluation to define the acceptable vibration levels. Ensuring low vibration levels in a building requires special design of heating, ventilation, and air conditioning (HVAC) systems and stiffened floors.

SOURCE: FTA, 2018.

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines,* an impact would be considered significant if the Project would:

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.
2. Generate excessive groundborne vibration or groundborne noise levels.

3. For a project in the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.

Criteria Requiring No Further Evaluation

- ***Criterion 3: For a project in the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.*** No public airports or private airstrips are located within 2 miles of the Project site. The nearest airports to the Project site are the Oakland International Airport, located 11.4 miles southwest, and the Buchanan Field Airport in Concord, located 10 miles northeast of the Project site. Therefore, there would be no impacts related to exposure of people (workers) in the Project area to excessive noise levels from aircraft operations.

Adopted WTTIP Mitigation Measures

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. Table 3.11-5 presents adopted mitigation measures from the WTTIP EIR that relate to noise and vibration at and in the vicinity of the Orinda WTP site.

TABLE 3.11-5
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR NOISE AND VIBRATION FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.10-1a	The District will incorporate into contract specifications a requirement that construction activities at the construction site not cause daytime noise levels to exceed the 70-dBA speech interference criterion at the closest affected sensitive receptors, as well as that noise levels are consistent with local ordinances (see Table 3.10-1 of the WTTIP EIR). Measures that would be implemented to reduce noise levels (as demonstrated in Table 3.10-5 of the WTTIP EIR) to meet this criterion include the following: • Truck operations (haul trucks and concrete delivery trucks) will be limited to the daytime hours, as described in adopted WTTIP Mitigation Measure 3.10-1b. • Best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will be used for all equipment and trucks as necessary. • If impact equipment (e.g., jackhammers, pavement breakers, and rock drills) is used during project construction, hydraulically or electric-powered equipment will be used wherever possible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust will be used (a muffler can lower noise levels from the exhaust by up to about 10 dB). External jackets on the tools themselves will be used, where feasible, which could achieve a reduction of 5 dB. Quieter procedures, such as drilling rather than impact equipment, will be used whenever feasible. ~~• Wherever pile driving is required (possibly at tunnel shafts, jack-and-bore pit shafts, Moraga Reservoir, and Tice Pumping Plant), pile holes will be predrilled to minimize the duration of pile driving.~~ • Stationary noise sources will be located as far from sensitive receptors as possible. If they must be located near receptors, adequate muffling (with enclosures) will be used to ensure local noise ordinance limits are met. Enclosure opening or venting will face away from sensitive receptors. Enclosures will be designed by a registered engineer regularly involved in noise control analysis and design. Operation of any stationary equipment beyond the time limits specified will meet applicable noise ordinance noise limits (see adopted WTTIP Mitigation Measure 3.10-1b).

TABLE 3.11-5 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR NOISE AND VIBRATION FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
	• Material stockpiles as well as maintenance/equipment staging and parking areas will be located as far as practicable from residential and school receptors. • ~~If any pipeline construction zones are located within 50 feet of school classrooms or childcare facilities, pipeline construction activities (or at least the noisier phases of construction) will be scheduled on weekend or school vacation days to the extent feasible, avoiding weekday hours when schools are in session. If construction must occur when school is in session, construction noise will comply with applicable noise ordinance noise limits (e.g., 83 dBA at 50 feet in Lafayette, etc.).~~ An EBMUD contact person will be designated to respond to construction-related issues, including noise. The name and phone number of the liaison will be conspicuously posted at construction areas, on all advanced notifications, and on the EBMUD project website. This person will take steps to resolve complaints, including periodic noise monitoring and the option of hotel accommodations, if necessary.
3.10-1b	Construction ~~at the WTTIP project sites~~ producing substantial noise will be restricted to the hours of operation specified by each jurisdiction's noise ordinance (as listed in Table 3.10-1 of the WTTIP EIR, including restrictions provided in footnotes and any other ordinance exceptions and provisions in effect at the time of EIR publication), except during critical water service outages or other emergencies and special situations. Any equipment operating beyond these hours will be subject to the day and night noise limits of each jurisdiction (as listed in Table 3.10-1 of the WTTIP EIR) for various activities in single-family residential zones. EBMUD will coordinate with local agencies regarding noise controls for any construction work that needs to occur after 6:00 p.m. and before 7:00 a.m. To ensure that these standards could be met at the closest sensitive receptors, EBMUD will conduct a noise monitoring program prior to implementation of any project where construction would extend beyond ordinance time limits to accurately determine baseline ambient noise levels at the closest residential receptors and to measure noise levels at these receptors during a test run of equipment proposed to be operated on the site during the more noise-sensitive nighttime hours. Project noise limits will be adjusted appropriately depending on the existing ambient noise levels to ensure noise disturbance is maintained at a less-than-significant level at the closest residential receptors. Measures that could be implemented to reduce noise levels (as demonstrated in Table 3.10-6 of the WTTIP EIR) to meet local nighttime standards include engine controls listed in adopted WTTIP Mitigation Measure 3.10-1a~~, tunnel-related measures listed in Measure 3.10-1c, and temporary sound barriers listed in Measure 3.10-1e~~.
~~3.10-1d~~	~~The District will incorporate into the contract specifications the following requirements to reduce construction-related noise levels associated with the Orinda-Lafayette Aqueduct and any other WTTIP projects that involve construction of tunnel shafts (including any jack-and-bore pits where equipment would operate 24 hours per day):~~ • ~~The construction contractor will be required to retain an acoustical engineer to design sound abatement measures that will meet the local ordinance limits. Among other things, the acoustical engineer will provide design specifications for the sound barrier design and the specific ventilation fan to be used (based on type, size, orientation, location, exhaust, etc.) at tunnel portals.~~ • ~~Quiet tunnel ventilation fans will be used and will be directed away from sensitive receptors. Since they would operate 24 hours per day, the fans must meet the noise ordinance limits listed in Table 3.10-1. Additional measures that could be employed to reduce fan noise, if necessary, include enclosing fans, treating the interior surface of the enclosure for acoustical absorption, or using silencers or acoustically lined inlet plena to control the inlet noise.~~ • ~~Prior to construction, baseline noise measurements will be taken at the entry and exit shafts. If baseline ambient noise levels already exceed applicable noise ordinance limits at the closest residential receptors, the standards will be increased appropriately so that construction noise levels do not result in a noticeable increase in ambient noise levels at these receptors.~~ • ~~Loader operations at the surface (the area outside the tunnel shaft) in the tunnel portal vicinities will cease at 6 p.m. on weekdays and not operate on weekends in accordance with the Orinda Noise Ordinance, except during critical water service outages or other emergencies and special situations.~~ • ~~Other measures will be implemented wherever possible to reduce impact noise. For example, bins used to transport spoils, including rocks and debris, will be constructed of nonmetallic material or have a nonmetallic liner (such as cardboard), if feasible, to reduce impact noise. Much box tipping/dumping at the surface will be performed in a manner that minimizes clanging, banging, or booming noises (metal to metal contact) during the evening and nighttime hours (6 p.m. to 8:00 a.m. on weekdays).~~ • ~~Underground controlled detonation in the tunnel shaft areas will be restricted to the hours of 8:00 a.m. to 6:00 p.m. (in accordance with the Orinda Noise Ordinance). In addition, the amount of~~

TABLE 3.11-5 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR NOISE AND VIBRATION FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
	~~explosive and the delay times of any explosive charges used will be limited so as to produce a maximum noise level at the closest adjacent receptor of 60 dBA (Ldn).~~ • ~~Backup alarms on any equipment will not be operated during nighttime hours (10:00 p.m. to 7:00 a.m.).~~ • ~~Sound barriers will be erected around the tunnel entry and exit shafts to minimize noise impacts on adjacent receptors, as specified in Measure 3.10-1e.~~ • ~~Proposed jack-and-bore pits will be located as far from sensitive receptors as technically feasible.~~
~~3.10-1e~~	~~Wherever a sensitive receptor is located within 150 feet of a construction site at a treatment plant, reservoir, or pumping plant, and at both tunnel shafts, temporary sound barriers will be provided between the construction site and the closest receptors to reduce noise levels to below the speech interference criterion at the closest receptor. The applicable ordinance nighttime noise standard will also be applied at tunnel portals where nighttime activities are proposed. As a rule, the elevation of the barrier should be sufficient to interrupt the line-of-sight between the residential receptors and the tops of stacks (exhaust pipes) of construction equipment by about 5 to 10 feet. Sound-absorbing blankets can also be used at appropriate locations as necessary to protect nearby residents.~~ ~~Any openings in sound barriers that are provided for truck/vehicle access will be located away from sensitive receptors. For example, sound barriers could be constructed around the entrance tunnel shaft, and the opening to the tunnel staging area could be located on the south side so that tunnel-related noise would be oriented to the south, toward the existing WTP rather than toward residential receptors to the west and east and school receptors to the north.~~ ~~It should be noted that although mitigation measures would reduce construction noise levels to meet local ordinance criteria (as indicated in Tables 3.10-5 and 3.10-6), mitigated construction noise could still cause occasional disturbance at the closest noise-sensitive receptors.~~
~~3.10-3a~~	~~To prevent cosmetic or structural damage to adjacent or nearby structures, EBMUD will incorporate into contract specifications restrictions on construction for those facilities that will or may require sheet pile driving, pile driving, or tunnel construction, whereby surface vibration will be limited to no more than 0.5 in/sec PPV, measured at the nearest residential or other sensitive structure.~~
3.10-4	Equipment ~~used in WTTIP facilities~~ will not cause ambient noise levels to exceed the nighttime noise limits specified in Table 3.10-8 <u>of the WTTIP EIR</u>. Measures that could be incorporated into the design of proposed facilities to ensure that noise levels meet this criterion (as demonstrated in Table 3.10-8 <u>of the WTTIP EIR</u>) include the following: • Pumping and emergency generator facilities will be fully enclosed, and vents will be located on the building facades facing away from adjacent residential receptors~~, particularly at the Happy Valley Pumping Plant site where pumping plant noise must be reduced by 8 dB to meet Orinda's 45-dBA noise limit for mechanical equipment~~. • Building enclosures will provide at least 40 dB of attenuation on solid walls (i.e., a 40-dB difference between interior vs. exterior noise) and a 20-dB reduction on the louvered side of the enclosure, when measured at 6 feet from the wall, directly in front of the louvers. • Masonry sound barriers will be constructed around transformers, and substations will be of sufficient height to provide at least 10 dB or more of noise attenuation.

NOTE: Strikethrough text indicates text in the adopted WTTIP mitigation measures that does not relate to the Project. Text that is underlined is included to address typographical errors in the original mitigation language or to add clarifying language to the adopted WTTIP Mitigation Measures.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact NOI-1: Result in the 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. (Criterion 1)

Construction

The WTTIP EIR identified that Project construction activities at the Orinda WTP site would result in a potentially significant impact from a substantial increase in ambient noise levels, in excess of the speech interference threshold, in the vicinity of the Project. Implementation of adopted WTTIP Mitigation Measures 3.10-1a, 3.10-1b, and 3.10-1e were found to reduce this impact to a less-than-significant level. Adopted WTTIP Mitigation Measure 3.10-1e was identified to reduce impacts to sensitive receptors within 150 feet of WTTIP construction areas, but because there are no sensitive receptors within 150 feet of Project construction areas, adopted WTTIP Mitigation Measure 3.10-1e would not apply to the Project. The WTTIP EIR found the increase in noise from Project construction traffic to be less than significant.

The Project involves incorporation of existing uses at the site into new facilities, construction and operation of new facilities, and changes in existing facilities to accommodate new disinfection processes at the Orinda WTP. Project construction is estimated to take approximately 4.5 years. Construction is expected to begin in mid-2021 with the site preparation and demolition phase, which would be followed by construction of the new facilities. Construction of the new facilities, start-up and testing, and site restoration are expected to be completed in late 2025. Project construction activities and equipment used are described in detail in Chapter 2, *Project Description*.

Construction would involve the use of heavy equipment that can generate substantial noise at and in the vicinity of the Project site. Construction noise levels would fluctuate at any given receptor depending on the type of construction activity being undertaken, equipment type/duration of use, distance between the noise source and receptor, the presence or absence of barriers between the noise source and receptor, and the existing noise levels at the receptors. Table 3.11-6 shows typical noise levels produced by various types of construction equipment that would be used as part of Project construction activities. As shown in Table 3.11-6, typical construction equipment generates noise levels ranging from approximately 55 to 90 dBA at a distance of 50 feet from the source. Construction of the Maintenance and UV Electrical (MAUVE)/UV/Chlorine Contact Basin (CCB) Structure would involve subsurface shoring using full-depth secant piles or soldier piles and lagging. However, these piles would be drilled holes backfilled with concrete and slurry and would not involve the use of impact equipment. Trenchless construction of pipelines would require the use of a horizontal boring machine or auger to drill a hole, and a hydraulic jack to push a casing through the hole under the crossing.

TABLE 3.11-6
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Type of Equipment	L_{max}, dBA (at 50 feet)
Backhoe	80
Crane	85
Auger Drill Rig	85
Dozer	85
Compactor	80
Excavator	85
Roller	85
Paver	85
Horizontal Boring Hydraulic Jack	85
Boring Jack Power Unit	80
Grader	85
Forklift	82
Jackhammer	85
Dump Truck	84
Pickup Truck	55
Generator	82
Concrete Mixer Truck	85
Loader	80
Pump	77
Air Compressor	80
Concrete Saw	90
Chain Saw	85

NOTES: L_{max} = maximum sound levels.

SOURCE: FHWA, 2017.

Opportunities for noise impacts from construction activities tend to be greatest when construction activities occur during the noise-sensitive times of the day (early morning, evening, or nighttime hours), in areas immediately adjacent to sensitive receptors, or when construction noise lasts for extended periods of time. Project construction activities would generally be limited to the less noise-sensitive daytime hours of 8:00 a.m. to 6:00 p.m. Monday through Friday. Construction work on Saturdays is anticipated to take place for a maximum of five Saturdays during the winter 2024–2025 shutdown, and would be restricted to the hours of 10:00 a.m. to 5:00 p.m., as specified by the noise ordinance. No construction activities would take place on Sundays or during EBMUD holidays during any work period, except for emergencies. These construction hours would be consistent with the construction time limits specified in the Orinda Municipal Code, Section 17.39.3.

The construction equipment noise levels shown in Table 3.11-6 represent maximum noise levels. However, each piece of off-road equipment at a Project construction location would not operate at its maximum capacity constantly throughout the day, as equipment would be powered off when not in use. Over a typical work day, equipment would

operate at different locations on the Project site and would not always be operating concurrently. Nevertheless, for a conservative approximation of construction noise levels, consistent with the evaluation approach suggested by the FTA in its *Transit Noise and Vibration Assessment Manual* (FTA, 2018), it is assumed for this analysis that two of the loudest pieces of construction equipment would be operating at the same time and location at the Project site location closest to the off-site sensitive receptor. Results of the analysis are shown in Table 3.11-7.

TABLE 3.11-7
NOISE LEVELS FROM PROJECT CONSTRUCTION AT SENSITIVE RECEPTORS ADJACENT TO THE PROJECT SITE

Receptor	Construction Activity	Reference Noise Level[a] (dBA)	Distance to Receptor[b] (feet)	Adjusted L_{eq} at Receptor[c] (dBA)	Significance Threshold Applied (dBA)	Exceeds Threshold ?	Mitigated L_{eq} at Receptor[d] (dBA)
Residences south of Camino Pablo across from the WTP south entrance	South Standby Generator Building	77	170	66	70	No	60
Residences south of Camino Pablo across from the WTP south entrance	Trenchless construction of pipelines	80	200	68	70	No	62
Residences along Hacienda Circle north of the WTP	MAUVE/UV/ CCB Structure	83	230	70	70	No	64
Residences along Hacienda Circle north of the WTP	Concrete work at MAUVE/UV/ CCB Structure	75	230	**62**	70[e]	No	52
					55[f]	**Yes**	52

NOTES:
[a] Combined L_{eq} of two noisiest construction equipment at 50 feet accounting for percentage of usage.
[b] Distance between closest point of the construction activity to the property line of receptor.
[c] Combined L_{eq} of two noisiest construction equipment adjusted for distance and percentage of usage.
[d] Assumes noise reduction of 6 dBA for drilling and stationary equipment and 10 dBA for material handling equipment from the implementation of adopted WTTIP Mitigation Measure 3.10-1a based on the analysis in Table 3.10-5 of the WTTIP EIR.
[e] 70 dBA speech interference threshold used to evaluate noise impacts from concrete trucks at the MAUVE/UV/CCB Structure during hours permitted by the Orinda noise ordinance.
[f] 55 dBA L_{eq} threshold from Section 17.15.2 of the City of Orinda Municipal Code used to evaluate noise impacts from concrete trucks at the MAUVE/UV/CCB Structure between 6:00 a.m. and 8:00 a.m. outside the hours permitted by the Orinda noise ordinance.

SOURCE: ESA, 2020.

Construction associated with the installation of the South Standby Generator Building would take place closest to sensitive receptors. The South Standby Generator Building site is approximately 170 feet from the property line of the nearest residences south of Camino Pablo (shown on Figure 3.11-1). Using the Roadway Construction Noise Model, the combined noise level generated by the simultaneous operation of the two noisiest construction equipment used at the Project site (a crane and a concrete truck) at the nearest sensitive receptors was estimated to be 66 dBA L_{eq}, which would be below the 70 dBA speech interference daytime threshold. The use of an auger drill and horizontal boring hydraulic jack for trenchless construction of pipelines would take place as close as

200 feet from the property line of sensitive receptors to the south of Camino Pablo (shown on Figure 3.11-1), which would result in noise levels of 68 dBA L_{eq}.

Construction of the MAUVE/UV/CCB Structure would take place approximately 230 feet from the property line of the receptors to the north along Hacienda Circle (shown on Figure 3.11-1). Using the Roadway Construction Noise Model, the combined noise level generated by the simultaneous operation of the two noisiest pieces of construction equipment used at this site (an excavator and a concrete saw) at the nearest sensitive receptors was estimated to be 70 dBA L_{eq}, which does not exceed the daytime speech interference threshold of 70 dBA L_{eq}.

Because construction noise at the sensitive receptors south of Camino Pablo and at Hacienda Circle (shown on Figure 3.11-1) would be less than the significance criteria for construction noise, and because implementation of adopted WTTIP Mitigation Measure 3.10-1a would limit truck operations to daytime hours, deploy best available noise control techniques for equipment and trucks, minimize noise associated with pneumatically powered tools, and locate stationary noise sources and material stockpiles as far from sensitive receptors as possible, the impacts due to construction noise would be less than significant. Construction activities associated with other Project components would take place farther from sensitive receptors and would therefore result in lower noise levels at those receptors. Therefore, the impact of noise from other construction equipment and activities at nearby receptors would also be less than significant.

Concrete Work

Concrete deliveries are required to start at 6:00 a.m. and run through 6:00 p.m. to provide continuous concrete supply to concrete foundations for the Project. The operation of concrete mixer trucks for the construction of the MAUVE/UV/CCB Structure would result in an attenuated noise level of 62 dBA over distance at the nearest Hacienda Circle receptor (shown on Figure 3.11-1). Implementation of adopted WTTIP Mitigation Measure 3.10-1b requires any construction equipment operating beyond the City of Orinda ordinance construction noise hours to be subject to the day and night noise limits for activities in single-family residential zones, which is 55 dBA L_{eq}. Concrete truck noise at the nearest Hacienda Circle receptors (shown on Figure 3.11-1) would exceed this standard. However, implementation of adopted WTTIP Mitigation Measure 3.10-1a would reduce noise levels by requiring best available noise controls on equipment. Implementation of these measure would reduce noise by approximately 10 dBA[4] to a level less than the 55 dBA standard. Because the concrete mixer trucks would operate from 6:00 a.m. to 8:00 a.m. (outside City of Orinda noise ordinance construction hours) and would generate less than the nighttime (10:00 p.m. to 7:00 p.m.) noise threshold of 55 dBA at the closest sensitive receptors (shown on Figure 3.11-1), construction noise impacts from construction concrete deliveries outside the City of Orinda noise ordinance construction hours shown in Table 3.11-2 would be less than significant.

[4] Assumed noise reduction of 10 dBA from the implementation of adopted WTTIP Mitigation Measure 3.10-1a is based on the analysis in Table 3.10-5 of the WTTIP EIR.

Truck Traffic Noise Increases on Local Roadways

Project construction would also temporarily increase traffic along local roadways leading to the Project site, which would in turn increase ambient noise levels along these roadways. All trucks would travel northbound on Camino Pablo from Highway 24 and use the south entrance to enter the site. Trucks exiting the site would use Manzanita Drive, with approximately one-half of the trucks going northbound on Camino Pablo and one-half going southbound on Camino Pablo.

The addition of Project traffic along Camino Pablo would increase ambient noise levels at sensitive receptors to the south (shown on Figure 3.11-1). While worker commute trips would occur primarily during the morning and afternoon peak hours, truck trips are expected throughout the day.

Traffic noise levels along segments of Camino Pablo adjacent to the sensitive receptors were determined using algorithms from the FHWA *Traffic Noise Model 3.0 Technical Manual* (FHWA, 2019) and early morning and midday peak-hour turning movements in the Traffic Report for the Project (Fehr & Peers, 2020). Weekday early morning and midday conditions were chosen for analysis as the background traffic would be lower and noise impacts from the addition of Project truck traffic would be more pronounced. Weekday early morning traffic conditions from 6:00 a.m. to 7:00 a.m. were analyzed to account for the concrete delivery trucks allowed to access the Orinda WTP during this weekday hour. Weekday midday traffic conditions were analyzed because the Project is also estimated to generate more truck trips during the midday peak hour than the morning or afternoon peak hours. Truck percentages were adjusted for existing and Project conditions based on data from the Traffic Report (Fehr & Peers, 2020). Table 3.11-8 summarizes the estimated increase in traffic noise due to Project construction traffic along Camino Pablo.

As shown in Table 3.11-8, the maximum increase in traffic noise from the temporary addition of Project construction traffic along all analyzed segments of Camino Pablo affected by Project construction traffic and adjacent to sensitive receptors (shown on Figure 3.11-1) would be approximately 1.2 dBA over existing noise levels. Because construction traffic noise on roadway segments adds less than 5 dBA to existing traffic noise levels, the increase in traffic noise on local roadways from the temporary addition of Project construction traffic would be a less-than-significant impact.

Construction activities on Saturdays would occur during the winter 2024–2025 shutdown, would last for a maximum of five Saturdays, and would be limited to between 10 a.m. and 5 p.m. (to be consistent with the City of Orinda noise ordinance as shown in Table 3.11-2). However, no concrete deliveries, soil off-haul, or large construction truck traffic would occur on Saturdays, and construction traffic would be limited to morning and afternoon commute trips generated by a maximum approximately 25 workers. Therefore, increase in traffic noise on local roadways from the temporary addition of Project construction traffic would be a less-than-significant impact even considering the lower background traffic noise levels on Saturdays.

TABLE 3.11-8
PEAK-HOUR TRAFFIC NOISE LEVELS (DBA) NEAR THE PROJECT[a,b,c]

Roadway Segment	Existing Traffic Noise	Existing Plus Project Construction Traffic Noise	Change in Noise Level over Existing
Camino Pablo			
South of Manzanita Drive (midday peak hour)	69.5	70.6	+1.1
North of Claremont Avenue (midday peak hour)	69.2	70.4	+1.2
South of Claremont Avenue (midday peak hour)	69.3	70.5	+1.2
North of Camino Pablo Frontage Road/South Entrance (midday peak hour)	69.4	70.6	+1.2
South of Camino Pablo Frontage Road/South Entrance (midday peak hour)	69.5	70.6	+1.1
South of Bear Creek Road (6:00 a.m. to 7:00 a.m.)	70.0	70.4	+0.4
South of Manzanita Drive (6:00 a.m. to 7:00 a.m.)	70.3	70.8	+0.5

NOTES:
[a] Noise levels were determined using the methodology described in the FHWA *Traffic Noise Model 3.0 Technical Manual.*
[b] Traffic noise increases greater than 5 dB are considered a significant increase in ambient noise levels (FHWA, 2017).
[c] Existing traffic and Project traffic counts from the Traffic Report (Fehr & Peers, 2020).

With implementation of adopted WTTIP Mitigation Measures 3.10-1a and 3.10-1b, construction impacts related to the 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, would be less than significant.

Operation

The WTTIP EIR identified that noise from the operation of Project equipment such as pumps, accounting for noise reduction from building enclosures, would not exceed the 45-dBA nighttime noise limit for mechanical equipment in the City of Orinda Municipal Code. Implementation of adopted WTTIP Mitigation Measure 3.10-4 would ensure that facilities are designed to maintain operational noise impacts at a less-than-significant level by locating mechanical equipment within enclosures, locating vents on facades of the enclosures facing away from adjacent residential receptors, and constructing sound barriers.

Operational sources of noise associated with the Project would include heating, ventilation, & air conditioning (HVAC) equipment (including supply and exhaust fans) on the MAUVE Building roof deck, and a new diesel-powered 2,000 kilowatt standby generator proposed to be installed at the south end of the Orinda WTP site.

Condensers and fans located within the HVAC equipment on the second-floor rooftop of the MAUVE Building would generate noise levels of up to 89 and 69 dBA at 3 feet, respectively (Carollo Engineers, 2020). The combined attenuated noise level at the nearest residences along Hacienda Circle to the north of the MAUVE Building 260 feet away would be approximately 50 dBA, which would exceed the 45 dBA property line

standard for mechanical equipment in the City of Orinda Municipal Code. However, the HVAC equipment on the roof deck of the MAUVE Building would be surrounded by approximately 12- to 14-foot-tall parapet walls that would act as sound barrier walls so noise at the nearest residences along Hacienda Circle to the north of the MAUVE Building approximately 260 feet away would not exceed the 45 dBA property line standard for mechanical equipment in the City of Orinda Municipal Code or the nighttime noise standard in the City of Orinda noise ordinance.

Noise generated by the emergency generator could be as high as 82 dBA at 21 feet (Kohler Rental, 2010). Receptors closest to the location of the proposed South Standby Generator Building are single-family residences located approximately 170 feet to the south across Camino Pablo and would be exposed to noise from routine testing and maintenance of the generator. Noise from the South Standby Generator would attenuate to approximately 64 dBA at the receptors. However, emergency generators are exempt from the City of Orinda Municipal Code standards for mechanical equipment. Further, the South Standby Generator would be housed within an integral insulated metal sound-attenuating enclosure, which can provide approximately 20 dBA noise reduction before reaching the receptors. Also, the emergency generator would be required to comply with an air quality permit as discussed under Section 3.3, Air Quality, that would limit operation of the emergency generator for maintenance and testing to a maximum of 1 hour per day and 50 hours per year.

Other potential sources of operational noise would be drain sump pumps installed within the UV Structure. Pumps typically generate noise levels of approximately 80 dBA at 3 feet with no noise reduction for an enclosure, which would attenuate to 42 dBA at a distance of 230 feet at the nearest receptors on Hacienda Circle. In addition, the drain sump pumps would be approximately 40 feet below ground within the UV Structure, which would provide further attenuation.

Maintenance activities would require one or two EBMUD employees per day, which would be staffed by the existing crew sited at the Orinda WTP. Although most maintenance activities would be conducted by staff already on site, one truck trip per month on average is anticipated for operation and maintenance activities. Noise generated from this minimal level of vehicular activity would be less than significant and would not contribute to a substantial permanent increase in ambient noise levels in the vicinity of the Project site.

Because, pursuant to adopted WTTIP Mitigation Measure 3.10-4, external mechanical equipment at the MAUVE Building would be equipped with sound barriers to reduce noise levels at sensitive receptors below the 45 dBA at-property-line threshold required for mechanical equipment required by the City of Orinda Municipal Code, and because maintenance trips to the Project components would originate from staff already located at the Orinda WTP, noise impacts from operation of the Project would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.10-1a, 3.10-1b, and 3.10-4 (Refer to Table 3.11-5 for the full text of adopted mitigation measures.)

Impact NOI-2: Result in the generation of excessive groundborne vibration or groundborne noise levels. (Criterion 2)

The WTTIP EIR identified vibration impacts from construction activities as potentially significant, but reduced to less than significant by implementation of Mitigation Measure 3.10-3a. Adopted WTTIP Mitigation Measure 3.10-3a no longer applies to the Project because sheet pile driving, pile driving, and tunnel construction are not anticipated during Project construction.

Construction

Temporary sources of groundborne vibration and noise during Project construction would result from the operation of heavy construction equipment and ground disturbance activities such as excavation and drilling. Construction equipment such as pile drivers and vibratory rollers generate the highest levels of vibration but would not be used for Project construction. Large bulldozers, drilling equipment, and loaded haul trucks can also generate perceptible vibration in the immediate vicinity of the Project. Of the equipment proposed for Project construction (as detailed in Chapter 2, *Project Description*), large bulldozers, bore/drill rigs, and trucks would generate the highest vibration levels. Construction activities could take place as close as 170 feet from residential receptors to the south of Camino Pablo. These are the closest receptors to Project construction and would experience the highest vibration levels; residential receptors along Hacienda Circle located 230 feet to the north from Project construction areas (shown on Figure 3.11-1) would experience lower vibration levels.

Table 3.11-9 shows typical vibration levels for equipment likely to be used for Project construction activities. The table provides vibration levels at a reference distance of 50 feet and calculated levels at 170 feet, the distance to the nearest receptors south of Camino Pablo.

TABLE 3.11-9
VIBRATION LEVELS[1] ASSOCIATED WITH PROJECT CONSTRUCTION EQUIPMENT NEAR RECEPTORS

Equipment Type	PPV at 25 feet (in/sec)	PPV at 170 feet (in/sec)
Large Bulldozers	0.089	0.005
Caisson Drilling	0.089	0.005
Loaded Truck	0.076	0.0043

NOTES:
[1] Vibration levels listed are for Project construction equipment that is expected to generate the highest vibration levels of the equipment used.

PPV = peak particle velocity, measured in inches/second.

SOURCE: FTA, 2018; ESA, 2020.

Conservatively assuming that the highest vibration-generating equipment would operate at Project site locations closest to sensitive receptors, vibration generated by the operation of large bulldozers and drilling activities would attenuate to 0.005 in/sec peak particle velocity (PPV) at the nearest receptors, well below the FTA's PPV threshold of 0.5 in/sec. Attenuated vibration levels at receptors farther away would be even lower. Because the Project would not generate excessive groundborne vibration or groundborne noise levels during construction and vibration levels would be below the threshold for damaging nearby structure or buildings, impacts from excessive groundborne vibration or groundborne noise levels would be less than significant.

Operation

Operation of the Project would not introduce any new sources of perceivable groundborne vibration to the Project area. Operation of pumps and generators would not produce levels of vibration that would be carried to sensitive receptors 170 feet away and beyond (shown on Figure 3.11-1). Therefore, operation-related vibration impacts would be less than significant. Because implementation of the Project would not result in exposure of persons to or the generation of excessive groundborne vibration, it also would not expose them to or generate excessive groundborne noise levels. There would be no groundborne noise-related impact associated with operation of the Project.

Significance Determination Before Mitigation

Less than significant. No mitigation measures required.

Mitigation Measures

None required.

3.11.4 References

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U.S. EPA (U.S. Environmental Protection Agency), 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. March 1974.

3.12 Recreation

This section describes the physical environmental and regulatory setting for nearby recreation resources, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts on recreational facilities that could result from construction and operation of the Project. Refer to Section 3.13, Transportation, for an evaluation of traffic safety hazards and potential effects on pedestrians and cyclists using trails and roadways in the vicinity of the Orinda WTP and staging areas.

3.12.1 Environmental Setting

Existing recreational resources and the applicable environmental setting on the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.2, Land Use, Planning, and Recreation (EBMUD, 2006). Recreational resources within the vicinity of the Orinda WTP and Project staging areas remain the same as those described in the WTTIP EIR, and include the following:

- A paved, asphalt sidewalk extends along the north side of Camino Pablo from Miner Road (south) to Bear Creek Road (north), and fronts the Orinda WTP and the North Orinda Sports Field located on EBMUD property. This approximately 1-mile multi-use path provides a connection point to the Old San Pablo Trail at a trailhead on Bear Creek Road north of Camino Pablo. The Old San Pablo Trail is an approximately 5-mile trail over EBMUD-owned watershed lands that follows the southwest shore of the San Pablo Reservoir.

- The privately-owned Orinda Country Club Golf Course lies to the southeast of the Orinda WTP, across San Pablo Creek.

- The North Orinda Sports Field, located on EBMUD property, lies northwest of the Orinda WTP. These grass baseball and soccer fields are operated under a lease agreement between EBMUD and the City of Orinda. Since the early 2000s, the southern portion of the North Orinda Sports Field parking area has been used by the City of Orinda as a staging area for equipment and material for City construction projects. In April 2020, EBMUD installed permanent security fencing around the staging area which will be used for construction staging in the future, when needed.

- The EBMUD San Pablo Recreation Area, which provides fishing, boating, picnicking, nature study, and hiking opportunities, lies to the northwest of the Orinda WTP. The Old San Pablo Trail and Inspiration Trail traverse the San Pablo Recreation Area west of the reservoir, and are near the San Pablo Reservoir Overflow Parking Lots staging area shown on Figure 2-10 in Chapter 2, *Project Description*.

The referenced text in the WTTIP EIR indicates that the North Orinda Sports Field operations and recreational uses would be permanently moved to a new location to allow Project facilities to be constructed on the sports field area; however, the location and recreational operations of the North Orinda Sports Field would not change with

implementation of the Project. During Project construction, the North Orinda Sports Field staging area would be used to temporarily relocate EBMUD maintenance staff offices, parking, and fleet vehicles (refer to the North Orinda Sports Field staging area labeled on Figure 2-10).

3.12.2 Regulatory Framework

Federal and State Regulation

There are no federal or state-operated recreational resources in the vicinity of the Project; thus, no federal or state policies are applicable to the Project's potential effects on recreation.

Local Regulations

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance. As such, the *City of Orinda General Plan* (City of Orinda, 1987) policies noted on page 3.2-12 and Appendix D of the WTTIP EIR remain relevant to the Project.

3.12.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to recreational resources and evaluates whether there would be a new significant environmental impact or a substantial increase in the severity of a significant impact identified in the WTTIP EIR, given (a) the proposed design and operating characteristics of the Project, and (b) changes in significance criteria.

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines,* an impact would be considered significant if the Project would:

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.

2. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Criteria Requiring No Further Evaluation

- ***Criterion 2: Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.*** The Project consists exclusively of water treatment facilities and does not include recreational facilities or require the construction or expansion of recreational facilities. Construction would not result in the closure of the North Orinda Sports Field. Therefore, there would be no impact.

Adopted WTTIP Mitigation Measures

The WTTIP EIR did not include any mitigation measures regarding the increased use of, or the construction of new or expansion of existing recreational facilities caused by the Project. Refer to Section 3.13, Transportation, for adopted mitigation measures from the WTTIP EIR related to traffic safety hazards and potential effects on pedestrians and cyclists using paths, trails and roadways in the vicinity of the Orinda WTP and staging areas.

Impacts and Mitigation Measures

Impact 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 1)

The WTTIP EIR found that construction activities and staging would generate noise, dust, construction traffic, and access disturbance and could therefore disrupt recreational uses of the golf course to the east of the Orinda WTP, and the asphalt path that runs along the south side of the property. The WTTIP EIR also assumed that several Project components would be constructed at the North Orinda Sports Field, but that the North Orinda Sports Field uses would be moved from the Orinda WTP property prior to construction, and would not be affected. Due to the phased construction activities, periodic operational activities, and availability and diversity of recreational opportunities in the vicinity of the Project, impacts on recreation resources were determined to be less than significant (EBMUD, 2006).

Construction

Construction and staging activities associated with the Project have the potential to generate noise, dust, construction traffic, and access disturbance, which could temporarily disrupt access to or enjoyment of existing recreational facilities in the Project area, such as the asphalt sidewalk that runs along the south side of the property (on the north side of Camino Pablo) and the North Orinda Sports Field, over the approximately 4.5-year construction period.

Although construction staging would occur in an approximately 0.5-acre area south of the North Orinda Sports Field (in the North Orinda Sports Field staging area), staging activities would not occur in existing parking spots or on the sports fields, and would not directly disrupt recreational activities at the North Orinda Sports Field. Increased traffic

may temporarily occur along Camino Pablo during Project construction, but the North Orinda Sports Field and sidewalk bordering the Orinda WTP would remain open and usable (refer to Section 3.13, Transportation, for more information regarding Project-related traffic and potential impacts). The Old San Pablo Trail and Inspiration Trail are near the San Pablo Reservoir Overflow Parking Lots staging area, but access to these trails and other neighboring trails would not be altered by the use of the staging areas or Project construction activities.

The construction staff needed for the Project would be minimal compared to the overall population in the Project area, and would not result in a substantial permanent increase in the use of recreation facilities, and thus would not cause substantial physical deterioration. Further, given the availability and diversity of recreation opportunities in the vicinity of the Project, any diversion of recreation users would not likely result in overcrowding and associated potential deterioration of facilities. Therefore, the impact would be less than significant.

Operation

The Project does not propose to construct new homes or businesses and would not increase the number of residents in the Project area. Additionally, as described in Section 2.7, Operations and Maintenance, in Chapter 2, *Project Description*), operation and maintenance activities at the Orinda WTP would require the dedication of one or two Orinda WTP employees per day, which would be staffed by the existing Orinda WTP staff. Thus, operation of the Project would not generate or attract additional population that could result in increased use of existing recreational facilities, such that substantial physical deterioration of the facilities could occur or be accelerated, and the impact would be less than significant.

Significance Determination Before Mitigation

Less than significant. No mitigation measures required.

Mitigation Measures

None required.

3.12.4 References

City of Orinda, 1987. *City of Orinda General Plan.* Open Space, Parks, Schools, and Utilities Element. Adopted May 20, 1987.

EBMUD (East Bay Municipal Utility District), 2006. *Water Treatment and Transmission Improvements Program Final Environmental Impact Report*, SCH # 2005092019. November 2006.

3.13 Transportation

This section describes the physical environmental and regulatory setting for transportation, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts on transportation resources that could result from construction and operation of the Project. The section is based on a Transportation Impact Study (TIS) that was prepared as a resource document for the Project (Fehr & Peers, 2020; refer to Appendix G).

3.13.1 Environmental Setting

Existing transportation patterns and the applicable environmental setting on the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.8, Traffic and Circulation (EBMUD, 2006). The description of the environmental setting in the WTTIP EIR was based on field reconnaissance, 72-hour traffic volume counts, and review of published data and maps. To reflect new information on transportation conditions since the development of the WTTIP EIR, the TIS was prepared to include the following data:

- Field reconnaissance of the Project site and surrounding roadway network, including intersection control, lane configurations, pedestrian and bicycle facilities, and transit routes.
- Morning, midday, and evening peak period traffic volume counts for study intersections (as defined below) on a typical weekday when local schools were in session.
- Daily roadway segment counts along proposed construction truck routes.

Roadway Network

Roadway facilities used for regional and local access to the Project site are described below. Figure 3.13-1 shows the local roadway network near the Project site.

Regional Access

The Project site and staging areas are located in the eastern Bay Area, with regional access provided via Highway 24 and Interstate 80 (I-80), both of which are described below. Refer to Figure 2-1 for the regional location of the Project site and Figure 2-10 for the locations of the staging areas.

Highway 24 is an eight-lane, east-west freeway that connects Interstate 580 (I-580) and Interstate 980 (I-980) in the city of Oakland and Interstate 680 (I-680) in the city of Walnut Creek. The Project site would be accessed from Highway 24 via the Camino Pablo ramps.

I-80 is an eight-lane, east-west transcontinental Interstate Highway, stretching from San Francisco, California to Teaneck, New Jersey. The Project site could be accessed from I-80 via the San Pablo Dam Road ramps.

Local Access

The Project is located in the city of Orinda, bordered to the south by Camino Pablo, northwest by Manzanita Drive, and north and east by San Pablo Creek. Refer to Figure 2-1 for the location of the Project site. The roadways identified below would also be used to access the staging areas for the Project. Refer to Figure 2-10 for the locations of the staging areas.

Camino Pablo is a north-south road providing direct access to the Project site that connects Highway 24 in the city of Orinda to I-80 in the city of Richmond. It is a four-lane roadway between Highway 24 and Miner Road, and a two-lane roadway from Miner Road to the Wildcat Canyon Road/Bear Creek Road intersection. South of Highway 24 at Brookwood Road, the roadway's name changes to Moraga Way. North of the Wildcat Canyon Road/Bear Creek Road intersection, the roadway's name changes to San Pablo Dam Road. The posted speed limit is 45 miles per hour (mph) south of Miner Road and 30 mph north of Miner Road (i.e., along the Project site). No on-street parking is allowed on Camino Pablo between Highway 24 and Bear Creek Road. Class II bike lanes (on-street bicycle facilities; defined below) are located along portions of Camino Pablo in the Project vicinity. In the Central Business District (i.e., from Highway 24 north to El Toyonal), a sidewalk runs parallel to Camino Pablo, mostly on the western side of the roadway. North of El Toyonal, a sidewalk is provided on the east side of the street to just north of Wagner Ranch and Monte Vista Road.

Miner Road is an east-west road that serves residential neighborhoods in the city of Orinda and branches into Lombardy Lane east of Camino Sobrante. Miner Road is a two-lane roadway with no on-street parking and a posted speed limit of 25 mph. There are no dedicated bicycle or pedestrian facilities.

Manzanita Drive is an east-west, two-lane roadway with a posted speed limit of 25 mph and no on-street parking. Manzanita Drive provides access to the north gate of the Orinda WTP site and serves residential neighborhoods north and east of the Project site. Sidewalks are provided on the south side of the roadway. There are no dedicated bicycle facilities.

Wildcat Canyon Road/Bear Creek Road is an east-west, two-lane roadway. Bear Creek Road, located to the east of Camino Pablo, provides access to Wagner Ranch Elementary School, the Pacific Gas and Electric Company (PG&E) Sobrante Substation, and the EBMUD Briones Reservoir site, before ending north of the Project site at an intersection with Alhambra Valley Road. Bear Creek Road does not have dedicated bicycle or pedestrian facilities. The posted speed limit is 35 mph. Wildcat Canyon Road, located to the west of Camino Pablo, leads to Tilden Regional Park in the Oakland-Berkeley Hills. Wildcat Canyon Road has a Class III bike route and no sidewalks. The posted speed limit is 25 mph.

Existing Traffic Operations

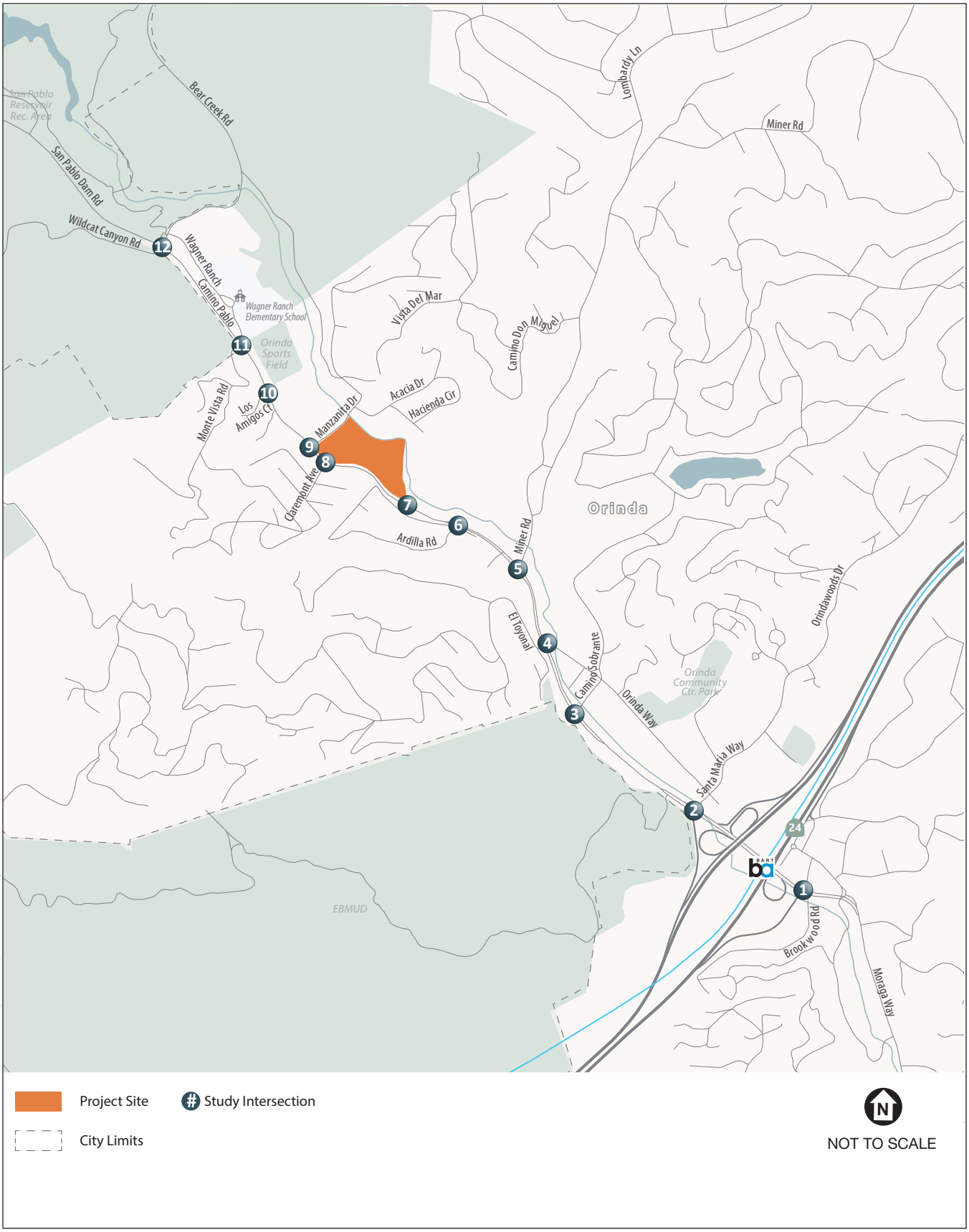
Intersections Level of Service

Traffic operating characteristics of intersections are described by the concept of level of service (LOS). Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period, such as AM, midday, and PM peak hours (defined below). Intersection LOS ranges from A, which indicates free flow or excellent conditions with short delays, to F, which indicates congested or overloaded conditions with extremely long delays.

A total of 12 signalized intersections were analyzed for the Project (the "study intersections"). The study intersections were selected because they provide access to the Project site, and are located along likely routes that worker and construction vehicles would use during construction of the Project. Figure 3.13-1 shows the location of these intersections, which include the following:

1. Camino Pablo & Highway 24 Eastbound Off-Ramp
2. Camino Pablo, Santa Maria Way, & Camino Pablo Southbound/Highway 24 Westbound On-Ramp
3. Camino Pablo & Camino Sobrante
4. Camino Pablo & Orinda Way/El Toyonal
5. Camino Pablo & Miner Road
6. Camino Pablo & Ardilla Road (pedestrian crosswalk)
7. Camino Pablo & Orinda WTP South Gate Entrance/Unnamed Road (vehicular access to North Lane and Ardilla Road)
8. Camino Pablo & Claremont Avenue
9. Camino Pablo & Manzanita Drive
10. Camino Pablo & Los Amigos Court/Sports Field
11. Camino Pablo & Monte Vista Road/Wagner Ranch
12. Camino Pablo & Wildcat Canyon Road/Bear Creek Road

Intersection LOS was analyzed for a 60-minute period when the highest traffic volume was recorded at each intersection during the peak period. Existing intersection turning movement counts, including pedestrians and bicycles, were collected on Tuesday, November 5, 2019 during the AM (7:00 a.m. to 9:00 a.m.), midday (11:00 a.m. to 3:00 p.m.), and PM (4:00 p.m. to 6:00 p.m.) peak periods. Intersection turning movement count data are provided in Appendix G.



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SOURCE: Fehr & Peers, 2020

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.13-1
Study Intersection Locations

ESA

The intersections were evaluated using the 2010 Highway Capacity Manual (HCM 2010) operations methodology, which determines the capacity for each lane group approaching the intersection (TRB, 2010).[1] LOS is then based on the average stopped delay per vehicle (seconds per vehicle) for the various movements within the intersection. Table 3.13-1 presents the LOS and delay data for the study intersections under existing conditions, which shows that many of the study intersections currently operate poorly, characterized by long delays. Detailed intersection LOS calculations are provided in Appendix G. The *City of Orinda General Plan* Growth Management Element Policy 4.3.3.C provides LOS standards for signalized intersections in the city of Orinda. All signalized intersections in Orinda are designated either "suburban" or "Central Business District" with their respective traffic standard for LOS.

The following intersections currently operate below the City of Orinda LOS standards during one or more of the evaluated peak hours based on the General Plan guidelines:

1. Camino Pablo & Highway 24 Eastbound Off-Ramp (PM)

3. Camino Pablo & Camino Sobrante (PM)

4. Camino Pablo & Orinda Way/El Toyonal (PM)

9. Camino Pablo & Manzanita Drive (PM)

10. Camino Pablo & Los Amigos Court/Sports Field (AM)

11. Camino Pablo & Monte Vista Road/Wagner Ranch (AM)

12. Camino Pablo & Wildcat Canyon Road/Bear Creek Road (AM and PM)

Daily Traffic Conditions

Roadway segment counts were collected on Tuesday, May 14, and Wednesday, May 15, 2019 at five locations that would be used by vehicles to access the Project site. The roadway segment data were used to obtain the average daily traffic (ADT) and AM, midday, and PM peak hour volumes presented in Table 3.13-2. Additionally, the most recent ADT data available from California Department of Transportation (Caltrans) was obtained for the two roadway segments on Highway 24 and I-80 nearest to the Project site. The locations of the study roadway segments are shown in Figure 3.13-2.

[1] The intersection of Camino Pablo & Highway 24 Eastbound Off-Ramp (study intersection no. 1) was analyzed using the HCM 2000 operations methodology because HCM 2010 does not support the signal phasing for a five-leg intersection.

TABLE 3.13-1
INTERSECTION EXISTING LEVEL OF SERVICE: WEEKDAY AM, MIDDAY, AND PM PEAK HOURS

Intersection	Peak Hour[a]	Delay (seconds)[b]	Existing LOS	LOS/Delay Standard[c]
1. Camino Pablo & Highway 24 Eastbound Off-Ramp[d]	AM MD PM	45.9 42.7 **>100 (105.3)**	D D **F**	Low-F/ < 80.0 s
2. Camino Pablo, Santa Maria Way, & Camino Pablo Southbound/ Highway 24 Westbound On-Ramp	AM MD PM	15.1 14.1 23.3	B B C	Low-F/ < 80.0 s
3. Camino Pablo & Camino Sobrante	AM MD PM	7.2 17.5 **87.0**	A B **F**	Low-E/ < 67.0 s
4. Camino Pablo & Orinda Way/El Toyonal	AM MD PM	12.9 26.0 **82.9**	B C **F**	Low-E/ < 67.0 s
5. Camino Pablo & Miner Road	AM MD PM	15.0 15.0 39.6	B B D	Low-D/ < 47.0 s
6. Camino Pablo & Ardilla Road	AM MD PM	1.4 2.4 2.9	A A A	Low-D/ < 47.0 s
7. Camino Pablo & Orinda WTP South Gate Entrance/Unnamed Road	AM MD PM	1.5 15.5 13.5	A B B	Low-D/ < 47.0 s
8. Camino Pablo & Claremont Avenue	AM MD PM	5.0 7.3 7.8	A A A	Low-D/ < 47.0 s
9. Camino Pablo & Manzanita Drive	AM MD PM	25.6 3.0 **56.8**	C A **E**	Low-D/ < 47.0 s
10. Camino Pablo & Los Amigos Court/ Sports Field	AM MD PM	**55.2** 1.4 22.2	**E** A C	Low-D/ < 47.0 s
11. Camino Pablo & Monte Vista Road/ Wagner Ranch	AM MD PM	**55.7** 5.5 30.5	**E** A C	Low-D/ < 47.0 s
12. Camino Pablo & Wildcat Canyon Road/ Bear Creek Road	AM MD PM	**87.5** 10.5 **52.8**	**F** B **D**	Low-D/ < 47.0 s

NOTES:
a AM = morning between 7:00 a.m. and 9:00 a.m.; MD = midday between 11:00 a.m. and 3:00 p.m.; PM = evening between 4:00 p.m. and 6:00 p.m.
b Average stop delay per vehicle, measured in seconds.
c City of Orinda General Plan Growth Management Element Policy 4.3.3.C.
d LOS reported in HCM 2000.

BOLD text indicates exceedance of Orinda LOS standard.

SOURCE: Fehr & Peers, 2020.

TABLE 3.13-2
EXISTING DAILY AND PEAK-HOUR TRAFFIC VOLUMES AT STUDY ROADWAY SEGMENTS

Roadway	Location	Average Daily Traffic[a]	AM Peak Hour[b]	Midday Peak Hour[c]	PM Peak Hour[d]
1. Camino Pablo	South of Bear Creek Road/ Wildcat Canyon Road	17,211	1,720	1,014	1,765
2. Bear Creek Road	East of Camino Pablo	2,618	539	197	269
3. Manzanita Drive	East of Camino Pablo	1,022	108	86	100
4. Camino Pablo	South of Manzanita Drive	20,364	1,917	1,230	2,032
5. Camino Pablo	South of Santa Maria Way	30,911	2,153	2,174	2,842
6. Highway 24	Camino Pablo	188,000	-	-	-
7. Interstate 80	Between San Pablo Avenue & Hilltop Drive	214,200	-	-	-

NOTES:
[a] Average daily two-way traffic measured over two days.
[b] Maximum hourly volume between the hours of 7:00 a.m. and 9:00 a.m.
[c] Maximum hourly volume between the hours of 11:00 a.m. and 3:00 p.m.
[d] Maximum hourly volume between the hours of 4:00 p.m. and 6:00 p.m.

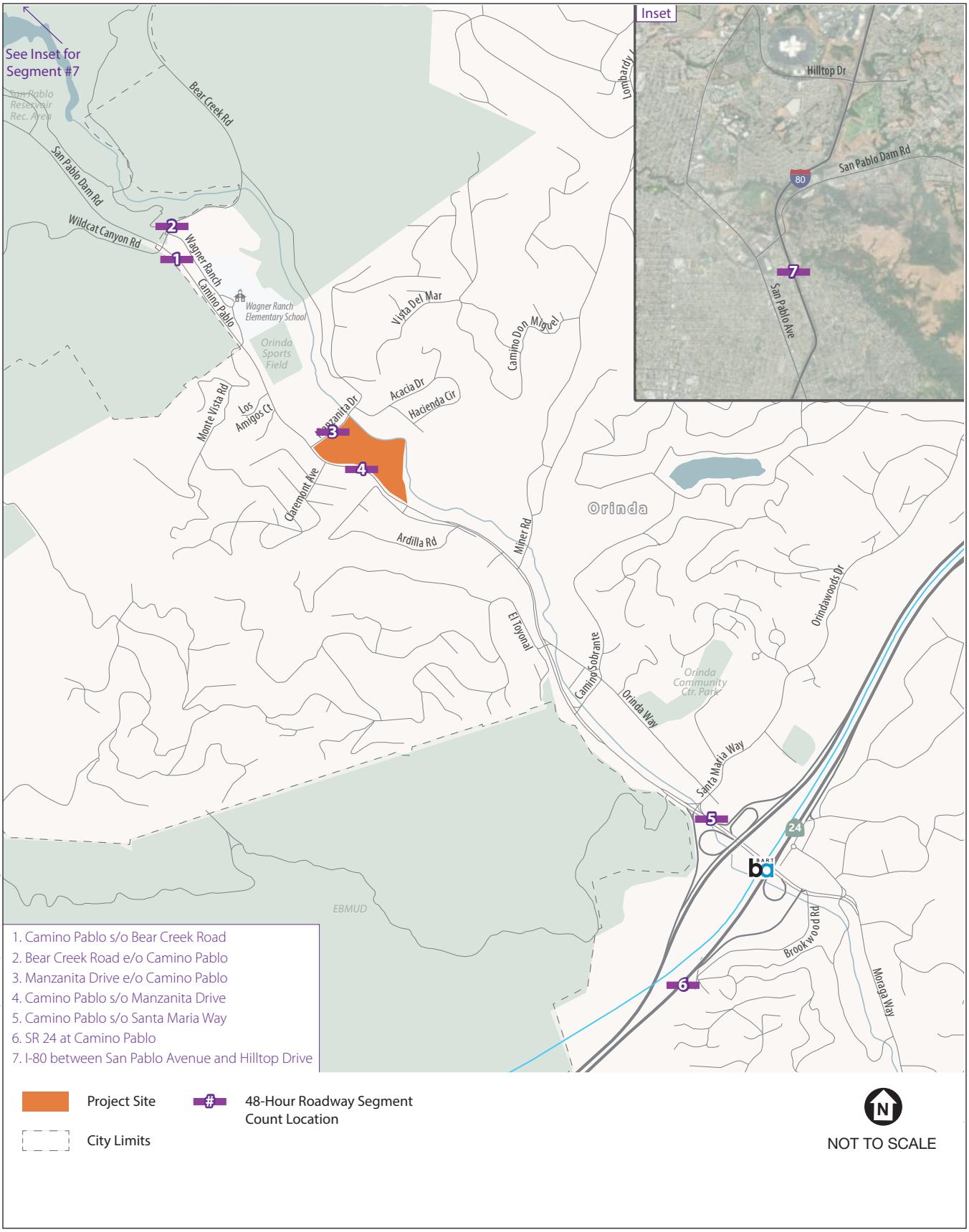
SOURCE: Fehr & Peers, 2020; Caltrans, 2017.

Transit Service

County Connection, a public transit agency operating fixed-route bus and ADA paratransit service in and around central Contra Costa County, operates one route near the Project site. Route 6 operates from the Orinda BART station to the Lafayette BART station and has two stops in the Project vicinity: one at Camino Pablo and El Toyonal and the other at the Orinda BART station. The Camino Pablo stop is the northernmost Orinda stop and is approximately 0.5-mile south of the Project site, while the Orinda BART station stop is approximately 1.3 miles south of the Project site. Route 6 runs from 6:00 a.m. to 9:00 p.m. on weekdays (Monday through Friday) and from 9:00 a.m. to 6:10 p.m. on weekends (Saturday and Sunday). The Camino Pablo and El Toyonal stop is only served on weekdays with three stops throughout the day. The Orinda BART station runs on 20-minute headways on weekdays and 90-minute headways on the weekends.[2] No routes operated by the Alameda-Contra Costa Transit District (AC Transit) or any other transit agency operate near the Project site or staging areas.

The Lamorinda School Bus program operates two school bus routes that serve Wagner Ranch Elementary School, WR Route 11 and WR Route 12. According to the 2019-2020 school year schedule, neither of these routes pick-up or drop-off students on the roadways used to access the Project site (i.e., Camino Pablo and Manzanita Drive). However, one bus route that serves Orinda Intermediate School (OIS), OIS Route 11, does pick-up and drop-off students on the north side of Manzanita Drive across the street from the north gate of the Orinda WTP site.

[2] Headway (or frequency) is the distance between vehicles in a transit system measured in time or space.



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SOURCE: Fehr & Peers, 2020

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.13-2
Study Roadway Segment Locations

ESA

Pedestrian/Bicycle Circulation

Pedestrian facilities include sidewalks, crosswalks, and pedestrian signals. Sidewalk availability is sporadic along the Camino Pablo corridor. In the Central Business District (i.e., from Highway 24 north to El Toyonal), a sidewalk runs parallel to Camino Pablo, mostly on the western side of the roadway. North of El Toyonal, a sidewalk is provided on the east side of the street, until just north of Wagner Ranch and Monte Vista Road.

Marked crosswalks and pedestrian push buttons are present at all study intersections. During observations for the TIS, pedestrians were seen crossing within crosswalks during the walk phase of the traffic signal. At intersections near the Wagner Ranch Elementary School, students were observed activating pedestrian call buttons and waiting to cross during the walk phase of the signal. Many students were accompanied by adults.

The pedestrian volumes in the vicinity of the Project site are generally low, with fewer than 20 pedestrian crossings observed at most study intersections during all three of the evaluated peak hours. The exception is at Camino Pablo and Highway 24 Eastbound Off-Ramp (study intersection number 1), where 57 pedestrian crossings were observed during the AM peak hour. AM, midday, and PM peak hour pedestrian volumes at each of the study intersections are presented in Table 3.13-3. The higher level of pedestrian activity observed at this location is assumed as a result of the proximity of the Orinda BART station, located approximately 550 feet west of the intersection.

Bicycle facilities, as defined by the Caltrans Highway Design Manual, are classified as follows:

- **Bike Paths (Class I)** – Paved trails that are separated from roadways.
- **Bike Lanes (Class II)** – Lanes on roadways designated for use by bicycles through striping, pavement legends, and signs.
- **Bike Routes (Class III) –** Designated roadways for bicycle use by signs only; may or may not include additional pavement width for cyclists.

At some locations along the study area roadways, a Class I separated path is available to pedestrians and bicyclists. Camino Pablo has predominantly Class III bicycle facilities with short segments of Class I facilities. The heavy volume of traffic and limited on-street bicycle facilities make riding along Camino Pablo uncomfortable for inexperienced riders. Field observations show that most bicyclists cycling along Camino Pablo are experienced riders, with children using the Class I facilities between Manzanita Drive and Wagner Ranch/Monte Vista Road.

Bicycle volumes were observed to be low with, on average, less than 10 bicyclists present per hour at all of the study intersections during all three evaluated time periods. The highest recorded bicycle volume was 18, which was observed during the AM peak hour at the Camino Pablo/Claremont Avenue intersection (study intersection number 8). AM, midday, and PM peak hour bicycle volumes at each of the study intersections are presented in Table 3.13-3.

TABLE 3.13-3
EXISTING PEDESTRIAN AND BICYCLE VOLUMES

Intersection	AM		Midday		PM	
	Pedestrians	Bicyclists	Pedestrians	Bicyclists	Pedestrians	Bicyclists
1. Camino Pablo & SR-24 Eastbound Off-Ramp	57	12	25	8	29	11
2. Camino Pablo, Santa Maria Way & Camino Pablo Southbound/ SR-24 Westbound On-Ramp	0	9	0	9	0	10
3. Camino Pablo & Camino Sobrante	0	2	0	10	0	10
4. Camino Pablo & Orinda Way/El Toyonal	11	7	5	11	6	12
5. Camino Pablo & Miner Road	2	6	1	8	3	3
6. Camino Pablo & Ardilla Road	0	4	0	7	0	3
7. Camino Pablo & Orinda WTP South Gate Entrance/Camino Pablo Frontage Road	5	2	3	2	1	1
8. Camino Pablo & Claremont Avenue	10	18	1	8	0	3
9. Camino Pablo & Manzanita Drive	13	4	2	8	0	3
10. Camino Pablo & Los Amigos Court/ Sports Field	18	3	1	10	3	2
11. Camino Pablo & Monte Vista Road/ Wagner Ranch	10	2	6	10	0	9
12. Camino Pablo & Wildcat Canyon Road/Bear Creek Road	0	1	0	12	0	10

SOURCE: Fehr & Peers, 2020.

3.13.2 Regulatory Framework

The regulatory framework for transportation in the vicinity of the Orinda WTP site is described below. Elements of the regulatory framework for transportation identified in the WTTIP EIR that are not described below have not notably changed since 2006.

Federal Regulation

There are no federal regulations that pertain to traffic and transportation in the Project area.

State Regulations

California Department of Transportation

Caltrans has jurisdiction over State Highways. Therefore, Caltrans controls all construction, modification, and maintenance of State Highways, such as Highway 24 and I-80. The *Guide for the Preparation of Traffic Impact Studies* (Caltrans, 2002) provides consistent guidance for Caltrans staff who review proposals for local development and land use

changes and informs local agencies about the information needed for Caltrans to analyze the traffic impacts on State Highway facilities that include freeway segments, on- or off-ramps, and signalized intersections.

Senate Bill 743

With the adoption of the Senate Bill (SB) 375 in 2008, the State Legislature signaled its commitment to encourage land use and transportation planning decisions and investments to reduce vehicle miles traveled (VMT) and thereby contribute to the reduction of greenhouse gas (GHG) emissions, as required by the California Global Warming Solutions Act of 2006 (Assembly Bill 32). VMT is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person.

Signed into law on September 27, 2013, SB 743 started a process to change transportation impact analysis as part of CEQA compliance. These changes include the elimination of auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining transportation impact significance in many parts of California (if not statewide). SB 743 required the Governor's Office of Planning and Research (OPR) to propose revisions to the *CEQA Guidelines* establishing new criteria to "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses" (Public Resources Code Section 21099(b)(1)).

The current *CEQA Guidelines* Section 15064.3, Subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. The *CEQA Guidelines* criterion for determining the significance of transportation impacts are primarily focused on projects within transit priority areas, and shifts the focus from driver delay to an evaluation of a project's long term operational changes of VMT through reduction of GHG emissions, creation of multimodal networks, and promotion of a mix of land uses (which in turn reduces vehicle trips).

The newly adopted guidance provides that a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide. The City of Orinda is currently engaged in this process and has not yet formally adopted its updated transportation significance thresholds or its updated transportation impact analysis procedures. his Supplemental EIR provides information regarding automobile delay to help members of the community surrounding the Orinda WTP better understand the Project's potential to cause changes in traffic that could affect day-to-day life. Ultimately, however, consistent with SB 743 and the resulting changes in the *CEQA Guidelines*, VMT is used to determine the transportation impact significance. As defined in CEQA Guidelines Section 15064.3, Subdivision (a), VMT refers to the amount and distance of automobile travel attributable to a project. *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Guidelines) in December 2018, further explains that the automobile in Section 15064.3 "refers to on-road passenger vehicles, specifically cars and light trucks."

Local Regulations

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances for projects

involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance. As such, the *Contra Costa County General Plan* and the *City of Orinda General Plan* policies related to the preservation and protection of transportation patterns noted in Appendix D of the WTTIP EIR remain relevant to the Project. Local plans and policies not discussed in the WTTIP EIR that are relevant to the Project are described below.

Contra Costa County Congestion Management Program

California's Proposition 111 (1990) specifies that each county designate a congestion management agency to implement programs to manage traffic levels. The Contra Costa Transportation Authority (CCTA) is designated as the congestion management agency for Contra Costa County and is responsible for coordinating land use, air quality, and transportation planning, and for preparing and updating the county's Congestion Management Program (CMP) every 2 years. The 2019 CMP identifies LOS standards for State Highways and principal arterials including I-80, Highway 24, and San Pablo Dam Road near the Project site. Performance measures are also identified for these key roadways in addition to performance measures for transit service in the county. The CMP also includes a 7-year capital improvement program, which is used to maintain or improve the performance of the overall transportation system in the county (e.g., roadway, bus and rail transit, ferries, trails, etc.) or mitigate the regional impacts of land use projects.

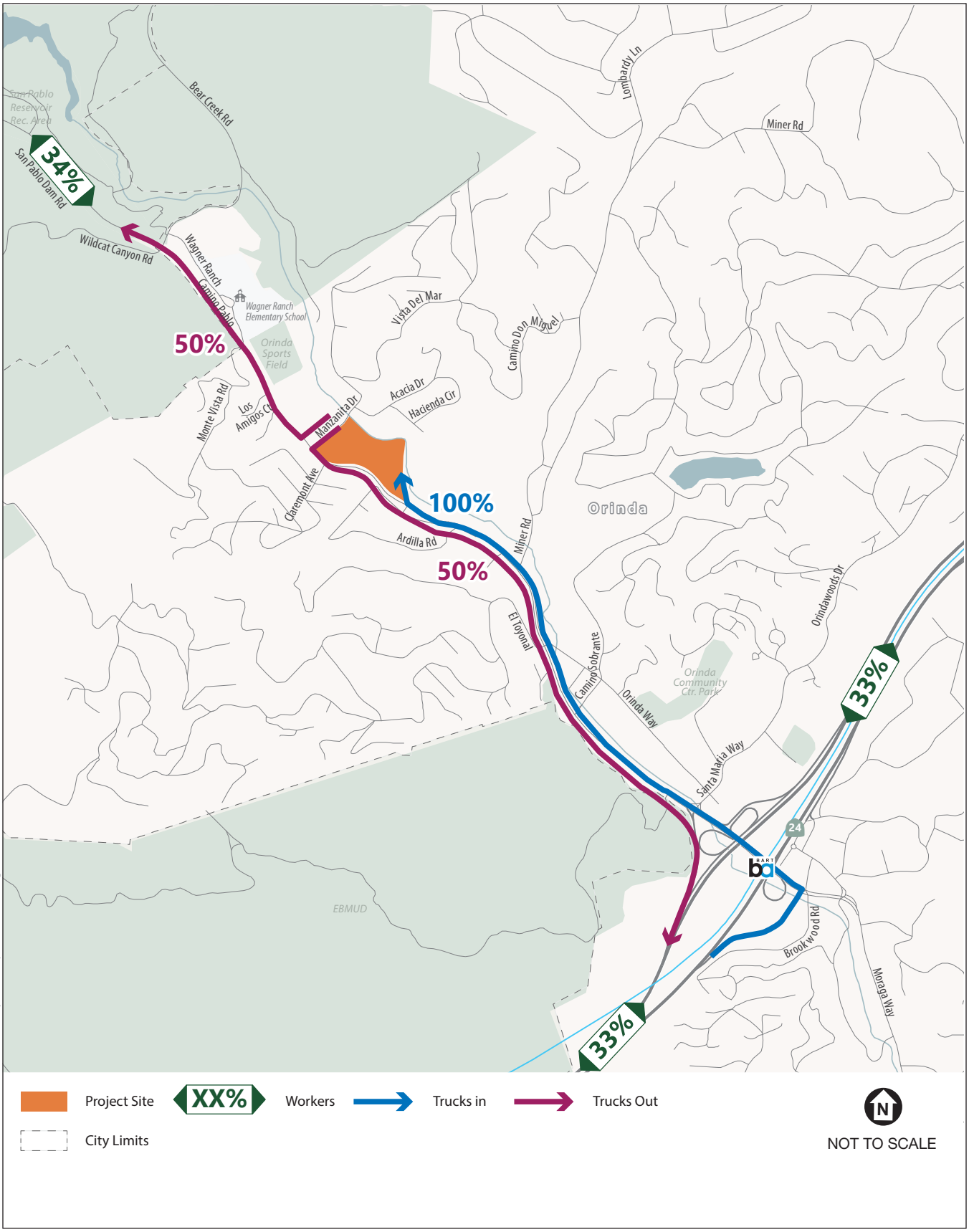
3.13.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to transportation and evaluates whether there would be a new significant environmental impact or a substantial increase in the severity of a significant impact identified in the WTTIP EIR, given: (a) the proposed design and operating characteristics of the Project, and (b) changes in significance criteria. Upon completion, the Project would not generate any new trips except for occasional maintenance, similar to existing conditions. As such, the analysis focuses on the potential impacts of short-term construction activities on transportation facilities.

Short-Term Construction Traffic

Construction traffic volumes generated by the Project were estimated based on the number of construction-related vehicle trips needed during each major construction activity for the Project. Construction-related vehicle trips include trips made by construction workers traveling to and from the Project site, material (e.g., soil, concrete, water, etc.) hauling and delivery truck trips, and equipment delivery trips. The number of Project-generated trips would vary on a daily basis, depending on the construction phase, planned activity, and material delivery needs. The distribution of worker and construction truck trips is presented on Figure 3.13-3. Routes to/from the Project site and the regional roadway network were determined in the development of preliminary truck routing plans.



SOURCE: Fehr & Peers, 2020

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.13-3
Worker and Truck Trip Distribution

ESA

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Project trips were calculated by using the largest number of hourly one-way worker vehicle and construction truck trips of overlapping major construction activities at one time over the Project duration. The estimates were based on the maximum number of hourly worker vehicles and construction trucks that could potentially access the Orinda WTP site during each major construction activity, as shown below in Table 3.13-4. The maximum hourly one-way trip estimates from Table 3.13-4 were used in the impact analysis to examine potential "worst-case" impacts on intersection delays and average daily traffic volumes; however, the maximum hourly one-way trip estimates would not occur every hour for every day of the major construction activity durations. Table 2-6 in Chapter 2, *Project Description*, shows estimates of the average daily number of construction truck round trips per major construction activity (which are likely to require less hourly one-way trips than the maximum hourly one-way trips shown in Table 3.13-4), and the estimated total number of construction round trips per major construction activity.

TABLE 3.13-4
CONSTRUCTION TRUCK AND WORKER VEHICLE TRIP ESTIMATES BY MAJOR CONSTRUCTION ACTIVITY

Construction Activities	Approximate Working Days	Maximum Hourly One-Way Trips	
		Trucks[a]	Workers
Site Mobilization	88	3	20
Demolition of Maintenance & Grounds Service Buildings and Site Clearing	10	5	20
South Electrical Building Construction			
Excavation and Retaining Wall Construction	11	20	5
Concrete and Miscellaneous Work	19	16	5
Pre-Fabricated Building Installation	33	-	10
Upper (South) Spillway Bifurcation and Briones Weir Actuator Installation	73	-	5
South Generator Construction	79[b]	-	5
UV/CCB Facilities Construction (below ground)			
Install Secant Pile Wall	56	4	20
Upper Excavation	206	20	20
Large Diameter Pipeline Jacking and Installation	351	20	15
Lower Excavation	52	20	20
CCB Concrete Work	378	16	20
CCB Backfill	37	20	20
UV Concrete Work	193	16	20
UV Backfill	232	20	20
Large Diameter Pipeline Tie-Ins during Winter Shutdown	56	-	20
Backfill of Large Diameter Pipeline Tie-In Vaults	57	20	20
MAUVE Building Construction			
MAUVE Concrete Work	204	16	25
MAUVE Building Construction	129	20	25

TABLE 3.13-4 (CONTINUED)
CONSTRUCTION TRUCK AND WORKER VEHICLE TRIP ESTIMATES BY MAJOR CONSTRUCTION ACTIVITY

Construction Activities	Approximate Working Days	Maximum Hourly One-Way Trips	
		Trucks[a]	Workers
Fencing and Landscaping			
Perimeter Fencing Installation	11	-	5
Landscaping	24	-	3
LAPP Power Building Construction			
Excavation	1	20	5
Concrete and Miscellaneous Work	1	16	5
Pre-Fabricated Building Installation	34	-	10
Grounds Maintenance Building Construction			
Excavation	3	20	5
Concrete and Miscellaneous Work	21	16	5
Pre-Fabricated Building Installation and Paving	39	-	10
LAPP 2 – Electrical Modifications	66	-	2

NOTES: MAUVE = Maintenance and UV Electrical; UV = ultraviolet; LAPP = Los Alamos Pumping Plant; CCB = Chlorine Contact Basin.

[a] Maximum number of trucks going to and leaving the Project site in a one-hour period.
[b] The calendar duration in the Project schedule indicates a task length of 259 days; however, there will only be 79 days of active work.

SOURCE: EBMUD, 2019.

Travel demand generated by construction-related vehicles was estimated using construction worker vehicle trips and hauling and material and equipment delivery truck trips described below.

Construction Worker Vehicle Trips

The maximum hourly one-way worker vehicle trips are 60 trips, assuming some overlap in major construction activities (Fehr & Peers, 2020). The number of workers in overlapping construction activities would be additive, but, due to limited parking space at the Orinda WTP site for worker vehicles, one-third of the workers are assumed to carpool to the Project site, so the maximum hourly one-way worker vehicle trips used in the analysis is 40 trips. Carpool parking was assumed for the analysis to be located at the San Pablo Reservoir Overflow Parking Lots staging area for this analysis, but would not be limited to this staging area. All workers are assumed to arrive during the AM peak hour and to depart during PM peak hour. No worker vehicle trips would occur during the midday peak. Project construction activities would not generate a substantial number of transit riders because most construction workers would likely drive to and from the Project site.

It is assumed that construction workers would be nonlocal residents (i.e., do not live within the city of Orinda), and would use the most direct access routes to the Project site from freeways (i.e., Highway 24 and I-80). Because the origins of construction workers are unknown, it was assumed that approximately one-third would access the site from Highway 24 travelling east, one-third from Highway 24 travelling west, and one-third

from Camino Pablo travelling south based on the dispersed nature of population centers throughout the Bay Area from where workers could be drawn. For the analysis, it was also assumed that workers would access the Project site from Manzanita Drive to avoid conflicts with on-going chemical deliveries to the Orinda WTP and construction truck access from the south gate.

Concrete Delivery, Soil and Demolition Hauling, and Heavy Equipment Delivery Truck Trips

Construction truck trips for soil and demolition hauling and heavy equipment delivery trucks would be limited to 9:00 a.m. to 4:00 p.m., Monday through Friday. The only exception would be concrete delivery trucks, which would be allowed to access the Project site from 6:00 a.m. to 6:00 p.m. during Project concrete activity which requires 12-hour continuous concrete pours. Due to constructability limitations on concrete pumping times and concrete delivery truck access to the concrete pour sites within the Orinda WTP site, approximately 8 concrete delivery trucks per hour would access the Orinda WTP site for concrete pours. Similarly, due to constructability limitations related to loading and unloading materials and excavated soil, and construction truck access to the excavation area and building site at the Orinda WTP site, approximately 10 construction trucks per hour would access the Orinda WTP site for material delivery and soil off-haul.

Access to the MAUVE/UV/CCB Structure site (where the major construction earthwork and concrete work would occur) within the Orinda WTP would be via on-site existing narrow, one-way access roads that lie east and west of the existing Filter Gallery Building. Because chemical delivery trucks would need to maintain their existing access to chemical feed points along the west access road, heavy construction traffic to the MAUVE/UV/CCB Structure site would need to proceed in a counter-clockwise fashion from the Lime Tower to the north gate of the Orinda WTP at Manzanita Drive. Due to this site access constraint for construction trucks, the analysis assumed that either earth-moving haul truck activity or concrete delivery truck activity would occur at any given time, but not both concurrently. Except for the early morning concrete deliveries explained above, construction of the Project would generate an estimated maximum of 20 one-way truck trips per hour from 9:00 a.m. to 4:00 p.m.

The number of construction truck trips is the estimated maximum number of construction trucks going to and leaving the Project site in a one-hour period. Construction trucks behave differently than passenger vehicles as they take longer to accelerate, decelerate, and negotiate turns. Therefore, they affect intersection and roadway operations differently. Construction truck trips are analyzed as passenger car equivalents (PCEs), using a ratio of 1:2 (one truck to two cars).

All concrete delivery, soil and demolition off-haul, and heavy equipment construction trucks are assumed to travel northbound on Camino Pablo from Highway 24 and use the south gate to enter the Project site. While not all construction trucks would be limited to approaching the Project site northbound on Camino Pablo from Highway 24, it is appropriate to assume that concrete delivery, soil and demolition off-haul, and heavy equipment trucks would use this access route because: (a) the construction access route for

the major MAUVE/UV/CCB Structure construction activities of demolition, soil off-haul, and concrete deliveries within the Orinda WTP site would proceed in a counter-clockwise direction from south gate to north gate as described above, and (b) any construction trucks traveling southbound on Camino Pablo would need to turn onto smaller roadways to access the south gate from the northbound lanes of Camino Pablo because there is no left-turn lane and the double yellow lines prohibit traffic on southbound lanes from turning directly into the south gate. For this analysis, it was assumed that construction trucks would exit the Orinda WTP via the north gate at Manzanita Drive to avoid any conflicts with chemical deliveries to the Orinda WTP heading north from the south gate on the west access road, with one-half of the trucks going northbound on Camino Pablo and one-half going southbound on Camino Pablo. The assumed truck route plan is shown on Figure 3.13-4.

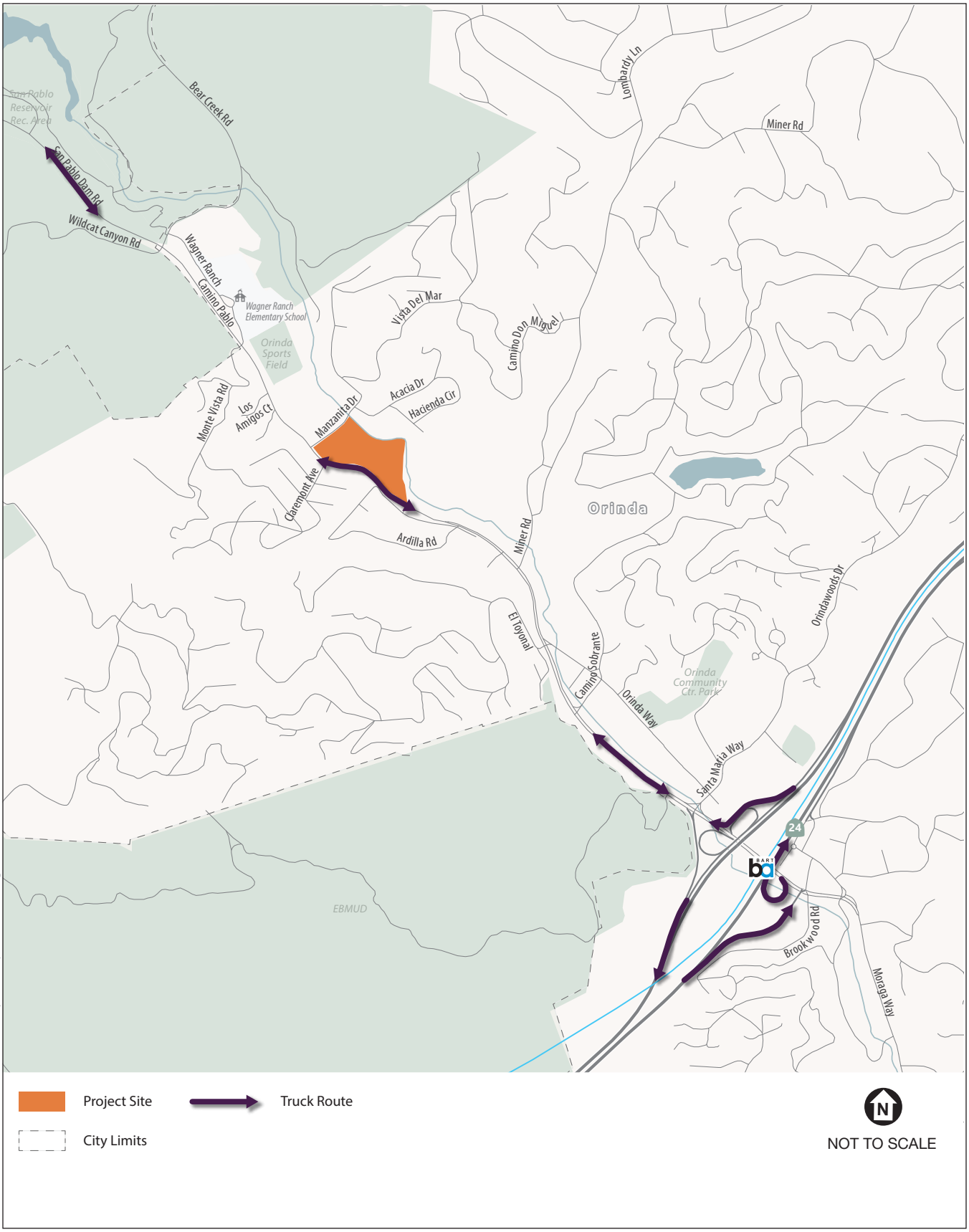
Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines,* an impact would be considered significant if the Project would:

1. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
2. Conflict or be inconsistent with *CEQA Guidelines* Section 15064.3, Subdivision (b).
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
4. Result in inadequate emergency access.

With respect to Criterion 1, the WTTIP EIR evaluated the potential effect of increases in ADT on the roadway network. For this Supplemental EIR analysis, however, a more detailed level of service operational analysis at the intersection level was conducted to capture potential impacts that could occur during Project construction. This includes potential impacts on CMP-designated facilities (i.e., Highway 24 and I-80; refer to Section 3.13.2 for a description of CMP designations).

With respect to Criterion 2, the WTTIP EIR did not evaluate consistency with *CEQA Guidelines* Section 15064.3, Subdivision (b), as that criterion was introduced as part of the December 2018 update to the *CEQA Guidelines*, which occurred after the WTTIP EIR was certified. As discussed above in Section 3.13.2, Regulatory Framework, the City of Orinda is currently engaged in the process of transitioning from using delay and LOS to measure transportation impacts to using VMT, and has not yet formally adopted its updated transportation significance thresholds or its updated transportation impact analysis procedures. Because the regulations of SB 743 have not been finalized or adopted by the City of Orinda, this Supplemental EIR uses automobile delay for discussion and analysis though VMT remains the measure used to determine the significance of a traffic impact per the *CEQA Guidelines*.



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SOURCE: Fehr & Peers, 2020

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.13-4
Truck Routing Plan

ESA

Adopted WTTIP Mitigation Measures

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. Table 3.13-5 presents adopted mitigation measures from the WTTIP EIR that relate to transportation to and from the Orinda WTP site.

TABLE 3.13-5
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR TRANSPORTATION FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.8-1	The District will incorporate into contract specifications for the project the following requirements: • The contractor(s) will obtain any necessary road encroachment permits prior to construction and will comply with conditions of approval attached to project implementation. As part of the road encroachment permit process, the contractor(s) will prepare a traffic safety / traffic management plan (for work in the public right of-way), in accordance with professional traffic engineering standards, for review and approval by EBMUD. The plan will be submitted to the agencies having jurisdiction over the affected roads. Elements of the plan will likely include, but are not necessarily limited to, the following: – Develop circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible. Use flaggers and/or signage to guide vehicles through and/or around the construction zone. – Control and monitor construction vehicle movements through the enforcement of standard construction specifications by periodic onsite inspections. – To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours. – Limit lane closures during peak hours to the extent possible (and unless otherwise approved by the local agency). Restore roads and streets to normal operation by covering trenches with steel plates outside of allowed working hours or when work is not in progress. ~~– As approved by the local agency, limit, where possible, the pipeline construction work zone to a width that, at a minimum, maintains alternate one-way traffic flow past the construction zone. Parking may be prohibited if necessary to facilitate construction activities or traffic movement. If the work zone width will not allow a 10-foot-wide paved travel lane, then the road will be closed to through traffic (except emergency vehicles) and detour signing on alternative access streets will be used.~~ – As approved by the local agency, include signage to direct pedestrians and bicyclists around construction work zones that displace sidewalks or bike lanes. – As approved by the local agency, store all equipment and materials in designated contractor staging areas on or adjacent to the worksite, in such a manner to minimize obstruction to traffic. – As approved by the local agency, identify locations for parking by construction workers within the construction zone or, if needed, at a nearby location with transport to and from the worksite provided. – Comply with roadside safety protocols. Provide "Road Work Ahead" warning signs and speed control (including signs informing drivers of state-legislated double fines for speed infractions in a construction zone) to achieve required speed reductions for safe traffic flow through the work zone. – Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, transit stations, hospitals, and schools. Provide advance notification to the facility owner or operator of the timing, location, and duration of construction activities and the locations of detours and lane closures. – Coordinate construction activities, to extent possible, to minimize traffic disturbances adjacent to schools (e.g., do work during summer months when there is less activity at schools). ~~For construction activities that occur during the school year, then at the start and end of the school day at schools adjacent to a pipeline project (e.g., Bentley School on El Nido Ranch Road, and Campolindo High School on Moraga Road), the contractor(s) will provide flaggers in the school~~

TABLE 3.13-5 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR TRANSPORTATION FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.8-1 (cont.)	~~areas to ensure traffic and pedestrian safety.~~ During periods when school children at the Wagner Ranch Elementary School are walking to and from school in the morning and in the afternoon on the asphalt trail along the north side of Camino Pablo, when construction truck traffic is present near the trail, the contractor(s) will provide flaggers and crossing guards (the latter as needed to supplement the school-provided crossing guards) to ensure pedestrian and traffic safety. School arrival and departure schedules will be monitored for changes such as vacation periods, and the school traffic and pedestrian safety plan will be modified as needed. – Coordinate with the County Connection so the transit provider can temporarily relocate bus routes or bus stops in work zones as it deems necessary. – To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule construction of project elements to avoid overlapping maximum trip-generation construction phases. – ~~The District will hold coordination meetings with the City of Orinda, the Orinda Unified School District, and the Moraga-Orinda Fire District to minimize the impact of road closures on Miner Road.~~ – As part of the coordination with school administrators, the District will coordinate with providers of school bus service regarding road closures, delays and detours during times that school buses run. – The contractor(s) will post all construction sites with signs that state the permitted hours of construction. Those signs will identify the construction project as initiated by EBMUD, and will provide contact information for inquiries or comments. – ~~Provide advance notification to property owners along Glen Road, Nordstrom Lane, Hilltop Drive and Hastings Court regarding road closures associated with the Glen Pipeline Improvements project. Signs will be posted at the location of the road closure at least two weeks in advance, and notices will be mailed to property owners at least three weeks in advance.~~
~~3.8-2~~	~~Implement Measure 3.8-1, which stipulates actions required of contractor(s) to reduce traffic flow impacts to a less-than-significant level.~~ ~~Access impacts on roads for which no detour routing is available would be significant and unavoidable.~~
~~3.8-3~~	~~Implement Measure 3.8-1, which stipulates actions required of contractor(s) to reduce parking impacts to a less-than-significant level.~~
3.8-4	Implement adopted WTTIP Mitigation Measure 3.8-1, which stipulates actions required of contractor(s) to reduce potential traffic safety impacts to a less-than-significant level.
~~3.8-5~~	~~Implement Measure 3.8-1, which stipulates actions required of contractor(s) to reduce access impacts to a less-than-significant level.~~ ~~Access impacts on roads for which no detour routing is available would be significant and unavoidable.~~
~~3.8-6~~	~~Implement Measure 3.8-1, which stipulates actions required of contractor(s) to reduce impacts to transit service to a less-than-significant level.~~ ~~Transit impacts on roads for which adequate replacement routing for bus lines is not available would be significant and unavoidable.~~

NOTE: Strikethrough text indicates text in the adopted WTTIP mitigation measures that does not relate to the Project. Text that is underlined is included to address typographical errors in the original mitigation language or to add clarifying language to the adopted WTTIP Mitigation Measures.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact TRA-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. (Criterion 1)

Construction

Following the methodology described above in *Methodology for Analysis*, the Project trip generation estimate in and out of the Orinda WTP site is summarized in Table 3.13-6.

TABLE 3.13-6
PROJECT TRIP GENERATION ESTIMATES IN AND OUT OF THE ORINDA WTP SITE

Trip Type	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out	Total	In	Out
Workers	40	40	0	0	0	0	40	0	40
Trucks	16	8	8	20	10	10	16	8	8
Trucks PCE (1:2)[a]	32	16	16	40	20	20	32	16	16
Total PCE[b]	**72**	**56**	**16**	**40**	**20**	**20**	**72**	**16**	**56**

NOTE:
[a] PCE: Passenger car equivalent (1 truck = 2 passenger cars).
[b] Total equal to work vehicle trips combined with passenger car equivalents (i.e., "Workers" + "Trucks PCE (1:2)").

SOURCE: Fehr & Peers, 2020.

The WTTIP EIR assumed construction traffic would consist of a maximum of up to 21 trucks per hour and 120 worker vehicle trips per hour. The WTTIP EIR also determined that the percent increase in traffic volumes caused by Project-generated construction traffic on the arterials and freeways serving the Project site would not be substantial relative to background traffic conditions (i.e., the estimated maximum daily one-way vehicle trip generation would increase the daily traffic volume on area roadways by less than 3 percent, and by no more than about 0.2 percent on Highway 24), nor would Project traffic significantly disrupt daily traffic flow on these roadways.[3]

As noted above in Table 3.13-6, the Project is estimated to generate a maximum of approximately 20 hourly construction one-way truck trips (in the midday peak hour) and approximately 40 hourly worker one-way vehicle trips (in the AM and PM peak hours), which is lower than what was assumed for the WTTIP EIR.[4] Therefore, Project impacts would be the same or less than those identified in the WTTIP EIR. However, additional analysis was conducted as part of this Supplemental EIR to confirm this conclusion using

[3] Day-to-day traffic volumes typically vary by as much as 10 percent (i.e., ±5 percent), and an increase of less than that is unlikely to be perceptible to the average motorist. Evidence of traffic volume variations on study area roadways is provided in the raw ADT count data in Appendix G.

[4] The reason for the difference in construction truck and worker vehicle trips is that, since preparation of the WTTIP EIR, the specific details of the design for improvements at the Orinda WTP, which were not available when the WTTIP EIR was prepared, have been developed.

updated setting data in a roadway segment analysis and a detailed intersection LOS analysis.

Roadway Segment Analysis

Table 3.13-7 shows the ADT at the seven study roadway segments under existing and Project conditions. As shown in Table 3.13-7, Project-generated worker vehicle and truck trips along six of the seven study roadway segments would represent a 0.5-percent or less increase in traffic. The changes in daily traffic at these six study roadway segments are within the typical daily fluctuations experienced on roadways (plus or minus 10 percent) and therefore, do not represent a substantial increase in traffic.

TABLE 3.13-7
PROJECT-GENERATED INCREASES IN DAILY TRAFFIC VOLUMES AT STUDY ROADWAY SEGMENTS

Roadway	Location	Existing ADT	Project Trips	Percent Increase
1. Camino Pablo	South of Bear Creek Road/Wildcat Canyon Road	17,211	83	0.5%
2. Bear Creek Road	East of Camino Pablo	2,618	0	0.0%
3. Manzanita Drive	East of Camino Pablo	1,022	190	18.6%
4. Camino Pablo	South of Manzanita Drive	20,364	107	0.5%
5. Camino Pablo	South of Santa Maria Way	30,911	162	0.5%
6. Highway 24	Camino Pablo	188,000	136	0.1%
7. Interstate 80	Between San Pablo Avenue & Hilltop Drive	214,200	83	0.0%

SOURCE: Fehr & Peers, 2020; Caltrans, 2017.

Traffic volume increases caused by Project construction would be most noticeable on local-serving roadways. On Manzanita Drive, Project-generated traffic would result in an 18.6 percent increase in ADT; this is because all worker vehicle trips (40 trips during the AM peak period and 40 trips during the PM peak period) are assumed to enter and exit the Orinda WTP from the north gate entrance off Manzanita Drive. Also, construction truck traffic is assumed to leave the Orinda WTP from the north gate entrance. This traffic volume increase would occur along the approximately 300-foot-long segment of Manzanita Drive between the Camino Pablo intersection and the north gate of the Orinda WTP.

As described in Table 3.13-5, adopted WTTIP Mitigation Measure 3.8-1 would require the contractor to prepare a Traffic Control Plan to minimize impacts on traffic circulation on local streets, which would include Manzanita Drive at the north gate. To maintain safe traffic circulation, the Traffic Control Plan would identify specific measures around the Project site during periods of construction with heavy truck traffic (such as during concrete pours). The Traffic Control Plan would include measures such as signs (e.g., “Road Work Ahead” warning signs, speed control signs, and signage to direct vehicles around the construction work zones), flashing lights, barricades, flaggers, and other traffic safety devices to minimize impacts on circulation on the streets surrounding the Project site. Mitigation Measure TRA-1 implements measures for heavy construction vehicle traffic safety monitoring, including requiring the contractor to: distribute written traffic safety requirements to all heavy construction vehicle drivers, obtain drivers’ written

acknowledgement of the traffic safety requirements, provide radar speed feedback signs on Camino Pablo to reduce vehicle speeds, and coordinate with the Orinda Police Department (OPD) on the Project construction schedule and OPD officer patrol car services along construction access routes within the city of Orinda.

Intersection Analysis

Peak-hour intersection operations with construction traffic volumes assigned to the roadway network are summarized in Table 3.13-8. As shown in Table 3.13-8, the addition of Project-generated construction traffic would not result in an increase in intersection delay large enough to exceed the LOS standard at any of the study intersections that operate at or above the LOS standards in any peak period under existing conditions. At Camino Pablo and Claremont Avenue (study intersection number 8), the LOS would decrease, but under Project conditions, the intersection would still operate above the City of Orinda LOS standard as described in the General Plan. Project-generated construction traffic also would not result in an increase in intersection delay large enough to degrade intersections already exceeding the LOS standard in any peak period under existing conditions. All of the study intersections that currently operate below the City of Orinda LOS standards based on the General Plan would continue to do so under Project conditions, including Camino Pablo and Manzanita Drive (study intersection number 9). As such, the Project construction would not result in changes in intersection delays that would conflict with an applicable plan or policy related to traffic operations, and impacts would be less than significant.

Congestion Management Program

As described above in Section 3.13.2, Regulatory Framework, CCTA is responsible for developing and updating the CMP, which identifies a LOS E standard for the freeway segments along Highway 24 and I-80 in the vicinity of the Project site.

As shown in Table 3.13-7, Project construction would generate approximately 136 daily vehicle trips (PCEs) on Highway 24 at Camino Pablo and 83 daily vehicle trips (PCEs) on I-80 at San Pablo Dam Road. Applying the trip distribution patterns shown in Figure 3.13-3, Project construction would generate approximately 14 worker vehicle trips and four concrete delivery truck trips on I-80 during both the AM (inbound) or PM (outbound) peak hours. On Highway 24, Project construction would generate a maximum of 26 worker vehicle trips and 12 concrete delivery truck trips during both the AM (inbound) or PM (outbound) peak hours. The effects on midday peak-hour traffic would be less, since it is assumed there would be no worker vehicle trips during this time period. The temporary increase in Project-generated traffic would be less than significant in relation to the existing traffic load and capacity of the street system because the percent increase in traffic volumes on Highway 24 and I-80 (less than 1 percent) would not be substantial relative to background traffic conditions, and would not significantly disrupt traffic flow on these roadways or affect LOS. The magnitude of these increases is within the range of typical daily variation in traffic levels (usually on the order of plus or minus ten percent) on the major roadways serving the Project site, and roadway operating conditions on these roadways would remain similar to current conditions. Therefore, the

Project construction would not conflict with the established CCTA standards for its CMP, and impacts would be less than significant.

TABLE 3.13-8
INTERSECTION LEVEL OF SERVICE: EXISTING PLUS PROJECT WEEKDAY AM, MIDDAY, AND PM PEAK HOURS

Intersection	Peak Hour[a]	Existing		Existing Plus Project	
		Delay (seconds)[b]	LOS	Delay (seconds)[b]	LOS
1. Camino Pablo & Highway 24 Eastbound Off-Ramp[c]	AM	45.9	D	46.0	D
	MD	42.7	D	42.7	D
	PM	**105.3**	**F**	**105.3**	**F**
2. Camino Pablo, Santa Maria Way, & Camino Pablo Southbound/Highway 24 Westbound On-Ramp	AM	15.1	B	15.3	B
	MD	14.1	B	14.2	B
	PM	23.3	C	23.4	C
3. Camino Pablo & Camino Sobrante	AM	7.2	A	7.2	A
	MD	17.5	B	17.5	B
	PM	**87.0**	**F**	**88.1**	**F**
4. Camino Pablo & Orinda Way/El Toyonal	AM	12.9	B	12.9	B
	MD	26.0	C	26.0	C
	PM	**82.9**	**F**	**84.4**	**F**
5. Camino Pablo & Miner Road	AM	15.0	B	15.0	B
	MD	15.0	B	15.0	B
	PM	39.6	D	40.2	D
6. Camino Pablo & Ardilla Road	AM	1.4	A	1.4	A
	MD	2.4	A	2.4	A
	PM	2.9	A	3.0	A
7. Camino Pablo & Orinda WTP South Gate Entrance/Unnamed Road	AM	1.5	A	1.5	A
	MD	15.5	B	15.7	B
	PM	13.5	B	14.4	B
8. Camino Pablo & Claremont Avenue	AM	5.0	A	5.3	A
	MD	7.3	A	7.3	A
	PM	7.8	A	10.1	B
9. Camino Pablo & Manzanita Drive	AM	25.6	C	33.0	C
	MD	3.0	A	3.0	A
	PM	**56.8**	**E**	**57.5**	**E**
10. Camino Pablo & Los Amigos Court/ Sports Field	AM	**55.2**	**E**	**59.7**	**E**
	MD	1.4	A	1.4	A
	PM	22.2	C	26.7	C
11. Camino Pablo & Monte Vista Road/ Wagner Ranch	AM	**55.7**	**E**	**60.7**	**E**
	MD	5.5	A	5.5	A
	PM	30.5	C	33.6	C
12. Camino Pablo & Wildcat Canyon Road/Bear Creek Road	AM	**87.5**	**F**	**90.0**	**F**
	MD	10.5	B	10.5	B
	PM	**52.8**	**D**	**53.9**	**D**

NOTES:

a AM = morning; MD = midday; PM = evening.
b Average stop delay per vehicle, measured in seconds.
c LOS reported in HCM 2000.

BOLD text indicates exceedance of City of Orinda LOS standard.

SOURCE: Fehr & Peers, 2020.

Transit

County Connection operates one bus route (Route 6) in the vicinity of the Project site, and the nearest stop to the Project site is in the southbound direction of Camino Pablo south of the intersection of Camino Pablo and El Toyonal (study intersection number 4), approximately 0.5 miles south of the Project site. Project construction activities would not generate a substantial number of transit riders because most construction workers would likely drive to and from the Project site as described in this section above in *Methodology for Analysis – Construction Worker Vehicle Trips*. The Project access routes for construction traffic (which would support a maximum of approximately 20 hourly construction one-way truck trips and approximately 40 worker vehicle one-way trips) would partially overlap with the operation of Route 6 along Camino Pablo. However, the conflicts between construction traffic and transit vehicles would be minor due to the limited service frequency for Route 6 (i.e., approximately three trips per day), and the volumes of construction traffic which, as described above, result in increases in traffic volume that are within the range of typical daily variation in traffic levels.

OIS Route 11, operated as part of the Lamorinda School Bus Program, loads and unloads students on the north side of Manzanita Drive once in the morning (8:08 a.m.) and once in the afternoon (4:08 p.m.) across the street from the north gate of the Orinda WTP site. As described in Table 3.13-5, adopted WTTIP Mitigation Measure 3.8-4 requires the contractor to reduce potential safety impacts to a less-than-significant level and relies on adopted WTTIP Mitigation Measure 3.8-1 to achieve that. Adopted WTTIP Mitigation Measure 3.8-1 would require the contractor to prepare a Traffic Control Plan to minimize impacts on pedestrian circulation on local streets, which would include school bus passengers traveling to and from the OIS bus stop. To maintain safe pedestrian circulation, the Traffic Control Plan would identify specific measures around the Project site during periods of construction with heavy truck traffic (such as during concrete pours). The Traffic Control Plan would include measures such as signs (e.g., "Road Work Ahead" warning signs, speed control signs, and signage to direct pedestrians around the construction work zones), flashing lights, barricades, flaggers, and other traffic safety devices to minimize impacts on circulation on the streets surrounding the Project site. Mitigation Measure TRA-1 implements measures for heavy construction vehicle traffic safety monitoring, including requiring the contractor to: distribute written traffic safety requirements to all heavy construction vehicle drivers, obtain drivers' written acknowledgement of the traffic safety requirements, provide radar speed feedback signs on Camino Pablo to reduce vehicle speeds, and coordinate with the OPD on the Project construction schedule and OPD officer patrol car services along construction access routes within the city of Orinda.

Based on the discussion above, the Project would not result in changes in transit or school bus access or operation that would conflict with an applicable plan or policy related to transit, and impacts would be less than significant.

Bicycle Circulation

As noted above in Section 3.13.1, Environmental Setting, bicycle activity near the Project site is focused on Camino Pablo, which has predominantly Class III bicycle facilities with a 0.3-mile long segment of a Class I facility on the east side of the road between Manzanita

Drive and Wagner Ranch/Monte Vista Road. Bicycle volumes were observed to be low with, on average, less than 10 bicyclists present at all of the study intersections during all three evaluated peak hours. The highest recorded bicycle volume was 18, which was observed during the AM peak hour at the Camino Pablo/Claremont Avenue intersection (study intersection number 8). The increased construction traffic on public roadways would potentially decrease the safety of bicyclists due to the presence of large construction vehicles (e.g., haul trucks) using local roadways (such as Camino Pablo and Bear Creek Road) during Project construction. As described in Table 3.13-5, adopted WTTIP Mitigation Measure 3.8-1 would require the contractor to prepare a Traffic Control Plan to minimize impacts on bicycle circulation on local streets. To maintain safe bicycle circulation, the Traffic Control Plan would identify specific measures around the Project site during periods of construction with heavy truck traffic (such as during concrete pours). In compliance with the California Manual on Uniform Traffic Control Devices (CA MUTCD), the Traffic Control Plan would include measures such as signs (e.g., "Road Work Ahead" warning signs, speed control signs), flashing lights, barricades, and other traffic safety devices to minimize impacts on circulation on the streets surrounding the Project site. Mitigation Measure TRA-1 implements measures for heavy construction vehicle traffic safety monitoring, including requiring the contractor to: distribute written traffic safety requirements to all heavy construction vehicle drivers, obtain drivers' written acknowledgement of the traffic safety requirements, provide radar speed feedback signs on Camino Pablo to reduce vehicle speeds, and coordinate with the OPD on the Project construction schedule and OPD officer patrol car services along construction access routes within the city of Orinda. Therefore, the Project would not result in changes in bicycle use or safety that would conflict with an applicable plan or policy related to bicycle use, and impacts would be less than significant.

Pedestrian Circulation

Worker parking and staging areas would be provided on site during Project construction; therefore, construction activities would not generate a substantial number of pedestrian trips to and from the Project site. The pedestrian volumes in the vicinity of the Project site are generally low, with fewer than 20 pedestrian crossings observed at most study intersections during all three of the evaluated peak hours. The exception is at Camino Pablo and Highway 24 Eastbound Off-Ramp (study intersection number 1), where 57 pedestrian crossings were observed during the AM peak hour. The higher level of pedestrian activity observed at this location is assumed to be a result of the proximity of the Orinda BART station, located approximately 550 feet west of the intersection. Based on the low level of pedestrian activity and the volumes of construction traffic which, as described above, result in increases in traffic volume that are within the range of typical daily variation in traffic levels, potential conflicts between pedestrians and construction traffic would generally be low. As described in Table 3.13-5, adopted WTTIP Mitigation Measure 3.8-1 would require the contractor to prepare a Traffic Control Plan to minimize impacts on pedestrian circulation on local streets.

Adopted WTTIP Mitigation Measure 3.8-1 includes mitigation to minimize traffic disturbances adjacent to schools, including providing flaggers and crossing guards to ensure pedestrian and traffic safety near Wagner Ranch Elementary School. Mitigation

includes traffic control measures designed to comply with the CA MUTCD, such as signs (e.g., "Road Work Ahead" warning signs, speed control signs), flashing lights, barricades, limits to when construction traffic could occur, and other traffic safety devices, that would address potential construction impacts on students traveling along the bicycle/pedestrian path on the east side of Camino Pablo proximate to the Project site and the surrounding staging areas as shown in Figure 2-10 (in Chapter 2, *Project Description*). Mitigation Measure TRA-1 implements measures for heavy construction vehicle traffic safety monitoring, including requiring the contractor to: distribute written traffic safety requirements to all heavy construction vehicle drivers, obtain drivers' written acknowledgement of the traffic safety requirements, provide radar speed feedback signs on Camino Pablo to reduce vehicle speeds, and coordinate with the OPD on the Project construction schedule and OPD officer patrol car services along construction access routes within the city of Orinda.

Because adopted WTTIP Mitigation Measure 3.8-1 would be implemented and requires a Traffic Control Plan and traffic safety devices (e.g., flaggers, etc.) to control traffic to minimize impacts on circulation on the streets surrounding the Project site, Mitigation Measure TRA-1 would be implemented and requires monitoring of heavy construction vehicle traffic, and adopted WTTIP Mitigation Measure 3.8-4 requires the contractor to reduce potential safety impacts by relying on adopted WTTIP Mitigation Measure 3.8-1, impacts from Project construction on the circulation system or the safety of transit, roadway, bicycle, and pedestrian facilities would be less than significant.

Operation

After completion, the Project would be routinely inspected by EBMUD operations and maintenance staff. Vehicle trips generated by Project operations would remain the same as existing conditions; maintenance activities would require the dedication of one or two EBMUD employees per day, which would be staffed by the existing crew sited at the Orinda WTP. Although most maintenance activities would be conducted by staff already on site, one truck trip per month on average is anticipated for operation and maintenance activities. There would be no impact from long-term Project operations on traffic safety, or performance of transit, roadways, bicycle lanes, or pedestrian facilities.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.8-1 and 3.8-4 (Refer to Table 3.13-5 for the full text of adopted mitigation measures).

Mitigation Measure TRA-1: Heavy Construction Vehicle Traffic Safety Monitoring.

- EBMUD's Contractor shall distribute written traffic safety requirements to all Contractor heavy construction vehicle drivers. All drivers shall provide

signed acknowledgement of having read and understood all traffic safety requirements and consequences of non-compliance.

- Written traffic safety requirements shall include:
  - Construction work hours specifying when construction traffic would be allowed to access the Orinda WTP and staging areas.
  - Construction haul routes and associated speed limits.
  - Designated parking and queuing locations.
- Contractor shall provide Project sticker or equivalent to drivers who have provided written acknowledgement of traffic safety requirements.
  - Project sticker shall be made available upon request by EBMUD during the construction contract period.
- Contractor shall record all heavy construction traffic vehicle license plates and driver's license numbers upon entrance to the Orinda WTP and maintain a daily log of Project heavy construction traffic vehicles and drivers.
- Contractor heavy construction vehicle drivers shall conform to designated construction hours, including no driving, queuing, idling or parking on local roadways outside of designated construction hours as outlined in written traffic safety requirements.
- Contractor heavy construction vehicle drivers shall use only designated construction traffic haul routes.
- Contractor shall provide Radar Speed Feedback Signs along construction access routes within the City of Orinda for the entire Project duration (two, one in each direction of traffic on Camino Pablo) to deter speeding by heavy construction vehicles on construction traffic routes.
- EBMUD and Contractor shall coordinate weekly with the Orinda Police Department (OPD) on the Project construction schedule and OPD officer patrol car services along construction access routes within the City of Orinda during periods of high construction traffic (i.e., soil off-haul and concrete delivery activities where soil off-haul and concrete delivery trucks to and from the Orinda WTP are greater than 4 truck roundtrips per hour) to monitor and enforce local roadway traffic regulations, including ticketing any violators.
- Contractor heavy construction vehicle drivers shall comply with roadway traffic safety rules as outlined in written traffic safety requirements, including, but not limited to:
  - Stoplight signals and stop signs.

– Roadway speed limits (reduced speeds in construction zones and near schools).

Significance Determination After Mitigation

Less than significant.

Impact TRA-2: Conflict or be inconsistent with *CEQA Guidelines* Section 15064.3, Subdivision (b). (Criterion 2)

As discussed above in *Significance Criteria*, the WTTIP EIR did not evaluate this criterion, as the criterion was introduced as part of the December 2018 update to the current *CEQA Guidelines*, which occurred after the WTTIP EIR was certified.

CEQA Guidelines Section 15064.3(a) states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project", where, in accordance to guidance provided by OPR (OPR, December 2018), automobiles refer to on-road passenger vehicles, specifically cars and light trucks. For this reason, the focus of this VMT analysis is on passenger vehicle (i.e., cars and light trucks) trips generated by the Project. However, this Supplemental EIR also includes an analysis of GHG emissions associated with heavy truck traffic generated by the Project (as well as other traffic), and addresses potential significant transportation impacts of all Project vehicles – including heavy trucks – related to air quality, noise, and safety.

Construction

To the extent practicable VMT for construction have been minimized for the Project by locating major construction staging areas on or within walking distance of the Project site, and by requiring carpooling of construction workers to and from the San Pablo Reservoir Staging Area to the Project site.

CEQA Guidelines Section 15064.3(b)(3) refers to the use of qualitative analysis of construction-related VMT. OPR's Technical Guidelines (OPR, 2018) provide a screening criterion that could be used to determine if VMT analysis is warranted for small projects, which are defined as projects that would generate fewer than 110 trips per day and may generally be assumed to cause a less-than-significant transportation impacts. As shown in Table 3.13-6, the Project would generate a maximum of 80 worker trips per day, which includes 40 inbound trips during the AM peak hour and 40 outbound trips during the PM peak hour. Therefore, daily passenger vehicle trips generated by the Project would be well below OPR's recommended small project screening criterion threshold of 110 trips per day.

Because the Project minimizes the VMT to the extent practicable by locating major construction areas on or within walking district of the Project site, and by requiring carpooling of construction workers from the San Pablo Reservoir Staging Area to and from the Project site, and because the Project worker vehicles (80 vehicles per day) are

fewer than the OPR's screening threshold for small projects (110 vehicles per day), the construction impacts related to *CEQA Guidelines* Section 15064.3(b) would be less than significant.

Operation

Public services (e.g., police, fire stations, public utilities) do not generally generate VMT. Instead, these land uses are often built in response to development from other land uses (e.g., office and residential). Upon completion of Project construction, the Project would not generate any new trips, except for occasional maintenance, similar to existing conditions, meaning that VMT with Project operations would not change as compared to existing VMT. Therefore, operational impacts related to *CEQA Guidelines* Section 15064.3(b) would be less than significant.

Significance Determination Before Mitigation

Less than significant. No mitigation measures required.

Mitigation Measures

None required.

Impact TRA-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (Criterion 3)

Construction

The WTTIP EIR did not address the Project's potential to substantially increase hazards due to a geometric design feature or incompatible uses because, at the time the WTTIP EIR was prepared, this significance criterion was not one of the five significance criteria used to determine the significance of the WTTIP project. The increased construction traffic on public roadways could potentially decrease the safety of vehicles, bicyclists, and pedestrians because larger construction vehicles would temporarily and intermittently reduce the capacity of local roadways due to their slower movements and larger turning radii. For the most part, construction trucks would access the Project site via the south gate entrance off of Camino Pablo and exit via the north gate at Manzanita Drive, with additional truck movements occurring directly off of Camino Pablo for access to/from construction staging areas (refer to Figure 2-10 in Chapter 2, *Project Description*). For the reasons noted above, truck turning movements at these locations could conflict with existing vehicles, pedestrians, and bicyclists along Manzanita Drive, Camino Pablo, and San Pablo Dam Road, resulting in a potentially significant impact.

As described in Table 3.13-5, adopted WTTIP Mitigation Measure 3.8-4 requires the contractor to reduce potential safety impacts to a less-than-significant level and relies on adopted WTTIP Mitigation Measure 3.8-1 to achieve that. Adopted WTTIP Mitigation Measure 3.8-1 requires a Traffic Control Plan that conforms to the most current version

of the Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones. The Traffic Control Plan would identify specific measures to control traffic and provide guidance to motorists as to when and how to safely move around the Project site during construction. Additionally, the contractors would be required to use traffic signs, flashing lights, barricades, and other traffic safety devices to control traffic to minimize impacts on circulation on the streets surrounding the Project site.

As described under *Roadway Segment Analysis* above, the Project would increase average daily traffic on Manzanita Drive by roughly 19 percent and, as such, increased truck turning movements may pose a potentially significant hazard at Manzanita Drive. As described in Table 3.13-5, adopted WTTIP Mitigation Measure 3.8-4 requires the contractor to reduce potential safety impacts to a less-than-significant level and relies on adopted WTTIP Mitigation Measure 3.8-1 to achieve that. Adopted WTTIP Mitigation Measure 3.8-1 would require the contractor to prepare a Traffic Control Plan to minimize impacts on traffic circulation on local streets, which would include Manzanita Drive in front of the north gate. To maintain safe traffic circulation, the Traffic Control Plan would identify specific measures around the Project site during periods of construction with heavy truck traffic (such as during concrete pours). The Traffic Control Plan would include measures such as signs (e.g., "Road Work Ahead" warning signs, speed control signs, and signage to direct vehicles around the construction work zones), flashing lights, barricades, flaggers, and other traffic safety devices to minimize impacts on circulation on the streets surrounding the Project site. Mitigation Measure TRA-1 implements measures for heavy construction vehicle traffic safety monitoring, including requiring the contractor to: distribute written traffic safety requirements to all heavy construction vehicle drivers, obtain drivers' written acknowledgement of the traffic safety requirements, requires the contractor to provide radar speed feedback signs on Camino Pablo to reduce vehicle speeds, and coordinate with the OPD on the Project construction schedule and OPD officer patrol car services along construction access routes within the City of Orinda. Adopted WTTIP Mitigation Measure 3.8-1 and Mitigation Measure TRA-1 would reduce the potentially significant hazard caused by increased truck turning movements and overall traffic on Manzanita Drive to a less than significant level.

The WTTIP EIR assumed that major arterials, such as Camino Pablo, and collector streets were designed and constructed to handle a mix of vehicle types, including heavy trucks, but that pavement conditions on residential streets may be potentially impacted by increased construction traffic. The WTTIP EIR found that the Project's impacts to major arterials, such as Camino Pablo, would be negligible. Deteriorated pavement conditions due to construction traffic could introduce a road hazard from unsafe conditions in the roadway for vehicular and bicycle traffic on collector and residential roadways. Therefore, Mitigation Measure TRA-2, Pavement Monitoring, is proposed to mitigate potential impacts on pavement conditions on residential roadways subjected to Project construction traffic. Mitigation Measure TRA-2 would require video documentation of pre- and post-Project roadway conditions on Manzanita Drive, a residential roadway to be used to transport construction-related equipment and materials to the Project site and staging areas. Mitigation Measure TRA-2 would require that pavement damaged by Project construction traffic be structurally repaired to pre-Project conditions.

Because adopted WTTIP Mitigation Measure 3.8-4 requires the contractor to implement adopted WTTIP Mitigation Measure 3.8-1, which requires a Traffic Control Plan and traffic safety devices, such as flaggers, etc., to control traffic to minimize impacts on circulation on the streets surrounding the Project site, Mitigation Measure TRA-1 requires monitoring of heavy construction vehicle traffic, and Mitigation Measure TRA-2 requires monitoring of, and if necessary rehabilitation of pavement conditions on, the portion of Manzanita Drive that would be used by Project-related vehicles, the Project's impacts related to traffic hazards would be reduced to a less-than-significant level.

Operation

After completion, the Project would be routinely inspected by EBMUD operations and maintenance staff. Vehicle trips generated by Project operations would remain the same as existing conditions; maintenance activities would require the dedication of one or two EBMUD employees per day, which would be staffed by the existing crew sited at the Orinda WTP. Although most maintenance activities would be conducted by staff already on site, one truck trip per month on average is anticipated for operation and maintenance activities. The Project would not include any permanent physical changes in the roadways surrounding the Project site that would create hazardous conditions for vehicles, pedestrians, or bicyclists. Therefore, the Project's operational impact related to traffic hazards would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.8-1 and 3.8-4 (Refer to Table 3.13-5 for the full text of adopted mitigation measures).

Mitigation Measure TRA-1: Heavy Construction Vehicle Traffic Safety Monitoring. (Refer to Impact TRA-1 above, for the full text of Mitigation Measure TRA-1.)

Mitigation Measure TRA-2: Pavement Monitoring.

Prior to Project construction, EBMUD shall require the contractor(s) to video document pavement conditions for the portion of Manzanita Drive, a residential roadway, that will be used by Project-related vehicles. Pavement conditions shall also be documented after Project construction is complete. Pavement damaged by construction-related traffic shall be repaired to a structural condition equal to that which existed prior to Project construction activity.

Significance Determination After Mitigation

Less than significant.

Impact TRA-4: Result in inadequate emergency access. (Criterion 4)

The evaluation of Impact TRA-4 below is specific to Project elements or construction activities that may cause delays to emergency responders or block emergency access to the Project site or surrounding properties. The potential for the Project to impair the implementation of, or physically interfere with, adopted emergency response plans or emergency evacuation plans is discussed in Section 3.9, Hazards and Hazardous Materials, and Section 3.15, Wildfire.

Construction

The WTTIP EIR addressed the potential for delays and blocked access for emergency responders in Section 3.8, Traffic and Circulation, and concluded that construction activities related to pipeline installation would impede access for emergency response vehicles. Project construction activities would not involve pipeline installation or require any planned detours, full roadway closures, or partial lane closures within the public right-of-way. As described in Table 3.13-5, adopted WTTIP Mitigation Measure 3.8-4 requires the contractor to reduce potential safety impacts to a less-than-significant level and relies on adopted WTTIP Mitigation Measure 3.8-1 to achieve that. Adopted WTTIP Mitigation Measure 3.8-1 requires a Traffic Control Plan, including a description of emergency response vehicle access. The Traffic Control Plan would include specific measures to control traffic and provide guidance to motorists, pedestrians, and bicyclists as to when and how to safely move around the Project site during construction. Because the Traffic Control Plan would require coordination with facility owners or administrators of nearby police and fire stations, transit stations, schools, and hospitals, providing advance notification of the timing, location, and duration of construction activities to ensure that emergency responders have access during the construction period, impacts on emergency access would be less than significant.

Operation

After completion, the Project would be routinely inspected by EBMUD operations and maintenance staff. Vehicle trips generated by Project operations would remain the same as existing conditions; maintenance activities would require the dedication of one or two EBMUD employees per day, which would be staffed by the existing crew sited at the Orinda WTP. Although most maintenance activities would be conducted by staff already on site, one truck trip per month on average is anticipated for operation and maintenance activities. The existing street network currently accommodates access by emergency vehicles that travel to and around the Project site. Emergency vehicles would be able to access the roadways surrounding the Project site in the same way as under existing conditions. Therefore, the Project operational impacts on emergency vehicle access would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.8-1 and 3.8-4 (Refer to Table 3.13-5 for the full text of adopted mitigation measures).

3.13.4 References

Caltrans (California Department of Transportation), 2002. *Guide for the Preparation of Traffic Impact Studies*. December 2002.

Caltrans, 2017. *2017 Volumes on California State Highways*.

CCTA (Contra Costa Transportation Authority), 2019. *Update of the Contra Costa Congestion Management Program*. December 18, 2019.

City of Orinda, 1987. *City of Orinda General Plan* 1987 – 2007. Adopted May 20, 1987.

Contra Costa County, 2005. *Contra Costa County General Plan 2005-2020*. January 18, 2005.

EBMUD (East Bay Municipal Utility District), 2006. *Water Treatment and Transmission Improvements Program Final Environmental Impact Report*, SCH # 2005092019. November 2006.

EBMUD, 2019. *Truck and Worker Vehicle Trips Analysis for Orinda WTP Disinfection Improvements Project*. October 9, 2019.

Fehr & Peers, 2020. *Traffic and Circulation Technical Report – Orinda Water Treatment Plant Disinfection Improvement Project*. Prepared for EBMUD. February 2020.

Lamorinda School Bus Program, 2019. *Orinda Routes – 2019-2020*.

OPR (State of California Office of Planning and Research), 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December 2018.

Transportation Research Board, 2000. *Highway Capacity Manual, 4th Edition*.

Transportation Research Board, 2010. *Highway Capacity Manual, 5th Edition*.

3.14 Tribal Cultural Resources

This section describes the physical environmental and regulatory setting for tribal cultural resources, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts on tribal cultural resources that could result from the construction and operation of the Project.

3.14.1 Environmental Setting

Tribal cultural resources are defined as sites features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either on or eligible for the California Register of Historical Resources (California Register) or a local historic register, or the lead agency, at its discretion, chooses to treat the resource as a tribal cultural resource.

Although tribal cultural resources were not analyzed in the WTTIP EIR, existing cultural resources and the applicable environmental setting on the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.7, Cultural Resources (EBMUD, 2006). However, in recognition of the addition of Tribal Cultural Resource impacts to the Environmental Checklist Form found in Appendix G of the *CEQA Guidelines*, EBMUD has included an analysis of potential Tribal Cultural Resource in this Supplemental EIR. Section 3.5, Cultural Resources, of this Supplemental EIR, describes the natural and cultural background for the cultural resources and tribal cultural resources analysis as well as a summary of the background research, survey effort, and an evaluation of potential tribal cultural resources (refer to Section 3.5.1, Environmental Setting).

3.14.2 Regulatory Framework

Because tribal cultural resources were not analyzed in the WTTIP EIR, this Supplemental EIR notes laws and regulations that are applicable to tribal cultural resources in the vicinity of the Orinda WTP.

Federal Regulation

No applicable federal regulations specifically address tribal cultural resources.

State Regulations

In September 2014, the California Legislature passed Assembly Bill (AB) 52, which added provisions to the Public Resources Code (PRC) regarding the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. In particular, AB 52 now requires lead agencies to analyze project impacts on "tribal cultural resources" separately from archaeological resources (PRC Sections 21074; 21083.09). The bill defines "tribal cultural resources" in a new section of the PRC Section 21074. AB 52 also requires lead agencies to engage in additional consultation procedures with respect to California Native American tribes (PRC Sections 21080.3.1, 21080.3.2, 21082.3).

Specifically, PRC Section 21084.3 states:

a) Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.

b) If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2, the following are examples of mitigation measures that, if feasible, may be considered to avoid or minimize the significant adverse impacts:

    1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

    2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

        (A) Protecting the cultural character and integrity of the resource.

        (B) Protecting the traditional use of the resource.

        (C) Protecting the confidentiality of the resource.

    3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

    4) Protecting the resource.

Pursuant to AB 52, the Office of Planning and Research updated Appendix G of the *CEQA Guidelines* to provide sample questions regarding impacts on tribal cultural resources (PRC Section 21083.09). AB 52 applies to those projects for which a lead agency has issued a Notice of Preparation of an EIR or notice of intent to adopt a negative/mitigated negative declaration on or after July 1, 2015.

Local Regulations

No applicable local regulations specifically address tribal cultural resources.

3.14.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to tribal cultural resources and evaluates whether there would be significant environmental impacts given the proposed design and operating characteristics of the Project.

Impacts on tribal cultural resources are assessed in consultation with affiliated Native American tribes that have requested consultation in accordance with PRC Section 21080.3. This CEQA analysis considers whether the Project would cause damaging impacts on any tribal cultural resource, including archaeological resources and human remains.

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines,* an impact would be considered significant if the Project would:

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

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

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

Adopted WTTIP Mitigation Measures

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. The WTTIP EIR did not include any mitigation measures related to tribal cultural resources because tribal cultural resources were not included as a resource section in the *CEQA Guidelines* Appendix G when the WTTIP EIR was published in 2006. However, one adopted WTTIP mitigation measure related to cultural resources would also reduce impacts on tribal cultural resources. Table 3.14-1 presents an adopted mitigation measure from the WTTIP EIR that relates to tribal cultural resources at and in the vicinity of the Orinda WTP.

TABLE 3.14-1
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR CULTURAL RESOURCES FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.7-1a	EBMUD will include the following in ~~WTTIP~~ contract specifications for ground-disturbing activities, including excavation and grading. In the event of accidental discovery of cultural resources, such as structural features, bone, shell, artifacts, human remains, architectural remains (such as bricks or other foundation elements), or historic archaeological artifacts (such as antique glass bottles, ceramics, horseshoes, etc.), work will be suspended and EBMUD staff will be contacted. A qualified cultural resource specialist will be retained and will perform any necessary investigations to determine the significance of the find. EBMUD will then implement any mitigation deemed necessary for the recordation and/or protection of the cultural resources. In addition, pursuant to Sections 5097.97 and 5097.98 of the California Public Resources Code and Section 7050.5 of the California Health and Safety Code, in the event of the discovery of human remains, all work will be halted and the county coroner will be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission will be adhered to in the treatment and disposition of the remains.

NOTE: Strikethrough text indicates text in the adopted WTTIP mitigation measures that does not relate to the Project.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe. (Criterion 1)

As indicated above in Section 3.14.1, Environmental Setting, tribal cultural resources were not analyzed in the WTTIP EIR.

The results of the background research at the Northwest Information Center indicate that there are no archaeological tribal cultural resources within the Project site or staging areas, and that there is a low potential to uncover resources during Project implementation (NWIC, 2019). There are no tribal cultural resources listed or eligible for listing in the California Register, or in a local register of historical resources as defined in PRC Section 5020.1(k). In addition, EBMUD did not identify any resources to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

EBMUD has not received any requests for consultation related to the Project. Despite the low archaeological sensitivity, the possibility of inadvertent discovery cannot be entirely discounted, and could result in a potentially significant impact. Implementation of adopted WTTIP Mitigation Measure 3.7-1a would reduce impacts to a less-than-significant level by requiring work to halt in the event of an inadvertent discovery of cultural resources and/or human remains until a qualified cultural resources specialist can make any recommendations as to the significance of the find, and the county coroner is notified and the guidelines of the California Native American Heritage Commission are followed (refer to Table 3.14-1 for the full text of adopted WTTIP Mitigation Measure 3.7-1a). With implementation of adopted WTTIP Mitigation Measure 3.7-1a, the impact would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

> **Adopted WTTIP Mitigation Measures:** 3.7-1a (Refer to Table 3.14-1 for the full text of adopted mitigation measures).

3.14.4 References

EBMUD (East Bay Municipal Utility District), 2006. *Water Treatment and Transmission Improvements Program Final Environmental Impact Report*, SCH # 2005092019. November 2006.

NWIC (Northwest Information Center), 2019. Records search results from the California Historical Resources Information System (File No. 19-0389), August 29, 2019.

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3.15 Wildfire

This section describes the physical environmental and regulatory setting for wildfire, identifies the significance criteria used for determining environmental impacts, and evaluates potential impacts related to wildfire that could result from construction and operation of the Project. Also provided in this section is a map of High Fire Hazard Severity Zones in the Project area.

3.15.1 Environmental Setting

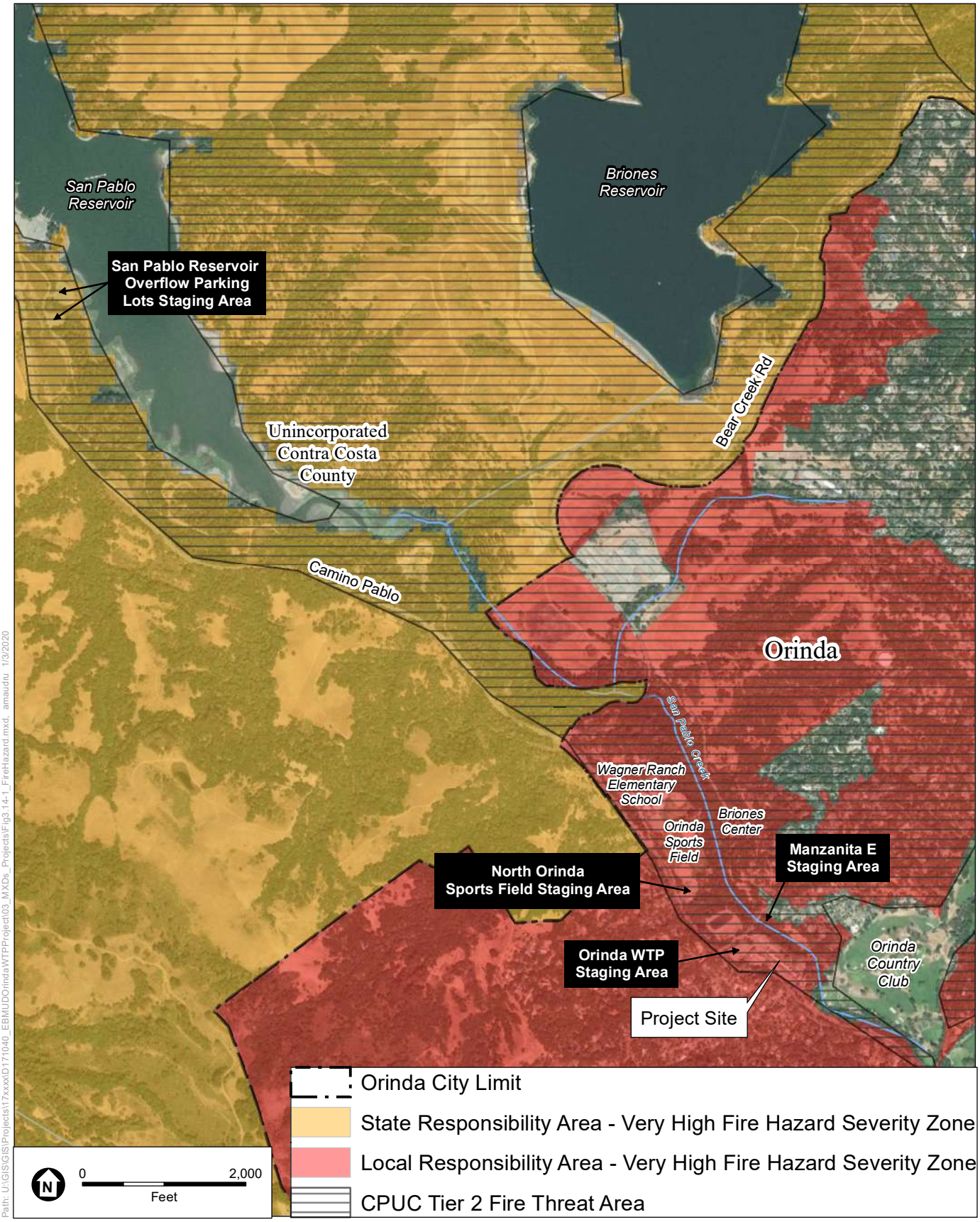
Although wildfire was not addressed as a full resource area in the WTTIP EIR, potential wildfire impacts and the applicable environmental setting on the Project site and in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.11, Hazards and Hazardous Materials (EBMUD, 2006). The WTTIP EIR described how the Public Resources Code (PRC) includes fire safety regulations that would be applicable to construction activities at the Orinda WTP. However, in recognition of the addition of Wildfire impacts to the Environmental Checklist Form found in Appendix G of the *CEQA Guidelines*, EBMUD has included an analysis of potential Wildfire impacts in this Supplemental EIR.

Given the recent extreme and devastating fire seasons in California, new requirements were added to the 2019 *CEQA Guidelines* to address a project's impacts related to wildfire hazards (Downey Brand, 2019). This section focuses on whether the Project is located in or near State Responsibility Areas (SRAs, where the state has financial responsibility for preventing and suppressing fires), or lands classified as a Very High Fire Severity Zone by local agencies in Local Responsibility Areas (LRAs).

As explained below, the California Department of Forestry and Fire Protection (CAL FIRE) publishes Fire Hazard Severity Zone Maps for all regions in California. The fire hazard measurements used as the basis for these maps include the speed at which a wildfire moves, the amount of heat the fire produces, and the firebrands (burning wood) that the fire sends ahead of the flaming front (Downey Brand, 2019).

CAL FIRE-Designated Wildfire Hazard Severity Zones

CAL FIRE has designated Draft Fire Hazard Severity Zones for both SRAs and LRAs. SRAs are the official boundaries where CAL FIRE (Santa Clara Unit) is the primary emergency response agency responsible for fire suppression and prevention (Board of Forestry and Fire Protection, 2019). LRAs include incorporated cities and densely populated areas. Fire protection within these areas is typically provided by city fire departments (for the city of Orinda, the Moraga-Orinda Fire District), fire protection districts, counties, and by CAL FIRE under contract to local governments. As indicated in WTTIP EIR Section 3.11.2, and as shown on Figure 3.15-1, the entirety of the Orinda WTP site and all staging areas are located within Very High Fire Hazard Severity Zones. All Project sites are in an LRA, with the exception of the San Pablo Reservoir Overflow Parking Lots staging area, which is in a CAL FIRE SRA.



SOURCE: CAL FIRE, 2009; ESA, 2020; ESRI, 2019.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 3.15-1
Fire Hazard in the Project Area

ESA

CPUC-Designated Wildfire Hazard Severity Zones

In response to devastating wildfires in 2007, the California Public Utilities Commission (CPUC) initiated Rulemaking 08-11-005 (R. 08-11-005) to consider and adopt regulations to protect the public from potential fire hazards associated with overhead power line facilities and nearby aerial communication facilities. Through R. 08-11-005 and the successor R. 15-05-006, the CPUC developed a statewide fire map which was adopted in January 2018 (CPUC, 2019). Through the CPUC's Fire Safety Rulemaking, the CPUC mapped high fire threat areas where more stringent requirements would be implemented because of the elevated risk for power line fires. The CPUC High Fire Threat District Map identifies three tiers of elevated risk for fires associated with utilities. As shown on Figure 3.15-1, the entirety of the Orinda WTP site and proposed staging areas are located in an area designated as Tier 2 within the High Fire Threat District. Tier 2 areas are defined as areas "where there is an elevated risk (including likelihood and potential impacts on people and property) from wildfires associated with overhead utility power lines" (CPUC, 2017). Tier 2 areas are subject to more restrictive fire safety standards, as described in Section 3.15.2, Regulatory Framework.

Fire Environment

Climate

Orinda is located in Contra Costa County, which is characterized by a Mediterranean climate with hot, dry summers and mild to cool winters (DFSC, 2019). Daily summer temperatures in Contra Costa County average approximately 85 degrees Fahrenheit, rarely falling below 75 or exceeding 95 degrees Fahrenheit (Weather Spark, 2020). The region receives an annual average of 20 to 30 inches of precipitation. The eastern parts of the county typically receive the least amount of precipitation. The Oakland-Berkeley Hills provide the first topographic barrier, making the city of Orinda drier than portions of the county west of the Oakland-Berkeley Hills (DFSC, 2019). In addition to high temperatures and low levels of humidity, wildfires in Contra Costa County are heavily influenced by the occurrence of strong, hot, dry offshore winds known locally as "Diablo Winds." These winds can occur at any time of the year but are more prevalent in the summer and fall months (DFSC, 2019).

Topography and Vegetation/Fuels

Fire hazards in Orinda are increased by the potential for wildfires on open-space lands, dense tree cover, and firefighting on slopes. The Orinda WTP site is at an elevation of approximately 400 feet. Land surrounding the Orinda WTP site increases in elevation on all sides, with Vollmer Peak, located approximately 1.25 miles west of the Project site, reaching approximately 1,905 feet in elevation. The terrain in the Project area is characterized by small mountains and valleys. Terrain type has a strong influence over fire behavior, and steep terrain can often increase fire behavior.[1] Most of the undeveloped slopes in Orinda are "High Hazard" as defined by the Fire Hazard Severity Scale; fire

[1] The U.S. Forest Service defines fire behavior as "The manner in which a fire reacts to the influences of fuel, weather, and topography" (USFS, 2018).

fighters have to deal with steep canyons and swales, high fuel loads, and several days a year of critical fire weather (DFSC, 2019).

Vegetation at the Orinda WTP site and surrounding neighborhoods consists of a variety of mature trees and shrubs (refer to Section 3.4, Biological Resources, for more information about vegetation in the Project area). As described in Section 3.4, vegetation communities at the Project site include mixed riparian woodland, mixed oak woodland, non-native grassland, and developed and ornamental landscaping. The fire regime in the Project area is heavily influenced by the presence of flammable structures and the fuel-loading of flammable vegetation in the hills; specifically, non-native grasslands have replaced more fire-resistant native species and increased the level of fire risk in the Project area.

Impact of Wildfire on Air Quality

As wildfires burn fuel, large amounts of carbon dioxide, black carbon, brown carbon, and ozone precursors are released into the atmosphere. Wildfires also emit a substantial amount of volatile and semi-volatile organic materials and nitrogen oxides that form ozone and organic particulate matter. These emissions can lead to harmful exposures for first responders, nearby residents, and populations in regions that are farther from the wildfires (NOAA, 2018). Exposure to these pollutants can cause asthma attacks, coughing, and shortness of breath. Chronic exposure to these pollutants can increase the risk of developing chronic health conditions such as heart disease, diabetes, and cancer (Hamers, 2018; Milman, 2018).

Future Fire Regime

As the large-scale fires throughout California in 2017 and 2018 demonstrated, fires are getting bigger and more destructive, and massive quick-spreading fires are becoming more frequent (Syphard, 2018). Many factors contribute to this change, including long-term drought, changes in vegetation type and fuel loading, changing temperature and meteorological conditions, more homes in the wildland-urban interface, and increases in the numbers of human-caused ignitions. Together, these climatic changes and human-driven changes have led to a shift in the fire regime in California. Continual pressures on the factors listed above such as rising temperatures, longer term drought conditions, and continual expansion of human influence in perimeter wildland areas are expected to intensify wildfires in California throughout the middle of the 21st century.

3.15.2 Regulatory Framework

The regulatory framework for potential wildfire impacts in the vicinity of the Orinda WTP is described in Section 3.11.2 of the WTTIP EIR. This Supplemental EIR highlights changes in implementation of those laws and regulations that have occurred since the release of the WTTIP EIR in December 2006.

Federal Regulations

There are no federal laws, regulations, or policies that are relevant to this analysis of wildfires.

State Regulations

2019 Strategic Fire Plan for California

Developed by the Board of Forestry and Fire Protection (the Board), the 2019 Strategic Fire Plan for California (2019 Plan) outlines the goals and objectives to implement CAL FIRE's overall policy direction and vision (CAL FIRE, 2019). The 2019 Plan demonstrates CAL FIRE's focus on: (1) fire prevention and suppression activities to protect lives, property, and ecosystem services; and (2) natural resource management to maintain the state's forests as a resilient carbon sink to meet California's climate change goals and to serve as important habitat for adaptation and mitigation. Unit Plans are developed and updated to implement the programs and goals of the 2019 Plan. Through the 2019 Plan, CAL FIRE implements and enforces the policies and regulations set forth by the Board and carries forth the mandates of the Governor and the Legislature (CAL FIRE, 2019).

California Emergency Response Plan

Pursuant to the Emergency Services Act (California Government Code Section 8550 et seq.), California has developed an Emergency Plan to coordinate emergency services provided by federal, state, and local governmental agencies and private persons. Response to hazardous materials incidents is one part of the Emergency Plan. The Emergency Plan is administered by the state Office of Emergency Services (OES). The OES coordinates the responses of other agencies, including the United States Environmental Protection Agency (U.S. EPA), California Highway Patrol (CHP), California Department of Fish and Wildlife (CDFW), the Regional Water Quality Control Boards (in this case, the San Francisco Bay Regional Water Quality Control Board [SFBRWQCB]), the local air districts (in this case, the Bay Area Air Quality Management District) and local agencies. The state Emergency Plan defines the policies, concepts, and general protocols for the proper implementation of the California Standardized Emergency Management System (SEMS). The SEMS is an emergency management protocol that agencies in California must follow during multi-agency response efforts whenever state agencies are involved.

Fire Protection in California Fire Code and Public Resources Code

The California Fire Code is contained within Title 24, Chapter 9 of the California Code of Regulations. Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Similar to the International Fire Code, the California Fire Code and the California Building Code (CBC) use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

The PRC includes fire safety provisions that apply to SRAs during the time of year designated as having hazardous fire conditions. During the fire hazard season, these regulations restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors[2] on equipment with an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire-suppression equipment that must be provided on site for various types of work in fire-prone areas. The PRC requirements would apply to construction activities at the Orinda WTP because, as indicated above in Section 3.15.1, the Project site and staging areas are located in areas designated as a Very High Fire Hazard Severity Zone.

In accordance with the PRC, the construction contractor would be required to comply with the following legal requirements during construction activities at the Orinda WTP:

- Earthmoving and portable equipment with internal combustion engines would be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC Section 4442).
- Appropriate fire suppression equipment would be maintained during the highest fire danger period – from April 1 to December 1 (PRC Section 4428).
- On days when a burning permit is required, flammable materials would be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor would maintain the appropriate fire suppression equipment (PRC Section 4427).
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines would not be used within 25 feet of any flammable materials (PRC Section 4431).

Local Regulations

Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance. As such, the following *City of Orinda General Plan* policies are relevant to the Project.

City of Orinda General Plan – Chapter 4, Environmental Resources

Section 4.2, Safety Element, of the *City of Orinda General Plan* includes the following guiding policy and implementing policies related to fire and response to fire emergencies.

[2] A spark arrestor is a device that prohibits exhaust gases from an internal combustion engine from passing through the impeller blades where they could cause a spark. A carbon trap is commonly used to retain carbon particles from the exhaust.

Guiding Policy B: Encourage a high level of fire protection and fire prevention education.

***Implementing Policy F*:** Encourage a high level of fire protection to residential and commercial development.

Implementing Policy G: Ordinances shall be developed requiring fire protection features, such as: fire-retardant roof material for new and replacement roofs, sprinklers for new construction, adequate provisions for emergency access, and other fire protection features.

Implementing Policy H: Minimize damage from grass fires through the development of firebreaks in dedicated open space and fire-access easements. Firebreaks and fire-access easements should be made a condition of project approval.

Implementing Policy J: Prepare and adopt fire-resistant landscaping requirements for new subdivisions. The Orinda Fire Protection District[3] currently uses guidelines developed by the State Department of Forestry. A committee will be appointed to review these guidelines and develop an ordinance for Orinda.

Implementing Policy K: Establish standards for public and private roads that ensure adequate access for fire protection equipment.

Implementing Policy L: Develop and implement an Emergency Preparedness Plan.

Emergency Response

The Contra Costa County OES coordinates the County-wide response effort in the event of a disaster situation and also implements the *Contra Costa County Emergency Operations Plan* (EOP). The plan does not provide any specific evacuation routes, as these are anticipated to be coordinated by local law enforcement and emergency services (Contra Costa County, 2015).

In 2019, the Moraga-Orinda Fire District (MOFD) developed the *MOFD Wildfire Prevention Strategic Plan* (MOFD, 2019). The strategic plan identified seven "lines of effort" to manage wildfire risk in MOFD's service area. These lines of effort include external and internal fuels mitigation, wildfire preplanning, evacuation planning, building code updates, community outreach and education, and early detection and notification systems. While the evacuation planning effort identifies components (e.g., notification, time phased evacuation orders, etc.), it does not identify specific evacuation or emergency response routes within the MOFD service area, including the area surrounding the Project site.

[3] The Orinda Fire Protection District is currently known as the Moraga-Orinda Fire District.

3.15.3 Impact Analysis

Methodology for Analysis

The following impact analysis focuses on impacts related to wildfire and evaluates whether there would be a significant environmental impact or substantial increase in the severity of a significant impact identified in the WTTIP EIR[4], given (a) the proposed design and operating characteristics of the Project, and (b) changes in the significance criteria.

Significance Criteria

Consistent with Appendix G of the *CEQA Guidelines,* an impact would be considered significant if the Project were located in or near SRAs or lands classified as Very High Fire Hazard Severity Zones and would:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan.
2. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
3. 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 on the environment.
4. 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.

Adopted WTTIP Mitigation Measures

The WTTIP EIR did not include any adopted mitigation measures related to wildfire, but ensured compliance with PRC fire safety regulations, detailed above in Section 3.15.2, to reduce potential impacts related to wildland fires due to construction activities to less than significant.

Appendix A identifies mitigation measures that were adopted as part of the Mitigation Monitoring and Reporting Program (MMRP) for the WTTIP. Although no mitigation measures were adopted specifically for wildfire, adopted WTTIP Mitigation Measures from WTTIP EIR Sections 3.5, Hydrology and Water Quality, and 3.8, Traffic and Circulation, would reduce or avoid significant impacts related to exposing people or structures to downslope or downstream flooding or landslides, and impairing an emergency response plan or emergency evacuation plan, and are therefore included in Table 3.15-1.

[4] Potential wildfire impacts in the vicinity of the Orinda WTP were identified in the WTTIP EIR, Section 3.11, Hazards and Hazardous Materials (EBMUD, 2006).

TABLE 3.15-1
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR WILDFIRE FOR THE ORINDA WTP

Mitigation Measure Number	Mitigation Measure
3.5-1a	EBMUD will incorporate into contract specifications the requirement for the grading of construction staging areas to contain surface runoff so that contaminants such as oil, grease, and fuel products do not drain towards receiving waters. If heavy-duty construction equipment is stored overnight at the construction staging areas, drip pans will be placed beneath the machinery engine block and hydraulic systems to prevent any leakage from entering runoff or receiving waters.
3.8-1	The District will incorporate into contract specifications for the project the following requirements: • The contractor(s) will obtain any necessary road encroachment permits prior to construction and will comply with conditions of approval attached to project implementation. As part of the road encroachment permit process, the contractor(s) will prepare a traffic safety / traffic management plan (for work in the public right of-way), in accordance with professional traffic engineering standards, for review and approval by EBMUD. The plan will be submitted to the agencies having jurisdiction over the affected roads. Elements of the plan will likely include, but are not necessarily limited to, the following: – Develop circulation and detour plans to minimize impacts to local street circulation. Use haul routes minimizing truck traffic on local roadways to the extent possible. Use flaggers and/or signage to guide vehicles through and/or around the construction zone. – Control and monitor construction vehicle movements through the enforcement of standard construction specifications by periodic onsite inspections. – To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule truck trips outside of peak morning and evening commute hours. – Limit lane closures during peak hours to the extent possible (and unless otherwise approved by the local agency). Restore roads and streets to normal operation by covering trenches with steel plates outside of allowed working hours or when work is not in progress. – ~~As approved by the local agency, limit, where possible, the pipeline construction work zone to a width that, at a minimum, maintains alternate one-way traffic flow past the construction zone. Parking may be prohibited if necessary to facilitate construction activities or traffic movement. If the work zone width will not allow a 10-foot-wide paved travel lane, then the road will be closed to through-traffic (except emergency vehicles) and detour signing on alternative access streets will be used.~~ – As approved by the local agency, include signage to direct pedestrians and bicyclists around construction work zones that displace sidewalks or bike lanes. – As approved by the local agency, store all equipment and materials in designated contractor staging areas on or adjacent to the worksite, in such a manner to minimize obstruction to traffic. – As approved by the local agency, identify locations for parking by construction workers within the construction zone or, if needed, at a nearby location with transport to and from the worksite provided. – Comply with roadside safety protocols. Provide "Road Work Ahead" warning signs and speed control (including signs informing drivers of state-legislated double fines for speed infractions in a construction zone) to achieve required speed reductions for safe traffic flow through the work zone. – Coordinate with facility owners or administrators of sensitive land uses such as police and fire stations, transit stations, hospitals, and schools. Provide advance notification to the facility owner or operator of the timing, location, and duration of construction activities and the locations of detours and lane closures. – Coordinate construction activities, to extent possible, to minimize traffic disturbances adjacent to schools (e.g., do work during summer months when there is less activity at schools). ~~For construction activities that occur during the school year, then at the start and end of the school day at schools adjacent to a pipeline project (e.g., Bentley School on El Nido Ranch Road, and Campolindo High School on Moraga Road), the contractor(s) will provide flaggers in the school areas to ensure traffic and pedestrian safety.~~ During periods when school children at the Wagner Ranch Elementary School are walking to and from school in the morning and in the afternoon on the asphalt trail along the north side of Camino Pablo, when construction truck traffic is present near the trail, the contractor(s) will provide flaggers and crossing guards (the latter as needed to supplement the school-provided crossing guards) to ensure pedestrian and traffic safety. School arrival and departure schedules will be monitored for changes such as vacation periods, and the school traffic and pedestrian safety plan will be modified as needed.

TABLE 3.15-1 (CONTINUED)
ADOPTED WTTIP MITIGATION MEASURES IDENTIFIED FOR WILDFIRE

Mitigation Measure Number	Mitigation Measure
3.8-1 (cont.)	– Coordinate with the County Connection so the transit provider can temporarily relocate bus routes or bus stops in work zones as it deems necessary. – To the extent feasible, and as needed to avoid adverse impacts on traffic flow, schedule construction of project elements to avoid overlapping maximum trip-generation construction phases. – ~~The District will hold coordination meetings with the City of Orinda, the Orinda Unified School District, and the Moraga-Orinda Fire District to minimize the impact of road closures on Miner Road.~~ – As part of the coordination with school administrators, the District will coordinate with providers of school bus service regarding road closures, delays and detours during times that school buses run. – The contractor(s) will post all construction sites with signs that state the permitted hours of construction. Those signs will identify the construction project as initiated by EBMUD, and will provide contact information for inquiries or comments. – ~~Provide advance notification to property owners along Glen Road, Nordstrom Lane, Hilltop Drive and Hastings Court regarding road closures associated with the Glen Pipeline Improvements project. Signs will be posted at the location of the road closure at least two weeks in advance, and notices will be mailed to property owners at least three weeks in advance.~~
3.8-4	Implement adopted WTTIP Mitigation Measure 3.8-1, which stipulates actions required of contractor(s) to reduce potential traffic safety impacts to a less-than-significant level.

NOTE: Strikethrough text indicates text in the adopted WTTIP mitigation measures that does not relate to the Project. Text that is underlined is included to address typographical errors in the original mitigation language or to add clarifying language to the adopted WTTIP Mitigation Measures.

SOURCE: EBMUD, 2006.

Impacts and Mitigation Measures

Impact WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan. (Criterion 1)

As noted in Section 3.15.2, Regulatory Framework, the *Contra Costa County EOP* does not provide any specific evacuation routes, as these are anticipated to be coordinated by local law enforcement and emergency services (Contra Costa County, 2015). Likewise, the *MOFD Wildfire Prevention Strategic Plan* does not identify specific evacuation or emergency response routes within the MOFD service area, including the area surrounding the Project site (MOFD, 2019).

Construction

As described in detail in Section 3.9, Hazards and Hazardous Materials, Impact HAZ-5, and Section 3.13, Transportation, Impact TRA-4, with the implementation of adopted WTTIP Mitigation Measures 3.8-1 and 3.8-4, the Project would have a less-than-significant impact on emergency response plans, evacuation plans, and emergency access during construction. Adopted WTTIP Mitigation Measure 3.8-1 requires a Traffic Control Plan that includes a description of emergency response access. The Traffic Control Plan would include measures to control traffic and provide guidance to motorists

during Project construction. Additionally, the Traffic Control Plan would require coordination with facility owners or administrators of nearby police and fire stations, consistent with the *Contra Costa County EOP* and *MOFD Wildfire Prevention Strategic Plan*, providing notification of the timing, location, and duration of construction activities and the locations of detours and lane closures to ensure that emergency responders have access during construction. Adopted WTTIP Mitigation Measure 3.8-4 requires the contractor to reduce potential safety impacts to a less-than-significant level and relies on adopted WTTIP Mitigation Measure 3.8-1 to achieve that. Coordination with facility owners or administrators of nearby police and fire stations would also aid in establishing effective evacuation routes during times of emergency. These measures described above and in adopted WTTIP Mitigation Measures 3.8-1 and 3.8-4 would ensure that Project construction would not impair an adopted emergency response plan or emergency evacuation plan, and impacts would be less than significant.

Operation

After completion, the Project would be routinely inspected by EBMUD operations and maintenance staff. Vehicle trips generated by Project operations would remain the same as existing conditions; maintenance activities would require the dedication of one or two EBMUD employees per day, which would be staffed by the existing crew sited at the Orinda WTP. Although most maintenance activities would be conducted by staff already on site, one truck trip per month on average is anticipated for operation and maintenance activities. The existing street network currently accommodates access by emergency vehicles that travel to and around the Project site. Emergency vehicles would be able to access the roadways surrounding the Project site, and citizens would be able to evacuate via surrounding roadways in the same way as they would under existing conditions. Therefore, the Project's operational impacts on an emergency response plan or emergency evacuation plan would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Less than significant. No new mitigation measures required.

Mitigation Measures (including Adopted WTTIP Mitigation Measures)

> **Adopted WTTIP Mitigation Measures:** 3.8-1 and 3.8-4 (refer to Table 3.15-1 for the full text of adopted mitigation measure).

Impact WF-2: Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. (Criterion 2)

Like the existing maintenance building, the proposed MAUVE Building would include offices and other work spaces that would be occupied by existing EBMUD staff during work hours. The Project structures are not intended for, and would not be used for,

residences. Because the structures would not be used for residences, and staff already occupy the existing maintenance building, Project occupants would not be exposed to increased risks associated with wildfire. However, Project components and staging areas are located in existing communities. Therefore, the following analysis focuses on the potential for Project construction and operation to increase the exposure of these communities to wildfire risks.

Construction

As discussed above in Section 3.15.1, Environmental Setting, the entirety of the Orinda WTP site and staging areas are located within Very High Fire Hazard Severity Zones, within either an SRA or an LRA. As described above, while the Orinda WTP site itself is on relatively level land, the topography of the Project vicinity is characterized by small mountains and valleys. As described in Section 2.8, an existing Pacific Gas & Electric Company (PG&E) power line traverses the Project site and would be located above the proposed CCB. During construction, EBMUD would comply with all required construction clearance and setback requirements to avoid interference with the power line. The primary fire hazards from Project construction would involve the use of vehicles and equipment and the on-site storage of diesel fuel. Potential sources of ignition include equipment with internal combustion engines, gasoline-powered tools, and equipment or tools that produce a spark, fire, or flame. Such sources could include sparks from blades or other metals tools scraping against rocks, welding and grinding, overheated brakes on wheeled equipment, friction from worn or unaligned belts and drive chains, and burned-out bearings of bushings. “Hot Work,” defined as any process that can be a source of ignition when flammable material is present or can be a fire hazard regardless of the presence of flammable material in the workplace, requires an EBMUD Hot Work Permit issued by EBMUD’s Regulatory Compliance Division to EBMUD staff or contractors performing any hot work. Common hot work processes are welding, soldering, cutting and brazing. When flammable materials are present, industrial processes such as grinding and drilling become hot work processes. The Hot Work Permit is associated with the Safe Work Permit, an EBMUD permit required to be completed by the Contractor and EBMUD construction inspection staff for work at water treatment plants. Smoking on site can also be an ignition risk, but ignition risks are minimized because smoking is confined to designated areas within the Orinda WTP.

The analysis of wildfire was included in WTTIP EIR Section 3.11, Hazards, under Impact 3.11-5, and focused on construction-related impacts. While no mitigation measures were required to reduce the impact to a less-than-significant level, the analysis assumed that EBMUD and/or its contractors would comply with fire safety regulations provided in the PRC. These regulations would restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment with an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided on site for various types of work in fire-prone areas. With compliance with the requirements of the PRC, the WTTIP EIR found that potential impacts related to wildland fires due to construction activities would be less than significant.

Specific to the Project analyzed in this Supplemental EIR, the regulatory requirements promulgated since certification of the WTTIP EIR and presented in Section 3.15.2 above are also considered. Depending on the time of year (as seasonality affects climate conditions, prevailing winds, and vegetation/fuels), the type of activity and equipment used, and the proximity of construction activities to fuel sources, the increase in sources of potential ignition associated with Project construction could exacerbate the risk of wildfire in the area. As discussed above in Section 3.15.1, existing environmental conditions related to wildfire have changed since the certification of the WTTIP EIR. The wildfire season has become longer and drought conditions have made the area more susceptible to ignitions and the spread of wildfire (Syphard, 2018; Pierce et al, 2019; Clements, 2019). Additionally, the MAUVE/UV/CCB Structure is in closer proximity to the PG&E power lines than as analyzed in the WTTIP EIR, creating a greater risk of ignition related to the power lines. As discussed in Section 3.15.1 above, wildfires release large amounts of air pollutants, which can lead to harmful exposure for first responders and nearby communities, as well as populations that are located farther away. Therefore, because of the increase in potential sources of ignition, Project construction could temporarily increase the risk of surrounding communities' exposure to pollutant concentrations from wildfire and the uncontrolled spread of wildfire, which would result in a potentially significant impact.

As discussed above in Section 3.15.2, the construction contractor would be required to comply with PRC requirements, which would reduce the risk of wildfire during construction by restricting the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on equipment with an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire-suppression equipment that must be provided on site for various types of work in fire-prone areas. In addition to compliance with PRC requirements, Mitigation Measure WF-1, which requires implementation of a Final Project Construction Fire Prevention Plan (CFPP), would reduce the potential for ignition by, among other things, preparing work crews with emergency suppression equipment and plans to respond quickly to any on-site incidents caused by construction activities. The incorporation of a Final Project-specific CFPP pursuant to Mitigation Measure WF-1 would reduce impacts from Project construction to a less-than-significant level.

Operation

As described in Chapter 2, *Project Description*, the Project would upgrade and replace existing facilities. The Project would include the demolition of a number of existing buildings and the construction of several new structures, including the MAUVE/CCB/UV Structure, Grounds Maintenance Building and associated parking, and several structures to supply power (Los Altos Pumping Plant Power Building, South Electrical Building, and South Standby Generator), among others.

The new electrical buildings would house electrical equipment including transformers and switchgears, the presence of which could result in a minor increase in the fire risk due to the increase in ignition sources. The electrical equipment would be designed and

operated in accordance with current safety requirements (e.g., equipped with breakers and switches designed to protect against arc flashes[5] [Carollo Engineers, 2018]). These precautions and design features would minimize the likelihood of an arc flash that could result in an ignition. Additionally, as described above, the additional electrical equipment would be designed and operated in accordance with safety requirements which would reduce the risk introduced by the new electrical equipment.

As described above under the Construction evaluation, with the existing PG&E power line overhead the CCB, maintenance activities requiring the use of tall equipment such as cranes would comply with all required clearance and setback requirements to avoid interference with the existing power line. Maintenance activities in the PG&E easement requiring such equipment are not expected to be frequent.

The standby generator would include stored fuel, which would introduce a new potential fuel and ignition source. As described in Section 2.5.9, South Standby Generator, the generator would be installed in a metal enclosure, and fuel would be stored in double-walled fuel tanks with concrete walls and steel reinforcement. These enclosures would reduce the risk of an ignition from the generator or a fuel leak resulting in a fire that could spread beyond the isolated enclosure. Therefore, the addition of the standby generator would not introduce a substantial new source of wildfire risk. As described in Section 2.7.2, long-term maintenance of the facilities would continue, including vegetation management, which would reduce the risk of fire on site. Overall, with proposed design features and operation and maintenance practices, impacts resulting from operation of the Project would be less than significant.

Significance Determination Before Mitigation

Potentially significant.

Mitigation Measures

Mitigation Measure WF-1: Construction Fire Prevention Plan.

EBMUD and/or its contractors shall prepare and implement a Final Project-specific CFPP to ensure the health and safety of construction workers and the public from fire-related hazards. The CFPP shall include the requirements listed below. Prior to construction, EBMUD shall contact and consult with the Moraga-Orinda Fire District to determine the appropriate amounts of fire equipment to be carried on the vehicles and appropriate prevention measures to be taken. The Final CFPP shall list fire safety measures including fire prevention and extinguishment procedures, as well as specific emergency response and evacuation measures to follow during emergency situations; examples are listed below. The Final CFPP also shall provide fire-related rules for smoking, storage and parking areas, usage of spark arrestors on construction equipment, and fire-

[5] An arc flash is a phenomenon where a flashover of electric current leaves its intended path and travels through the air from one conductor to another, or to ground.

suppression tools and equipment. The Final CFPP shall include or require, but not be limited to, the following:

- All work shall be performed in a fire-safe manner, and adequate fire-fighting equipment capable of extinguishing incipient fires shall be supplied and maintained on site. All work shall comply with applicable federal, local, and state fire prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standards for Safeguarding Building Construction Operations (National Fire Protection Association [NFPA] No. 241) shall be followed.

- As construction may occur simultaneously at several locations, each construction site shall be equipped with fire extinguishers and fire-fighting equipment sufficient to extinguish small fires.

- A long-handled, round-point shovel or a fire extinguisher shall be kept at an accessible (unlocked) location on the construction site at all times.

- Earthmoving and portable equipment with internal combustion engines shall be equipped with spark arrestors to reduce the potential for igniting a wildfire. Such equipment shall be maintained to ensure proper functioning of spark arrestors.

- EBMUD shall ensure that all construction workers receive training on the proper use of fire-fighting equipment and procedures to be followed in the event of a fire.

- EBMUD shall instruct construction personnel to park vehicles within roads, road shoulders, graveled areas, and/or cleared areas (i.e., away from dry vegetation) wherever such surfaces are present at the construction site.

- For all work occurring between April 1 and December 1, or any other periods during which a high fire danger has been identified:

  – Equipment that could produce a spark, fire, or flame shall not be used within 10 feet of any flammable materials.

  – Portable tools powered by gasoline-fueled internal combustion engines shall not be used within 25 feet of any flammable materials.

- Regarding vegetation management for fire prevention and protection, prior to and during construction:

  – Create and maintain a defensible space (100 feet or to the EBMUD property boundary, whichever is shorter) around the construction site as well as construction ingress and egress sites through landscaping, mowing, disking, and/or spraying dry brush or native grasses to a height of 4-inches or less.

  - Remove dead trees within 100 feet of the construction site.
  - Limb up trees within 100 feet of the construction site so that no leafy foliage, twigs, or branches are within 5 feet of the ground. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season.
  - Ensure and maintain 5 feet of vertical clearance between roof surfaces and portions of trees overhanging all structures within the construction site, and keep roofs free of leaves, needles, twigs, and other combustible matter. To maintain tree health, tree limbing shall not remove more than 25 percent of a tree canopy within one growing season.
  - Keep all overhanging trees, shrubs, and other vegetation, or portions thereof, free of dead limbs, branches, and other combustible matter.

- Neatly stack all combustible materials away from structures within the construction site and have all combustible growth cleared 15 feet around the stack.
- At each construction site, after construction has been completed for the day, the contractor shall perform a visual inspection of all construction equipment within the PG&E easement and within 12 vertical feet of the PG&E power line to ensure that no equipment (e.g., cranes) left onsite could interfere with (e.g., touch or fall into) the PG&E power line and result in an arc, spark, or other line failure, resulting in ignition risks, after construction has concluded for the day (PRC Section 4293).

Significance Determination after Mitigation

Less than significant.

Impact WF-3: 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 on the environment. (Criterion 3)

The Project includes the proposed South Electrical Building and South Standby Generator Building. The potential for these structures to exacerbate fire risk during construction and long-term operations is evaluated under Impact WF-2, above. For reasons stated under Impact WF-2, neither construction nor operations of the Project would require the installation or maintenance of infrastructure (e.g., roads, fuel breaks) that has not been considered in this analysis. Additionally, while the long-term operation of the Project would require more energy, this energy would continue to be supplied through PG&E's existing ductbank. The increase in energy use would not result in the

installation of new lines or a change in the maintenance of lines. As a result, impacts would be less than significant.

Significance Determination Before Mitigation

Less than significant. No mitigation measures required.

Mitigation Measures

None required.

Impact WF-4: Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of run-off, post-fire slope instability, or drainage changes. (Criterion 4)

Construction

As identified in Section 3.10, Hydrology and Water Quality, Impact HYD-3b, during construction, the implementation of adopted WTTIP Mitigation Measure 3.5-1a and Mitigation Measure HYD-1 would reduce potential impacts related to drainage patterns during construction to a less-than-significant level. Adopted WTTIP Mitigation Measure 3.5-1a requires that contract specifications include measures to contain surface run-off and prevent any contaminants associated with construction staging areas from entering receiving waters. Other stormwater control best management practices, or BMPs, identified in the SWPPP implemented as part of Mitigation Measure HYD-1 would contain or slow surface run-off as discussed under Impact HYD-3b. Therefore, Project construction would not result in changes in run-off or drainage patterns that could exacerbate downslope or downstream flooding and thereby expose people or structures to associated risks.

As discussed under Impact WF-2, Project construction has the potential to increase wildfire risk as a result of increased sources of ignition. Mitigation Measure WF-1: Construction Fire Prevention Plan requires the implementation of a CFPP that would require EBMUD and its contractors to use fire prevention measures such as requiring the use of spark arrestors. Additionally, Mitigation Measure WF-1 would require that construction vehicles be prepared with emergency fire suppression equipment and plans, which would equip construction crews to conduct emergency suppression in the event of an incident. The development and implementation of the CFPP would reduce the risk of wildfire to less than significant. Because of the measures required in Mitigation Measure WF-1 listed above, implementation of Mitigation Measure WF-1 would also reduce the potential for post-fire flooding or landslides to a less-than-significant level.

Operation

Once in operation, the Project would be routinely inspected by EBMUD operations and maintenance staff, requiring the dedication of one or two EBMUD employees per day, which would be staffed by the existing crew stationed at the Orinda WTP. The Project's

proposed components would not expose people or structures to increased risk associated with flooding, landslides, or post-fire slope instability as a result of locating them near such existing risks. As discussed under Impact WF-2, above, operation of the Project would have a low potential to exacerbate wildfire risk and would also not pose a substantial risk of causing post-fire slope instability in the Project area. Therefore, the potential for Project operation to exacerbate the risk of flooding and landslides as a result of post-fire slope instability or drainage changes would be less than significant.

Significance Determination with Implementation of Adopted WTTIP Mitigation Measures

Potentially significant.

Mitigation Measures (Including Adopted WTTIP Mitigation Measures)

Adopted WTTIP Mitigation Measures: 3.5-1a (Refer to Table 3.15-1 for the full text of adopted mitigation measures).

Mitigation Measure HYD-1: Implement Storm Water Pollution Prevention Plan. (Refer to Impact HYD-1 in Section 3.10, Hydrology and Water Quality, for the full text of Mitigation Measure HYD-1).

Mitigation Measure WF-1: Construction Fire Prevention Plan. (Refer to Impact WF-2, above, for the full text of Mitigation Measure WF-1.)

Significance Determination after Mitigation

Less than significant.

3.15.4 References

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3.16 Other Environmental Issues

The proposed changes to the Project described in Chapter 2, *Project Description*, of this document would not materially affect the WTTIP EIR analyses and conclusions regarding impacts for a number of environmental topics. These topics are briefly discussed below.

3.16.1 Land Use

The land use analysis in the WTTIP EIR (pages 3.2-1 to 3.2-23) determined that for all impacts, either the impact would be less than significant or no impact would occur (EBMUD, 2006). No impact would occur related to division of an established community, or to effects on agricultural resources. Impacts on recreational resources were determined to be less than significant, as described in Section 3.12, Recreation, of this Supplemental EIR.

The changes to the Project analyzed in this Supplemental EIR would not alter the conclusions of the impact analysis for land use. The significance threshold questions for land use presented in the current (2020) version of Appendix G of the *CEQA Guidelines* are essentially the same as those used in the WTTIP EIR with one exception. The current version of Appendix G of the *CEQA Guidelines* indicates that a Project could have a significant impact if it were to 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. In some cases, local policies were used in the WTTIP EIR and are used in this Supplemental EIR as criteria to determine the significance of physical effects on the environment (refer to Section 3.11.3 in Section 3.11, Noise, of this Supplemental EIR). The applicability of local land use plans and policies to the Project is limited by Section 53091[1] and 65402(c)[2] of the California Government Code. Although not included as a significance threshold in the WTTIP EIR, project consistency with plans and policies is described on pages 3.2-12 and 3.2-13 of the WTTIP EIR consistent with *CEQA Guidelines* Section 15125(d), which describes the required contents for the environmental setting of an EIR and states that, "The EIR shall describe any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans…." The discussion on pages 3.2-12 and 3.2-13 of the WTTIP EIR did not identify any inconsistencies with the *City of Orinda General Plan*, based on consideration of land use designations (presented on page 3.2-2 of the WTTIP EIR) and policies (summarized in Appendix D of the WTTIP EIR) (EBMUD, 2006). The Project

[1] Under Section 53091 of the California Government Code, EBMUD, as a local agency and utility district, is not subject to building and land use zoning ordinances (such as tree ordinances) for projects involving facilities for the production, generation, storage, treatment, or transmission of water. However, EBMUD's practice is to work with local jurisdictions and neighboring communities during project planning and to consider local environmental protection policies for guidance.

[2] California Government Code Section 65402(c) requires that EBMUD notify cities and counties of its plans to construct projects or to acquire or dispose of property. The planning agency then has 40 days to determine project consistency with its general plan. If the planning agency disapproves (i.e., determines that the project is inconsistent with its general plan), the disapproval may be overruled by EBMUD.

as currently configured does not alter the conclusions presented in the WTTIP EIR regarding consistency with plans and policies.

3.16.2 Public Services and Utilities

The analysis of public services and utilities in the WTTIP EIR (pages 3.12-1 to 3.12-22) determined that all impacts on public services and utilities would be less than significant or could be mitigated to a less-than-significant level (EBMUD, 2006). With mitigation, impacts related to disruption of utility lines, adverse effects on landfill capacity, and failure to achieve state diversion mandates could be mitigated to a less-than-significant level. Impacts related to an increase in electricity demand or in demand for public services would be less than significant. The changes to the Project analyzed in this Supplemental EIR would not alter the conclusions of the impact analysis for public services and utilities. However, the significance threshold questions for public services and utilities presented in the current (2020) version of Appendix G of the *CEQA Guidelines* divide this section into two separate sections, "Public Services" and "Utilities and Service Systems."

The current version of Appendix G of the *CEQA Guidelines* indicates that a Project could have a significant impact on public services if it were to result in substantial adverse physical impacts associated with the need or provision of new or physically altered governmental facilities in order to maintain acceptable service ratios, response times or other performance objectives for: fire or police protection, schools, parks, or other public facilities.

Due to the nature of the Project which would construct disinfection improvements at an existing water treatment facility, the Project would not have any impacts on acceptable service ratios or response times or other performance objectives for fire or police protection, schools, parks, or other public facilities.

The *CEQA Guidelines* also indicate that a project could have a significant impact on utilities and service systems if it would: require new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities; not have sufficient water supplies to serve the Project and future development; exceed wastewater provider capacity; generate solid waste in excess of state or local standards; or be unable to comply with federal, state, and local management and reduction statues and regulations related to solid waste.

Due to the nature of the Project, which would construct disinfection improvements at an existing water treatment facility and is not intended to increase treatment capacity, the Project would not require or result in the relocation or construction of an additional new or an expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facility not required as part of the Project itself. The Project would not affect the Orinda WTP's current treatment capacity; therefore, the Orinda WTP would have sufficient water supplies to serve the Project and planned future development.

During construction, the Project would use water intermittently for activities such as dust control and pressure washing. Construction personnel would also use relatively small

amounts of potable water for drinking, hand washing, and other sanitary needs on-site. The small increase in the use of potable water would be temporary, ending when construction is complete. Water supplies have been planned to enable the Project to accommodate short-term spikes in potable water use during normal, dry, and multiple dry years. For these reasons, the Project would have sufficient water supplies available to serve the needs of the Project and reasonably foreseeable future development during normal, dry, and multiple dry years.

During Project construction, new sources of wastewater discharges would be limited to wastewater generated by the sanitary needs of construction workers. Because the construction workforce would be small and construction would be temporary, the total increase in wastewater volumes would be well within the dry-weather capacity of the existing wastewater system. During Project operation, the new facilities would be served by existing EBMUD staff population already based at the Orinda WTP site; so, no new domestic demands would be placed on the existing wastewater system. For these reasons, the Project would not result in a determination by the wastewater treatment provider that would serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments during operation. Also, implementation of adopted WTTIP Mitigation Measure 3.12-4a and 3.12-4b would reduce potential impacts from federal, state, and local solid waste generation, management, and reuse requirements.

The changes to the Project analyzed in this Supplemental EIR would not alter the conclusions of the WTTIP EIR impact analysis for these resource areas. Applicable mitigation measures to reduce potential public services and utilities impacts that were identified for improvements at the Orinda WTP as part of the Mitigation Monitoring and Reporting Program for the WTTIP are incorporated into the Project. All adopted WTTIP mitigation measures applicable to the Orinda WTP are incorporated into the Project and are listed in Appendix A.

3.16.3 References

City of Orinda, 1987. *City of Orinda General Plan 1987–2007.* Chapter 2, Land Use and Circulation. Adopted May 20, 1987.

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CHAPTER 4
Alternatives

This chapter evaluates alternatives to the Orinda Water Treatment Plant (WTP) Disinfection Improvements Project (Project) and examines the potential environmental impacts associated with each alternative. Alternatives are compared to the No Project Alternative and the relative environmental advantages and disadvantages of each alternative are identified.

4.1 Alternatives Analysis Approach

4.1.1 Consideration of Alternatives under CEQA

The *California Environmental Quality Act* (*CEQA*) *Guidelines* Section 15126.6 requires Environmental Impact Reports (EIRs) to evaluate a range of reasonable alternatives to a project, or to the location of a project that would feasibly attain most of the basic project objectives and avoid or substantially lessen significant effects of the project. The following criteria for selecting alternatives are set forth in the *CEQA Guidelines*:

- An EIR must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. The range of alternatives addressed in an EIR should be governed by a rule of reason. Not every conceivable alternative must be addressed, nor do infeasible alternatives need to be considered (*CEQA Guidelines* Section 15126.6(a)). When addressing feasibility, factors that may be taken into account include site suitability, economic viability, availability of infrastructure, general plan consistencies, other plans or regulatory limitations, jurisdictional boundaries, and the proponent's ability to reasonably acquire, control, or otherwise have access to an alternative site.

- Evaluation should focus on those alternatives capable of avoiding or substantially lessening any significant environmental effects of the project, even if the alternative would impede, to some degree, the attainment of the project objectives, which are identified in Chapter 2, *Project Description*, or would be costlier.

- The EIR should identify alternatives that were considered by the lead agency but were rejected as infeasible and the reasons for the lead agency's determination (Section 15126.6(c)).

- A "No Project" alternative must be evaluated, and the EIR must also identify an environmentally superior alternative (Section 15126.6(e)).
- The discussion should not consider those alternatives whose implementation is remote or speculative, and the analysis need not be presented in the same level of detail as the assessment of a proposed project.

Based on the *CEQA Guidelines*, several factors should be considered in determining the range of alternatives to be analyzed in an EIR and the level of analytical detail that should be provided for each alternative. These factors include:

1. The potential for the proposed project to result in significant impacts;
2. The ability of alternatives to reduce or avoid the significant impacts associated with the proposed project;
3. The ability of the alternatives to meet the objectives of the proposed project; and
4. The feasibility of the alternatives.

4.1.2 Approach to Analysis

Alternatives considered in this analysis include those alternatives identified by the East Bay Municipal Utility District (EBMUD) in its Water Treatment and Transmission Improvements Program EIR (WTTIP EIR, certified in 2006; EBMUD, 2006a) and the draft versions of the *Basis of Design Report, Orinda Water Treatment Plant UV/Chlorine Disinfection Project* (EBMUD, 2017, 2018). No alternatives to the Project were suggested by members of the public or regulatory agencies during scoping. The analysis in this Supplemental EIR indicates that the Project would not result in any significant and unavoidable impacts.

The alternatives analysis thus considers whether there is an alternative that would avoid or reduce the severity and magnitude of the Project's impacts on biological and cultural resources because potential alternatives to the Project can reduce the severity or magnitude of these impacts.[1] The analysis of alternatives focuses on biological and cultural resources, as an alternative to the Project could conceivably minimize one or more impacts by being placed on another part(s) of the Orinda WTP property to physically avoid impacts on these resources. In the case of biological resources, Project components could be relocated away from San Pablo Creek and the associated riparian woodland habitat to avoid impacts. For cultural resources, locating Project components elsewhere on the Orinda WTP property would eliminate the need to demolish the existing maintenance building, a contributing element to the Orinda WTP's local historic designation and a recognized historic resource under CEQA. While it could be argued

[1] Alternative strategies to reduce the magnitude or severity of other significant impacts (e.g., impacts related to hazardous materials handling or wildfire) were found to be incompatible with the basic purpose of the Project (disinfection involves the use of hazardous materials, as does any large-scale construction project) and/or its location requirements (the disinfection facilities need to be located at or near the Orinda WTP; the Orinda WTP and surrounding area are within a Very High Fire Severity Zone).

that alternative placement of the Project components could affect other resources, such as aesthetics, air quality, or noise, the magnitude of impact on these resources would not be reduced or eliminated (and could be increased), but simply moved to another part of the Orinda WTP property.

Section 2.3 in Chapter 2, *Project Description*, describes the objectives of the Project. The EBMUD Board of Directors will review and consider the information contained in this Supplemental EIR before deciding whether to approve, disapprove, or modify the Project.

4.2 Project Alternatives Development: Water Treatment and Transmission Improvements Program EIR

The WTTIP EIR considered nine alternatives involving the Orinda WTP, six of which were eliminated from consideration and three of which were evaluated in the EIR, including the project that was approved by the EBMUD Board of Directors in December 2006 (Supply from Orinda and Lafayette WTPs–Alternative 1). The three alternatives evaluated in the WTTIP EIR included:

- **Alternative 1: Supply from Orinda and Lafayette WTPs** involved retaining and upgrading the Lafayette WTP, as well as upgrading the Orinda, Sobrante, Walnut Creek, and Upper San Leandro WTPs. The proposed changes at these WTPs generally involved improvements to water treatment processes, treated water storage, and/or transmission pipelines.

- **Alternative 2: Supply from Orinda WTP** involved decommissioning the Lafayette WTP with customers currently served by the Lafayette WTP receiving water from the Orinda WTP year-round. Proposed changes to the Sobrante, Walnut Creek, and Upper San Leandro WTPs would be similar to Alternative 1, although the proposed sizes of some facilities would be somewhat larger. EBMUD would modify improvements contemplated for the Orinda WTP under Alternative 1 (e.g., upsizing clearwell capacity and electrical supplies facilities) and construct a combination tunnel/pipeline (referred to as the Orinda-Lafayette Aqueduct).

- **Modified Orinda WTP Site Plan Alternative** was developed in response to comments from the Orinda Historic Landmarks Committee. This alternative involved relocating some structures associated with the backwash water recycle facilities and the potential future high-rate sedimentation unit. The Modified Orinda WTP Site Plan Alternative could have been implemented under either Alternative 1 or Alternative 2.

Each of these alternatives is discussed in greater detail in Section 4.5.1, below.

This Supplemental EIR incorporates by reference the alternatives evaluation contained in the WTTIP EIR.[2] Appendix H presents a summary of the alternatives analysis prepared for the WTTIP EIR, and includes site plans for the three alternatives involving the Orinda WTP that were evaluated in that document. As shown in those site plans, all three alternatives co-located the post-filtration ultraviolet (UV) disinfection and Chlorine Contact Basin (CCB) facilities (UV/CCB Structure) with a large clearwell[3] in the North Orinda Sports Field.

4.3 Project Alternatives Development: West of Hills Master Plan

The WTTIP recommended building a clearwell at the Orinda WTP, concluding that consolidating clearwell capacity at that Orinda WTP would allow EBMUD to more effectively manage water quality delivered to the distribution system. A clearwell at the Orinda WTP would provide retention time at the plant so that Orinda WTP operators could prevent water with impaired quality from entering the Claremont Tunnel and the West of Hills distribution system.

Since approval of the WTTIP, EBMUD has continued to conduct long-term planning for its water treatment, transmission, and distribution system. As part of the West of Hills Master Plan (EBMUD, 2010), the West of Hills system operations under maximum daily demand conditions were studied and it was determined that potential adverse water quality episodes associated with the lack of a clearwell at the Orinda WTP could instead be remedied through changes in operations and facilities of the West of Hills system; specifically, improvements to transmission pipelines. EBMUD has moved forward with implementing these improvements,[4] thereby negating the need for construction of a clearwell at the Orinda WTP.

4.4 Project Alternatives Development: Basis of Design Reports

Once EBMUD decided to move forward with enhancing post-filtration disinfection at the Orinda WTP, Carollo Engineers was retained to work with EBMUD staff to develop the Project and design the facilities. Key work products associated with that effort have included the draft Basis of Design Report prepared in October 2017 (2017 BODR), and an updated draft Basis of Design Report produced in October 2018 (2018 BODR), the latter of which was relied upon in the preparation of the Project Description presented in Chapter 2 of this Supplemental EIR. A fundamental difference in the Project as it was

[2] Electronic copies of the *Water Treatment and Transmission Improvements Program Environmental Impact Report* (SCH # 2005092019) are available on request. The WTTIP EIR is also available for review at EBMUD's offices, located at 375 11th Street, Oakland, CA 94607.

[3] Clearwells are reservoirs (often tanks) used to store water that has been fully treated (the final steps of which in this case would occur in the UV disinfection and CCB facilities) prior to release into the distribution system.

[4] The *West of Hills Northern Pipelines Project Environmental Impact Report* (EBMUD, 2013; certified in December 2013) will implement some of the transmission system improvements identified in the West of Hills Master Plan.

characterized in the 2017 BODR compared to the 2018 BODR is the location of the UV/CCB Structure. In the 2017 BODR, the site for the structures containing the UV/CCB Structure was on the south side of the filters, along an internal roadway connecting the south entrance gate to the Chemical Building and paralleling Camino Pablo. During review of the 2017 BODR, staff identified concerns about the constructability of the UV/CCB Structure at that location, including ease of operation and maintenance, delivery truck access to the Chemical Building, and impacts on visual quality. In response to these concerns, the location of the UV/CCB Structure was changed to that presented in Chapter 2, *Project Description*, of this Supplemental EIR.

Six alternatives were initially considered in the 2017 BODR process and are presented in Appendix A of the 2017 BODR. These included the preliminary version of the Project located near Camino Pablo mentioned in the preceding paragraph, alternatives involving implementation of a CCB without UV disinfection, conversion of the Claremont Tunnel to a chlorine contact basin potentially in combination with UV disinfection and/or a new reservoir at the Claremont Center, and use of alternative disinfectants.

4.5 Alternatives Rejected from Further Consideration

As indicated in the preceding sections, a total of 11 alternatives have been considered for the Orinda WTP: nine that were developed as part of the WTTIP EIR and related planning efforts, and one that was developed as part of the 2017 BODR process, and one that was developed as part of the 2018 BODR process. The reasons that the nine alternatives developed as part of the WTTIP EIR were eliminated from consideration are described below in Section 4.5.1 and in Appendix H of this Supplemental EIR. Of the two alternatives to emerge from the BODR process, one became the Project and the other alternative (not rejected from further consideration) is presented below in Section 4.7, "Disinfection Improvements Near Camino Pablo Alternative."

4.5.1 WTTIP EIR Alternatives

Chapter 6, *Analysis of Alternatives*, of the WTTIP EIR describes and evaluates alternatives to the WTTIP, describes the alternatives screening process and alternatives eliminated from consideration, and compares the environmental merits of the WTTIP alternatives. WTTIP EIR Table 6-1 lists all of the alternatives considered in the WTTIP EIR, indicates whether the alternatives were evaluated in the EIR or were eliminated, and identifies the source of the alternative. Appendix H includes a portion of WTTIP EIR Table 6-1 as Table H-1as it applies to alternatives for the Orinda WTP.

The WTTIP EIR considered nine alternatives involving the Orinda WTP, six of which were eliminated from consideration and three of which were evaluated in the EIR, including the Project (Alternative 1, described below) that was adopted by EBMUD's Board of Directors on December 19, 2006. This Supplemental EIR summarizes and incorporates by reference the alternatives evaluation contained in the WTTIP EIR.

Alternatives 1 and 2

Description. The WTTIP EIR evaluated Alternative 1 (Supply from Orinda and Lafayette WTPs) and Alternative 2 (Supply from Orinda WTP) at an equal level of detail. The fundamental difference between Alternatives 1 and 2 was whether the Lafayette WTP would be retained and upgraded (Alternative 1) or decommissioned (Alternative 2).

- ***Alternative 1*** involved retaining and upgrading the Lafayette WTP, as well as upgrading the Orinda, Sobrante, Walnut Creek, and Upper San Leandro WTPs. The proposed changes at these WTPs generally involved improvements to water treatment processes, treated water storage, and/or transmission. For the Orinda WTP, Alternative 1 included improvements to pumping plants, electrical supply facilities, treatment operations (including the addition of the UV/CCB Structure, as well as high rate sedimentation units), and clearwell capacity. Refer to Figure H-1 in Appendix H for a site plan of the Orinda WTP with implementation of Alternative 1.

- ***Alternative 2*** involved decommissioning the Lafayette WTP. Customers currently served by the Lafayette WTP[5] would instead receive water from the Orinda WTP year-round. To accomplish this, EBMUD would modify improvements contemplated for the Orinda WTP under Alternative 1 (e.g., upsizing clearwell capacity and electrical supplies facilities) and construct a combination tunnel/pipeline (referred to as the Orinda-Lafayette Aqueduct). Proposed changes to the Sobrante, Walnut Creek, and Upper San Leandro WTPs would basically be the same as Alternative 1, although the proposed sizes of some facilities at the Sobrante and Upper San Leandro WTPs would be somewhat larger. Refer to Figure H-2 in Appendix H for a site plan of the Orinda WTP with implementation of Alternative 2.

Reasons for Elimination from Further Study. The EBMUD Board of Directors approved Alternative 1 for implementation. Alternative 2 was rejected because the EBMUD Board of Directors found it did not provide clear environmental, economic, social, or other benefits beyond those of Alternative 1 and would also result in greater impacts in certain areas (EBMUD, 2006b). Regarding the location of the UV/CCB Structure under Alternative 1, as indicated in Section 4.3 above, the West of Hills Master Plan determined there was no need for constructing a clearwell at the Orinda WTP. With the clearwell no longer necessary, the area provided by the North Orinda Sports Field site was no longer required for the clearwell and proximate UV/CCB Structure. Siting the UV/CCB Structure alone at the North Orinda Sports Field would require large pipelines (approximately 9 feet in diameter) to be installed for approximately 3,600 feet to extend from the filter gallery building to the ballfields and back to the Claremont Tunnel. Also, the pipelines between the North Orinda Sports Field and the existing Orinda WTP facilities under this alternative would require multiple crossings of San Pablo Creek and Manzanita Drive. Given the large diameter pipeline length and tunneling constraints for the pipelines needed for this alternative, siting the UV/CCB Structure at the North Orinda Sports Field was removed from further consideration.

[5] The areas served by the Lafayette WTP (during warm weather demand conditions) include portions of Lafayette, Moraga, Orinda, and Walnut Creek.

Modified Orinda WTP Site Plan

Description. The Modified Orinda WTP Site Plan Alternative was the only other alternative related to the Orinda WTP that was retained for consideration in the WTTIP EIR. This alternative is described below and shown in Figure H-3 in Appendix H. Developed in response to comments from the Orinda Historic Landmarks Committee, this alternative involved relocating some structures associated with the backwash water recycle facilities and the potential future high-rate sedimentation unit. The Modified Orinda WTP Site Plan Alternative could have been implemented under either Alternative 1 or Alternative 2.

Reasons for Elimination from Further Study. This alternative was eliminated because, although the Modified Alternative Orinda WTP Site Plan would improve the historic setting of the main building, impacts on views along Camino Pablo would incrementally worsen, as would construction noise impacts on residents west of Camino Pablo. Additionally, EBMUD preferred to implement the site plan proposed in the WTTIP EIR instead of this alternative because the proposed layout would provide easier truck access to the emergency generator building and the solids storage tank.

Other WTTIP EIR Alternatives

Refer to Appendix H of this Supplemental EIR for summary descriptions of the other alternatives pertaining to the Orinda WTP that were considered for inclusion in the WTTIP EIR but eliminated prior to further study in that EIR.

4.5.2 BODR Alternatives

The project described in the 2017 BODR is described below in Section 4.7; the project described in the 2018 BODR is the Project described in Chapter 2, *Project Description*, of this Supplemental EIR. Most of the alternatives presented in Appendix A of the 2017 BODR were either rejected outright in the technical memorandum as not viable (e.g., due to time required for implementation, insufficient space, complexity) or subsequently rejected due to the complexity of construction and/or operations.

4.6 No Project Alternative

4.6.1 Alternative Description

Under the No Project Alternative, the proposed facilities would not be constructed.

The circumstances that have caused EBMUD to move forward with the Project, described in Section 2.2, Project Background, (i.e., changing source water quality due to fires in the watershed, warming climate, and droughts leading to increased organics in the source water and increases in trihalomethanes in the distribution system), are anticipated to continue. Consequently, under the No Project Alternative, the Orinda WTP would be less adaptive to changes in source water quality, and EBMUD would continue with short-term measures to address increases in trihalomethanes, such as reducing chlorine

doses, flushing the distribution system, and draining reservoirs, which are reactive, not pro-active, measures. Refer to Section 4.5, Alternatives Rejected from Further Consideration, regarding other alternatives to expanding operations at the Orinda WTP that have been contemplated since 2004.

4.6.2 Project Objectives

Table 4-1 presents the Project objectives along with an evaluation of whether the No Project Alternative meets those objectives. As explained in Table 4-1, the No Project Alternative would not meet any of the Project-specific objectives. With regard to the WTTIP objectives, the No Project Alternative would meet those related to how projects are implemented (e.g., designed to meet security initiatives, constructed to minimize construction impacts), because under the No Project Alternative no project would be implemented that would need to comply with such objectives. However, the No Project Alternative would not meet or would only partially meet objectives related to the long-term provision of reliable water treatment operations because no improvements to post-filtration disinfection processes would occur.

4.6.3 Impact Discussion

If the Project was not implemented, none of the impacts identified in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, would occur. Conditions described in the setting sections presented in Chapter 3 would persist.

As described in Section 2.2 of Chapter 2, the Project would provide a long-term, cost-effective solution to make the Orinda WTP more adaptive to changes in source water quality that are anticipated to continue due to warming climate, fires in the watershed, and future droughts. EBMUD is obligated to continue to comply with water quality regulations, as noted in Section 2.2.3 of Chapter 2. In the near term, the Orinda WTP would continue to provide reliable treatment, but the conditions warranting the Project (changing source water quality and elevated concentrations of trihalomethanes in the distribution system) would persist and could worsen (e.g., if a wildfire in the Mokelumne River watershed were to compromise source water quality). If the Project was not implemented, EBMUD would continue to take incremental actions to address the increase in trihalomethane formation by reducing chlorine doses, flushing the distribution system, and draining some reservoirs, but would not incorporate permanent UV and chlorine contact treatment processes into the Orinda WTP.

TABLE 4-1
PROJECT-SPECIFIC AND WTTIP OBJECTIVES: NO PROJECT ALTERNATIVE

Objective			Does the No Project Alternative Achieve Objective?
Project-specific Objectives	Improve disinfection reliability.		No, disinfection reliability would not improve.
	Reduce the formation of disinfection byproducts.		No, there would be no reduction in the formation of disinfection byproducts.
	Improve chemical dosing.		No, there would be no improvements in chemical dosing.
	Reduce disinfection complexity.		No, existing conditions regarding disinfection complexity would persist.
WTTIP Objectives	***Reliability***	Provide reliable water treatment, transmission, and distribution infrastructure that meets long-term operational needs under average and maximum-day demand conditions.	Partial. In the near term, the Orinda WTP would continue to provide reliable treatment and EBMUD would continue to implement short-term measures to counter changes in source water quality. In the long term, however, EBMUD would have an increased potential for future non-compliance with disinfection by-products and surface water treatment rules.
		Meet EBMUD standards for planned, unplanned, and emergency outages.	Yes, current treatment processes at the Orinda WTP meet EBMUD standards for planned, unplanned, and emergency outages.
		Meet security initiatives.	Yes, existing security initiatives are currently in effect at the Orinda WTP.
	Regulatory & Water Quality	Continue to meet drinking water and environmental regulations with a margin of safety and achieve EBMUD's internal long-term water quality goals.	No. While the Orinda WTP would continue to meet drinking water regulations, the No Project Alternative would not meet EBMUD's long-term water quality goals because there would be an increased potential for future non-compliance with disinfection by-products and surface water treatment rules.
	Operations	Ensure the Project will meet short-term peak demand periods in excess of projected demands.	Yes, the Orinda WTP would continue to meet short-term peak demand periods.
		Minimize the risk of service disruption and meet demands during construction.	Yes, the Orinda WTP would continue to minimize the risk of service disruption and meet demands during construction.
	Implementation	Minimize implementation issues by considering the complexity of public and local agency issues.	Yes, because the Project would not be implemented, there would be no implementation issues.
	Environmental	Minimize environmental impacts during construction.	Yes, there would be no construction.
		Minimize environmental impacts after construction and during operations.	Yes, there would be no change in Orinda WTP operations.
	Economics	Minimize life-cycle costs (capital, operating, and maintenance) to EBMUD customers.	Yes, the Orinda WTP would continue to minimize life-cycle costs to EBMUD customers.

SOURCE: EBMUD, 2006a; EBMUD, 2018.

4.7 Disinfection Improvements Near Camino Pablo Alternative

4.7.1 Alternative Description

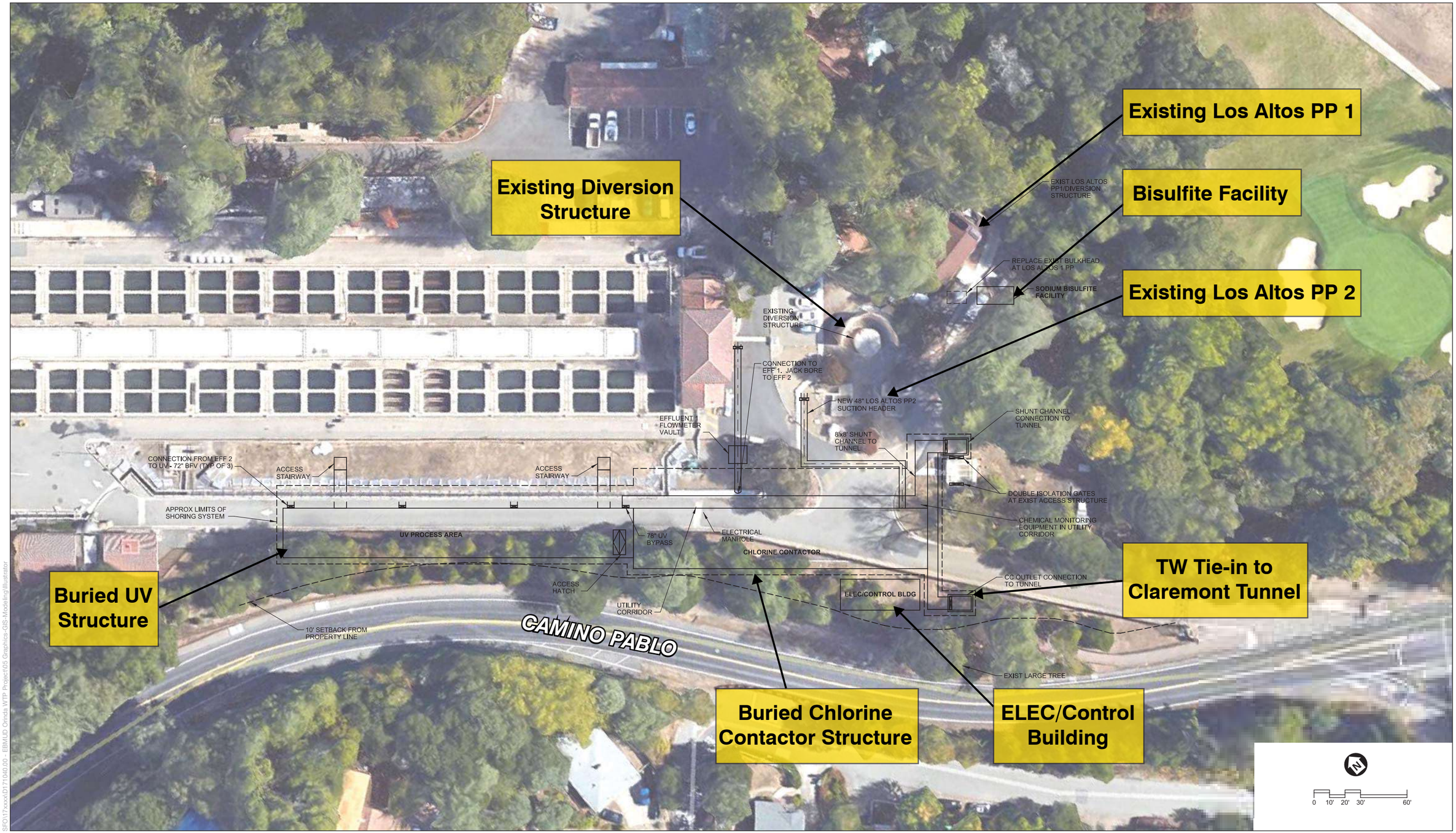
This alternative involves relocating the UV/CCB Structure and eliminating the Manzanita East staging area in order to avoid or reduce impacts on biological resources associated with San Pablo Creek and on historic resources (the existing maintenance building). The WTTIP mitigation measures adopted by the EBMUD Board of Directors for the WTTIP Orinda WTP projects are considered part of this alternative, as is the case for the Project.

As shown on Figure 4-1, the UV/CCB Structure would be in the southern portion of the Orinda WTP site, but closer to Camino Pablo and farther from San Pablo Creek than with the Project. Table 4-2 presents a side-by-side comparison of the basic characteristics of components under the Project and the alternative. As indicated on Figure 4-1 and in Table 4-2, the UV/CCB Structure would be constructed below grade in adjoined structures. Figure 4-2 presents the hydraulic grade line for this alternative and indicates facility elevations. For reference, the existing grade where the UV disinfection structure would be constructed under this alternative is approximately 380 feet above sea level while Camino Pablo is approximately 390 feet.[6] The electrical control building shown in Figure 4-1 would need to house all the components in the MAUVE building that are not related to grounds or mechanical maintenance, including the electrical equipment for the UV system (e.g., ballast panels, UPS, etc.) and CCB (chemical feed pumps, sample pumps, analytical instrumentation, etc.), requiring approximately 3,000 square feet. Given space constraints in this area of the Orinda WTP, the electrical control building would need a footprint of approximately 45 feet by 20 feet and be three stories in height, extending approximately 44 feet above ground level.

The following components would be the same as under the Project: Los Altos Pumping Plant No. 1 (LAPP1)/Los Altos Pumping Plant Power Building, Los Altos Pumping Plant No. 2 (LAPP2), and South Standby Generator. Like the Project, this alternative would have piping connections to Effluent 1 and Effluent 2, the Claremont Tunnel, and LAPP2, and additional chemical feed and monitoring points, although there would be differences. For example, the treated water tie-in to the Claremont Tunnel would be west of the south entrance road to the Orinda WTP. Treatment chemicals for the system would be stored in the existing chemical storage building, as with the Project.

Under this alternative, the existing maintenance building would not be demolished and relocated; consequently, there would be no need for a new Grounds Maintenance Building near Manzanita Drive. There would also be no need to modify the Influent Channel Bifurcation Gates and Additional Spillway Siphons or the Briones Diversion Weir Actuators at the Briones Center under this alternative because the Disinfection Improvements near Camino Pablo Alternative does not affect untreated water flows from Lafayette Aqueducts Nos. 1 and 2 to the Orinda WTP.

6 These ground elevations are taken from the WTTIP EIR.



SFO\17xxxx\D171040.00 - EBMUD Orinda WTP Project\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Carollo Engineers, 2017

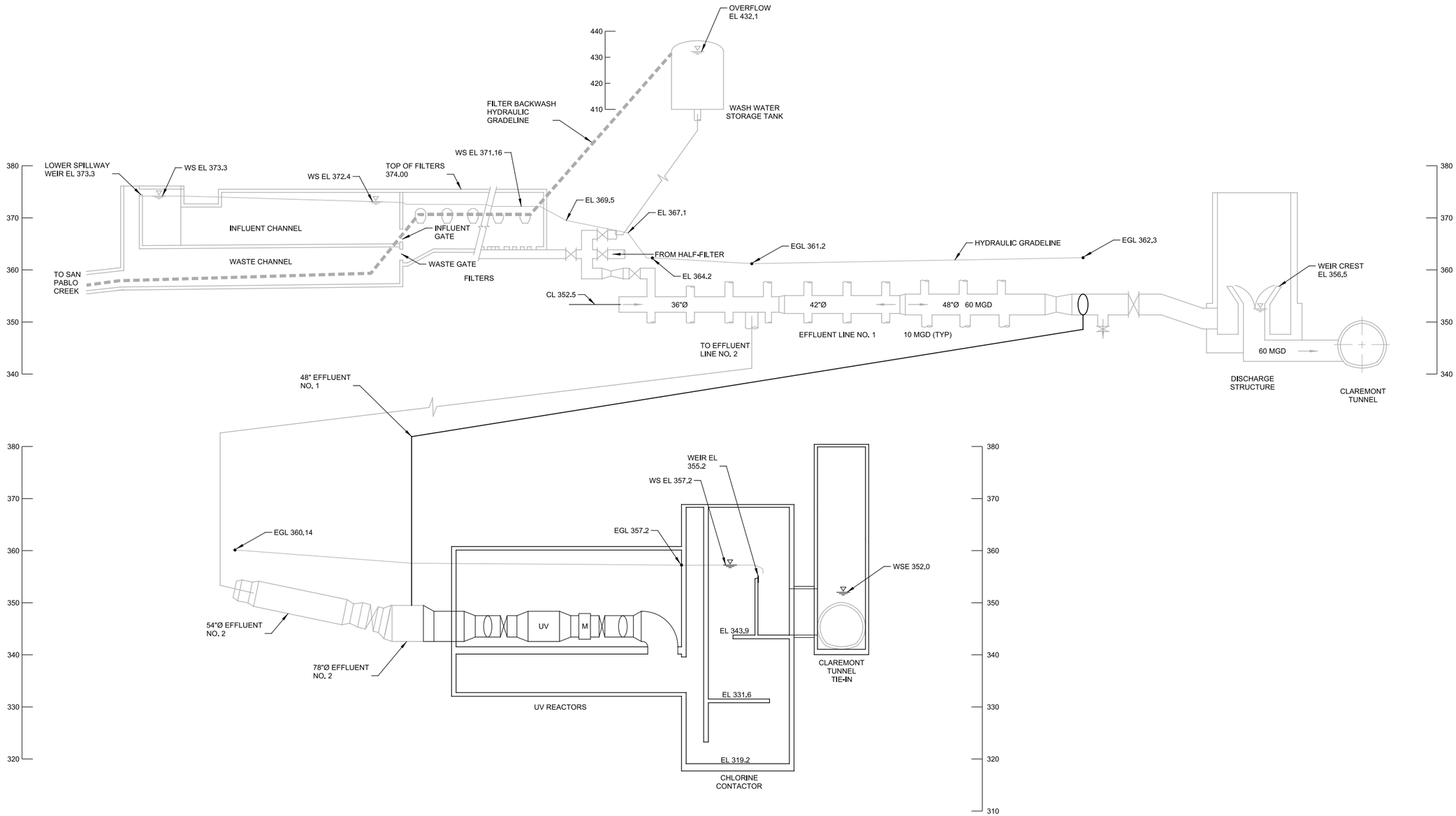
EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 4-1
Disinfection Improvements Near Camino Pablo Alternative

ESA

NOTES:

1. ALL ELEVATIONS BASED ON AQUEDUCT DATUM. AQUEDUCT DATUM = NGVD OF 1929+0.62.



SFO17xxxx\D171040.00 - EBMUD Orinda WTP Project\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Carollo Engineers, 2017

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 4-2
Disinfection Improvements Near Camino Pablo Alternative – Hydraulic Gradeline

ESA

TABLE 4-2
COMPARISON OF PROJECT COMPONENTS:
PROJECT AND DISINFECTION IMPROVEMENTS NEAR CAMINO PABLO ALTERNATIVE

Project Components	Disinfection Improvements Near Camino Pablo Alternative
MAUVE Building with UV Structure	The UV disinfection structure would extend approximately 50 feet below grade with the exception of minor features (e.g., stairwells, ventilation equipment). An electrical control building with a footprint of approximately 45 feet by 20 feet and approximately 44 feet in height would be required to house the electrical equipment for the UV system (e.g., ballast panels, UPS, etc.) and CCB (chemical feed pumps, sample pumps, analytical instrumentation, etc.).
CCB with Effluent Weir Structure	The CCB structure would adjoin the UV disinfection structure and would extend approximately 60 feet below grade.
Los Altos Pumping Plant No. 1/ Los Altos Pumping Plant Power Building	Assumed to be same as Project. (A new power building would still be needed in the same area. Consequently, it is assumed that the LAPP1 would be demolished under this alternative and replaced with the Los Altos Pumping Plant Power Building.)
Los Altos Pumping Plant No. 2	Same as Project.
Influent Channel Bifurcation Gates and Additional Spillway Siphons	Not part of this alternative.
South Standby Generator	Same as Project.
South Electrical Building	Same as Project.
Pipelines	The filter water system, treated water system, and UV/CCB bypass pipelines would be constructed to connect existing and proposed facilities at the alternative site. Treated water tie-in to Claremont Tunnel would be between Camino Pablo and the Orinda WTP south entrance gate. Lafayette 1 Drain pipeline would not be constructed because the existing wastewater pipelines would not be demolished.
Grounds Maintenance Building and Parking	Not part of this alternative. The existing maintenance building and associated parking would be preserved.
Screening and Landscaping	Similar in concept to Project (purpose is to screen existing and proposed facilities; plants would be primarily drought-tolerant natives) but limited to the Camino Pablo frontage and by available width and security considerations.
Briones Diversion Weir Actuators	Not part of this alternative.
Staging Areas	Same as Project, but Manzanita East staging area would not be implemented. The San Pablo Reservoir Overflow Parking Lots staging area would be able to accommodate the worker parking that was proposed for the Manzanita East staging area under the Project. The workers would be transported to the Project site by contractor passenger vehicles.

There are several constructability challenges associated with the alternative, including concerns about proximity of excavation and construction to the filters and associated piping, lack of vehicular access around the excavation, the need to reroute chemical and other truck deliveries for the duration of construction, and the need to relocate existing major below-ground electrical utilities and chemical piping, which would require extended outages of the Orinda WTP. Overall, the duration of construction for this alternative is assumed to be approximately the same as for the Project (4.5 years), although constructability challenges (e.g., the rerouting of the electrical utilities) could increase the likelihood of schedule delays. General construction activities would be similar, including site preparation and demolition, construction, testing, and site restoration. Likewise, construction equipment and operating hours would be similar. Site preparation and demolition would include relocating major electrical conduits and chemical piping. Use of

the south entrance gate to the Orinda WTP would be constrained during construction, and chemical and other truck deliveries would be rerouted, potentially requiring additional changes to Orinda WTP roadways to accommodate vehicular movements. The excavation for the UV/CCB Structure would require shoring similar to that proposed for the Maintenance and UV Electrical (MAUVE) Building; the location of the shoring is shown on Figure 4-1. Tree removal would be required along Camino Pablo. Although the 2017 BODR identifies a 10-foot setback from the property line, some vegetation removal within that setback (where the shoring system is closest to the roadway) would be required.

Also, because the Project UV Structure and CCB both expanded from early concepts in pre-design, it is likely that the belowground components of the Disinfection Improvements near Camino Pablo Alternative, had it gone through a similar pre-design process, would also require more space than shown in Figure 4-1.

For operations, basic disinfection would be as described for the Project, but the configuration of the specific processes (e.g., the UV reactors and CCB channels) would be different and likely would have required non-standard layouts to fit the site. Consequently, special procedures would be developed to resolve concerns among EBMUD staff about the ease of operations and maintenance.

4.7.2 Project Objectives

Table 4-3 presents the Project objectives along with an evaluation of whether the Disinfection Improvements Near Camino Pablo Alternative meets those objectives. As shown in Table 4-3, the Disinfection Improvements Near Camino Pablo Alternative would meet most of the Project-specific objectives, but would only partially meet the Project-specific objective related to reducing disinfection complexity because of the need to develop and implement special procedures for operation and maintenance of the UV and CCB facilities. The Disinfection Improvements Near Camino Pablo Alternative would also meet most of the WTTIP objectives; however, because of the constructability issues associated with this alternative, the objective of minimizing the risk of service disruption and meet demand during construction would be only partially met.

4.7.3 Impact Discussion

Implementation of the Disinfection Improvements Near Camino Pablo Alternative would reduce impacts on biological resources and historical resources compared to the Project, as intended; however, some impacts would worsen. These impacts are described below; refer to Table 4-4 in Section 4.8 for a detailed comparison of the Project with this alternative.

For biological resources, construction activities would be located away from San Pablo Creek; consequently, impacts on riparian woodland habitat associated with the Project (a less-than-significant impact with implementation of adopted WTTIP Mitigation Measures) and associated special-status plant and animal species (a less-than-significant impact with additional mitigation measures identified in this Supplemental EIR) would be avoided. The areas where vegetation removal, grading, and soil excavation would occur under the Disinfection Improvements Near Camino Pablo Alternative are either landscaped or paved (refer to Figure 4-1). The landscaped area between Camino Pablo and the UV/CCB

TABLE 4-3
PROJECT-SPECIFIC AND WTTIP OBJECTIVES: DISINFECTION IMPROVEMENTS NEAR CAMINO PABLO ALTERNATIVE

Objective			Does the Disinfection Improvements Near Camino Pablo Alternative Achieve Objective?
Project-specific Objectives	Improve disinfection reliability.		Yes.
	Reduce the formation of disinfection byproducts.		Yes.
	Improve chemical dosing.		Yes.
	Reduce disinfection complexity.		Partial. While this alternative would remedy disinfection complexity associated with existing operations, UV and CCB operations would require special procedures to resolve concerns about the ease of operations and maintenance.
WTTIP Objectives	***Reliability***	Provide reliable water treatment, transmission, and distribution infrastructure that meets long-term operational needs under average and maximum-day demand conditions.	Yes.
		Meet EBMUD standards for planned, unplanned, and emergency outages.	Yes.
		Meet security initiatives.	Yes.
	Regulatory & Water Quality	Continue to meet drinking water and environmental regulations with a margin of safety and achieve EBMUD's internal long-term water quality goals.	Yes.
	Operations	Ensure the Project will meet short-term peak demand periods in excess of projected demands.	Yes.
		Minimize the risk of service disruption and meet demands during construction.	Partial. Like the Project, the alternative would be implemented in a way that minimized the risk of service disruption and EBMUD would continue to meet demands during construction. However, there is an incrementally greater potential for disruption of WTP operations during construction (e.g., due to need to relocate major utilities).
	Implementation	Minimize implementation issues by considering the complexity of public and local agency issues.	Yes. Like the Project, this alternative incorporates input from the City of Orinda and the public that occurred through the CEQA process for the WTTIP. However, the revised design (in particular, the three-story electrical building adjacent to Camino Pablo) may raise new issues with the community due to its visibility.
	Environmental	Minimize environmental impacts during construction.	Yes. Like the Project, this alternative includes the adopted WTTIP mitigation measures.
		Minimize environmental impacts after construction and during operations.	Yes. Like the Project, this alternative includes the adopted WTTIP mitigation measures.
	Economics	Minimize life-cycle costs (capital, operating, and maintenance) to EBMUD customers.	Yes.

SOURCE: EBMUD, 2006a; EBMUD, 2018.

Structure site contains dozens of trees, some of which may qualify as a protected tree.[7] Consequently, the loss of or damage to protected trees could be similar under this alternative compared to the Project.

For cultural resources, impacts on historical resources under this alternative would be less than with the Project. Implementation of this alternative would avoid demolition of the existing maintenance building (a contributing element to the Orinda WTP's designation as a historical resource), although the LAPP1 (likely built around the same time as the existing maintenance building) would still be demolished, and the setting of the Orinda WTP would be altered with construction of the proposed facilities. Because LAPP1 would still be demolished under this alternative, Mitigation Measures CUL-1a and CUL-1b would still be warranted. Construction would occur close to the filter gallery building; implementation of adopted WTTIP Mitigation Measure 3.10-3a would reduce or avoid impacts from vibration induced by construction activities to a less-than-significant level. Other impacts on cultural resources (the potential to affect archeological resources or disturb human remains) would be similar to the Project (and less than significant).

For aesthetic, noise, and transportation impacts, the proximity of the alternative site to Camino Pablo and the North Lane neighborhood, vegetation and tree removal along Camino Pablo, and constraints to use of the south entrance gate to the Orinda WTP site during construction would increase the severity of impacts related to the changes in visual quality, noise from construction, and traffic operating conditions and traffic safety. In addition, this alternative would require relocation of the recently installed North Lane Culvert, which provides stormwater drainage for the North Lane neighborhood below the Orinda WTP to San Pablo Creek. In particular, removal of trees and other vegetation near Camino Pablo (along with any tree removal that might be required for relocation of the North Lane Culvert) coupled with construction of the three-story electrical control building, would change the visual character of this portion of the WTP site and adversely affect views from Camino Pablo. While these impacts would be worse than with the Project as proposed, with implementation of the adopted WTTIP Mitigation Measures, these impacts would remain less than significant.

4.8 Comparison of Alternatives

Table 4-4 presents a comparison of the Project, No Project Alternative, and Disinfection Improvements near Camino Pablo Alternative. The No Project Alternative would avoid all of the impacts associated with implementation of the Project. As shown in Table 4-1, the No Project Alternative would not achieve any of the Project-specific objectives, nor would it achieve the WTTIP objectives related to long-term, reliable water treatment. As shown in Table 4-3, the Disinfection Improvements near Camino Pablo Alternative would meet most of the Project's basic objectives, but would only partially meet objectives related to reducing disinfection complexity and minimizing the risk of service disruption during construction.

[7] The aspects of the City of Orinda Municipal Code (Title 17, Chapters 17.21 and 17.24) that would be relevant for this alternative call for the protection of oak trees with trunk diameters equal to or greater than 12 inches at 4.5 feet above existing grade.

TABLE 4-4
COMPARISON OF THE PROJECT, NO PROJECT ALTERNATIVE, AND DISINFECTION IMPROVEMENTS NEAR CAMINO PABLO

Impact Statement	Significance[1]			Analysis
	Project	No Project	Disinfection Improvements Near Camino Pablo	
Aesthetics				
AES-1: Have a substantial adverse effect on a scenic vista.	LTS	NI	LTS	**No Project**. Because nothing would be constructed under the No Project Alternative, there would be no impact on scenic vistas. **Disinfection Improvements near Camino Pablo**. Facility construction would not dominate or create a substantial visual contrast in the view from Vollmer Peak due to the distance of the Project site and because vehicle movement is already seen within the Orinda WTP site and on surrounding streets. Implementation of adopted WTTIP Mitigation Measure 3.3-2c would reduce impacts to a less-than-significant level by requiring integration of proposed facilities with the existing visual environment. Consequently, because adopted WTTIP Mitigation Measure 3.3-2c would be included as part of this alternative, and the visible components would be visually consistent with the existing structures at the Orinda WTP site and would not create a substantial change in visual contrast in the view from this vista, the impact on scenic vistas would remain less than significant.
AES-2: Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	NI	NI	NI	**No Project**. Because nothing would be constructed under the No Project Alternative, there would be no impact on scenic resources. **Disinfection Improvements near Camino Pablo**. Highway 24 is designated as a California Scenic Highway within the Orinda city limits. No part of the Orinda WTP, nor any of the staging areas, is visible from Highway 24. This alternative would not impact or damage scenic resources within a state scenic highway.
AES-3: In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage points), or in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.	LTS	NI	LTS+	**No Project**. Because nothing would be constructed under the No Project Alternative, there would be no degradation to the existing visual character or quality of public views of the site. **Disinfection Improvements near Camino Pablo**. The degree to which construction activities at the Orinda WTP would be noticeable would vary. Most of the activities would be concentrated in the southern portion of the site between the Chemical Building and South Gate, and between the filter gallery building and Camino Pablo. The existing ground level in this portion of the Orinda WTP site is approximately 10 feet lower than that of Camino Pablo and adjacent path. Some of the existing vegetation screening views of the Orinda WTP site along Camino Pablo (from the South Gate to a point approximately 700 north) would be removed to accommodate construction and the permanent UV/CCB Structure. Current delivery access through the South Gate would be rerouted to the entrance on Manzanita Drive. Views of construction activities and equipment at the alternative site would be temporary for public viewers traveling along Camino Pablo (a City-designated scenic corridor) and the adjacent path. The construction activity and equipment would not substantially change the scenic character or quality of the Orinda WTP, as it is a public infrastructure facility in an urbanized area. No construction would occur at the Grounds Maintenance Building site that is proposed with the Project. With the removal of some of the existing vegetation that currently screens views into the Orinda WTP site from Camino Pablo, the construction site would be more visually apparent to travelers along Camino Pablo and residences to the west across Camino Pablo. Although the site is approximately 10 feet lower than Camino Pablo, the movement of construction machinery and other construction activity would be visually apparent. The removal of existing vegetation would expose construction activity in this portion of the Orinda WTP site to a greater extent than with the Project. However, when considered in the context of an urbanized area, the construction equipment and temporary facilities would not be permanent structures that would conflict with zoning and other regulations governing scenic quality. Upon completion of construction, the primary permanent visible element of this alternative that would differ from the Project is the electrical control building; access points to the UV/CCB units could also be visible (refer to Figure 4-1). The electrical control building would be approximately 45 feet by 20 feet and approximately 44 feet in height. The base of the building would be approximately 10 feet lower in elevation than Camino Pablo. Regarding long-term effects on aesthetics, the views most affected by this alternative would be from motorists (and to a lesser extent pedestrians and cyclists) traveling along Camino Pablo. The electrical control building would be visible to those approaching the south entrance to the Orinda WTP because of its height, although it would be partially screened by intervening trees and other vegetation. While the electrical control building could be even more noticeable from motorists traveling from the opposite direction (Manzanita Drive) because much of the vegetation near Camino Pablo would require removal, the duration of views would be less because of roadway curves. Figures 3.2-7 and 3.2-8 present simulated views of Viewpoints 1 and 2, respectively; these viewpoints are representative of locations from which the components of the alternative would be visible. (Because there would be no new Grounds Maintenance Building, there would be no visual change at its location near Manzanita Drive.) Pursuant to adopted WTTIP Mitigation Measure 3.3-2a, after construction, additional native vegetation (including trees and shrubs) would be planted as part of this alternative to further screen existing and proposed facilities. Based on the placement of the alternative-specific components, the simulated view of Viewpoint 1 at the South Gate would change somewhat compared to the Project because of the electrical control building, which would be to the left of the driveway and "behind" the vegetation to the left of the South Gate. Some of the trees in the upper left of the view would be removed as a part of construction and would not be replaced to accommodate the permanent UV/CCB Structure, although two of the taller trees in the foreground (including a large redwood tree along the fence) could be avoided. Figure 3.2-8 provides a simulated view from Camino Pablo into the area where the UV/CCB Structure and electrical control building would be located. With the presence of these components close to the Orinda WTP property boundary (within 10 feet), security requirements, and the path along Camino Pablo, this analysis assumes that there would not be sufficient area to install landscaping in a manner sufficient to screen views into the site, as would be the case for the Project (see Figure 3.2-8). While some vegetative screening could be installed, it would not be to the density or volume of that proposed for the Project. Therefore, the permanent adverse effects of this alternative on the site's visual character and quality would be greater when compared to that of the Project. However, as it is a public infrastructure facility, when considered in the context of an urbanized area, this alternative would not conflict with zoning and other regulations governing scenic quality, and the impact would remain less than significant.
AES-4: Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.	LTS	NI	LTS	**No Project**. Because nothing would be constructed under the No Project Alternative, there would be no impact related to creating a new source of light or glare. **Disinfection Improvements near Camino Pablo**. As with the Project, when needed, lighting would be shielded to reduce the potential for light trespass onto neighboring properties and sensitive receptors. During operations, lighting associated with this alternative's design would comply with applicable requirements and adopted WTTIP Mitigation Measures 3.3-5b and 3.3-5c. Consequently, impacts related to new sources of light and glare would be less than significant.
Air Quality				
AIR-1: Conflict with or obstruct implementation of the applicable air quality plan.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to conflicting with or obstructing implementation of an air quality plan. **Disinfection Improvements near Camino Pablo**. For reasons described below in the Impact AIR-2 discussion, because criteria air pollutant emissions estimates would not be expected to exceed BAAQMD thresholds of significance with incorporation of adopted WTTIP Mitigation Measures 3.9-1b and 3.9-1c and implementation of Mitigation Measure 3.9-1a-ORWTPDI, and because (like the Project) components of this alternative would be required to comply with 2017 Clean Air Plan control strategies, this alternative would also be consistent with the 2017 Clean Air Plan.

1 NOTES:

NI = no impact; LTS = less than significant impact (also assumes implementation of adopted WTTIP mitigation measures); LSM = less than significant impact with mitigation measures identified in this Supplemental EIR.
(-) or (+) = lower or higher end of impact range, respectively.

The acronym "LTS" is used to indicate that a potentially adverse environmental impact was identified, but that the impact would be less than significant, either because (1) previously adopted WTTIP mitigation measures incorporated into the Project minimize the impact, or (2) the impact is less than significant on its own, without any mitigation measures. In either case, for impacts denoted as "LTS," new project-specific mitigation measures are not required to ensure that impacts remain less than significant.

TABLE 4-4 (CONTINUED)
COMPARISON OF THE PROJECT, NO PROJECT ALTERNATIVE, AND DISINFECTION IMPROVEMENTS NEAR CAMINO PABLO

Impact Statement	Significance[1]			Analysis
	Project	No Project	Disinfection Improvements Near Camino Pablo	
Air Quality (cont.)				
AIR-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no increase in criteria air pollutant emissions. **Disinfection Improvements near Camino Pablo**. The duration and general construction activities would be the same as with the Project; consequently, daily emissions are assumed to be similar in magnitude to the Project's and thus below significance thresholds with incorporation of adopted WTTIP Mitigation Measures 3.9-1b and 3.9-1c and implementation of Mitigation Measure 3.9-1a-ORWTPDI. Because operations and maintenance activities would be similar to the Project, emissions from these activities would likewise be minimal and well below the BAAQMD's operational significance thresholds.
AIR-3: Expose sensitive receptors to substantial pollutant concentrations.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to exposing sensitive receptors to substantial pollutant concentrations. **Disinfection Improvements near Camino Pablo**. The nearest sensitive receptors to the alternative site (across Camino Pablo along North Lane) are as close as 130 feet away (as compared to the Maximum Exposed Individual Receptor to the Project, which is about 230 feet from the proposed MAUVE Building site). Consequently, more construction would occur closer to sensitive receptors, and the potential for health risks from exposure to construction-related diesel particulate matter and $PM_{2.5}$ emissions would be incrementally greater. Although this alternative would generate less emissions overall as it does not require demolition of the existing maintenance building and construction of a new maintenance building, the reduced amount of construction and level of exposure would not likely compensate for the closer proximity of sensitive receptors resulting in uncontrolled health risks similar to the Project. Implementation of Mitigation Measure AIR-1 would reduce risks under this alternative to below the BAAQMD's cancer risk threshold of 10 in a million resulting in a less-than-significant impact.
Biological Resources				
BIO-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 the CDFW or USFWS.	LSM	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to substantial adverse effects on any species identified as a candidate, sensitive, or special-status species. **Disinfection Improvements near Camino Pablo**. Under this alternative, construction would be shifted outside of the mixed riparian woodland habitat, a sensitive natural community that may support special-status plant species. Consequently, a significant impact on these biological resources would be avoided with this alternative. As with the Project, impacts on nesting raptors and other special status birds could occur through loss of nesting habitat, and to special-status bats from loss of roosting habitat (although at a different location and outside riparian woodland habitat) and from construction noise, but would be less than significant with implementation of adopted WTTIP Mitigation Measure 3.6-4a. The area where vegetation removal, grading, and soil excavation would occur under this alternative (near Camino Pablo) is less likely to provide suitable habitat for dusky-footed woodrat than the riparian woodland habitat affected by the Project; nonetheless, implementation of adopted WTTIP Mitigation Measure 3.6-6 would ensure that impacts on this species would be less than significant.
BIO-2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS, or 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.	LSM	NI	LTS-	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact on riparian habitat or other sensitive natural communities. **Disinfection Improvements near Camino Pablo**. As indicated above, under the description of Disinfection Improvements near Camino Pablo for Impact BIO-1, there would be no direct impacts on riparian habitat or wetlands under state or federal jurisdiction under this alternative. Indirect impacts on waterways would be less than significant with adopted WTTIP mitigation measures (e.g., adopted WTTIP Mitigation Measure 3.6-7a, requiring that equipment and hazardous materials be stored at least 50 feet away from waterways).
BIO-3: 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.	LTS	NI	LTS-	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact on the movement of fish or wildlife species. **Disinfection Improvements near Camino Pablo**. The potential for the movement of native resident or migratory fish or wildlife species to be impeded would be less likely with the location of the Disinfection Improvements near Camino Pablo alternative; impacts would remain less-than-significant.
BIO-4: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to conflicting with local policies or ordinances protecting biological resources. **Disinfection Improvements near Camino Pablo**. The areas where vegetation removal, grading, and soil excavation would occur are either landscaped or paved and are considered neither riparian nor natural areas. Based on a reconnaissance survey of the area where vegetation removal, grading, and soil excavation would occur, it is likely that more trees would be removed under this alternative and that some of these trees likely would meet the definition of a protected tree[8], although the number of those trees that are likely to be considered protected is unknown. As with the Project, impacts related to conflicting with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, could be reduced to less than significant with implementation of Mitigation Measure 3.6-1b – ORWTPDI and adopted WTTIP Mitigation Measures 3.6-1a, 3.6-1c, and 3.6-1d.
BIO-5: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.	LTS	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to conflicting with a Habitat Conservation Plan or other approved conservation plan. **Disinfection Improvements near Camino Pablo**. Because this alternative is also within the Orinda WTP, the findings regarding Habitat Conservation Plans (conformance with applicable provisions of EBMUD's Low Effect East Bay Habitat Conservation Plan; non-interference with implementation of PG&E's Bay Area Habitat Conservation Plan) apply to this alternative as well, and the impact would remain less than significant.

8 The aspects of the City of Orinda Municipal Code (Title 17, Chapters 17.21 and 17.24) that would be relevant for this alternative call for the protection of oak trees with trunk diameters equal to or greater than 12 inches at 4.5 feet above its existing grade.

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The acronym "LTS" is used to indicate that a potentially adverse environmental impact was identified, but that the impact would be less than significant, either because (1) previously adopted WTTIP mitigation measures incorporated into the Project minimize the impact, or (2) the impact is less than significant on its own, without any mitigation measures. In either case, for impacts denoted as "LTS," new project-specific mitigation measures are not required to ensure that impacts remain less than significant.

TABLE 4-4 (CONTINUED)
COMPARISON OF THE PROJECT, NO PROJECT ALTERNATIVE, AND DISINFECTION IMPROVEMENTS NEAR CAMINO PABLO

Impact Statement	Significance[1]			Analysis
	Project	No Project	Disinfection Improvements Near Camino Pablo	
Cultural Resources				
CUL-1: Cause a substantial adverse change in the significance of a historical resource, as defined in *CEQA Guidelines* Section 15064.5.	LSM	NI	LSM-	**No Project**. Because there would be no construction or demolition under the No Project Alternative, there would be no impact related to having a substantial adverse change in the significance of a historical resource. **Disinfection Improvements near Camino Pablo**. The three buildings described in the City of Orinda Landmark Ordinance for the Orinda Filter Plant are the Main Building (including the attached filter gallery building), the Chemical Building (now referred to as the Lime Tower), and the existing maintenance building. Implementation of this alternative would avoid demolition of the existing maintenance building (a contributing element to the Orinda WTP's designation as a historical resource), although the LAPP1 (likely built around the same time as the existing maintenance building) would still be demolished, and the setting of the Orinda WTP would be altered with construction of the proposed facilities. For these reasons, Mitigation Measure CUL-1a and the portion of Mitigation Measure CUL-1b that relates to LAPP1 would still be warranted. Construction would occur near the filter gallery building; implementation of adopted WTTIP Mitigation Measure 3.10-3a would avoid or reduce to a less-than-significant level impacts to historic structures from vibration caused by construction activities.
CUL-2: Cause a substantial adverse change in the significance of an archaeological resource, pursuant to *CEQA Guidelines* Section 15064.5.	LTS	NI	LTS	**No Project**. Because there would be no construction or demolition under the No Project Alternative, there would be no impact related to causing a substantial adverse change in the significance of an archaeological resource. **Disinfection Improvements near Camino Pablo**. The facilities constructed under this alternative would be similar to those proposed as part of the Project and would also be within the Orinda WTP; therefore, impacts related to causing a substantial adverse change in the significance of an archaeological resource would remain less than significant with Disinfection Improvements Near Camino Pablo.
CUL-3: Disturb any human remains, including those interred outside of dedicated cemeteries.	LTS	NI	LTS	**No Project**. Because there would be no construction or demolition under the No Project Alternative, there would be no ground disturbance, and thus no impact related to disturbing any human remains. **Disinfection Improvements near Camino Pablo**. The facilities constructed in this alternative would be similar to those proposed as part of the Project and would also be within the Orinda WTP; therefore, impacts related to disturbing any human remain would remain less than significant with Disinfection Improvements near Camino Pablo.
Energy				
EN-1: Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation.	LTS	LTS-	LTS	**No Project**. Without implementation of the Project, there would be less-than-significant impacts related to wasteful, inefficient, or unnecessary consumption of energy resources at the Orinda WTP due to not making necessary updates to equipment and technology. **Disinfection Improvements near Camino Pablo**. Because energy usage would be very similar to that of the Project, this alternative would not result in significant impacts due to the wasteful, inefficient, or unnecessary consumption of energy resources.
Geology, Soils, Seismicity, and Paleontological Resources				
GEO-1: Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic groundshaking; seismic-related ground failure (liquefaction, lateral spreading); or landslides.	LTS	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to causing potential substantial adverse effects, including the risk of loss, injury, or death involving: strong seismic groundshaking, seismic-related ground failure, or landslides. **Disinfection Improvements near Camino Pablo**. Because this alternative would be constructed within the Orinda WTP like the Project, impacts related to strong seismic groundshaking, seismic-related ground failure, or landslides would be similar to those of the Project and would be less than significant.
GEO-2: Result in substantial soil erosion or the loss of topsoil.	LTS	NI	LTS	**No Project**. Because there would be no construction or demolition under the No Project Alternative, there would be no impact related to soil erosion or loss of topsoil. **Disinfection Improvements near Camino Pablo**. Because this alternative would also be constructed within the Orinda WTP in an area with similar characteristics as the Project area, impacts related to soil erosion would be similar to those of the Project and would be less than significant.
GEO-3: Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse.	LSM	NI	LTS	**No Project**. Because there would be no construction or demolition under the No Project Alternative, there would be no impact related to being located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project, and potentially could result in on-site or off-site landslides, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse. effect related to unstable soils. **Disinfection Improvements near Camino Pablo**. Under this alternative, the Project would be shifted away from the proximity of San Pablo Creek, so Mitigation Measure HYD-3 would not be required to monitor San Pablo Creek bank stability. Because this alternative would also be constructed within the Orinda WTP in an area with similar soil characteristics, but not adjacent to San Pablo Creek, impacts related to slope stability would be less than significant.
GEO-4: Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property.	LTS	NI	LTS	**No Project**. Because there would be no construction or demolition under the No Project Alternative, there would be no impact related to being located on expansive soils. **Disinfection Improvements near Camino Pablo**. Because this alternative would also be constructed within the Orinda WTP in an area with similar soil characteristics, impacts related to slope stability would be similar to those of the Project and would be less than significant.
GEO-5: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	LTS	NI	LTS	**No Project**. Because there would be no construction or demolition under the No Project Alternative, there would be no impact related to destroying a unique paleontological resource or site or unique geologic feature. **Disinfection Improvements near Camino Pablo**. Because this alternative would also be constructed within the Orinda WTP in an area with similar soil characteristics and excavation would be at similar depths, the potential to encounter paleontological resources would be similar to the Project, and would remain less than significant with implementation of adopted WTTIP Mitigation Measure 3.7-2.

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TABLE 4-4 (CONTINUED)
COMPARISON OF THE PROJECT, NO PROJECT ALTERNATIVE, AND DISINFECTION IMPROVEMENTS NEAR CAMINO PABLO

Impact Statement	Significance[1]			Analysis
	Project	No Project	Disinfection Improvements Near Camino Pablo	
Greenhouse Gas Emissions				
GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	LTS	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to generating GHG emissions. **Disinfection Improvements near Camino Pablo**. Because the magnitude of construction activities would be very similar under this alternative (in terms of construction emissions, energy consumption, and water usage), and because operational energy usage would be the same as with the Project, direct and indirect GHG emissions estimates also would be similar and below applicable thresholds; the impact would remain less than significant.
GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	LTS	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to conflicting with an applicable plan, policy, or regulation pertaining to GHG emissions. **Disinfection Improvements near Camino Pablo**. Because construction and operation activities under this alternative would comply with applicable emissions standards and plans, like the Project, this alternative would not conflict with applicable plans, policies, and regulations adopted for the purpose of reducing GHG emissions, and the impact would remain less than significant.
Hazards and Hazardous Materials				
HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. **Disinfection Improvements near Camino Pablo**. Because construction and operations activities for this alternative would be similar to those of the Project, impacts related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials would remain less than significant with implementation of adopted WTTIP Mitigation Measure 3.11-2 and Mitigation Measures HAZ-1a, HAZ-1b, HAZ 1-c, and HAZ 1-d with Disinfection Improvements Near Camino Pablo.
HAZ-2: Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to creating a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. **Disinfection Improvements near Camino Pablo**. Because construction and operation activities for this alternative would be similar to those of the Project, impacts related to creating a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment would remain less than significant with implementation of adopted WTTIP Mitigation Measure 3.12-1c and Mitigation Measures HAZ-1a, HAZ-1b, HAZ 1-c, and HAZ 1-d with Disinfection Improvements near Camino Pablo.
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.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact on emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. **Disinfection Improvements near Camino Pablo**. Because construction and operations activities for this alternative would be similar to those of the Project and would also be within the Orinda WTP, impacts related to emitting hazardous emissions or handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school would remain less than significant with implementation of Mitigation Measures HAZ-1a, HAZ-1b, HAZ 1-c, and HAZ 1-d with Disinfection Improvements near Camino Pablo.
HAZ-4: Be located on a site that 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.	LTS	NI	LTS	**No Project.** Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to being located on a site that is included on a list of hazardous materials sites and creating a significant hazard to the public or the environment. **Disinfection Improvements near Camino Pablo**. Because this alternative would be constructed within the Orinda WTP like the Project, impacts related to being located on a site that is included on a list of hazardous materials sites and creating a significant hazard to the public or the environment would remain less than significant with Disinfection Improvements near Camino Pablo.
HAZ-5: Impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LTS	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact on an adopted emergency response plan or emergency evacuation plan. **Disinfection Improvements near Camino Pablo**. Because construction and operation activities would be similar to the Project and within the Orinda WTP, impacts related to impairing with implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan would remain less than significant with Disinfection Improvements near Camino Pablo.
HAZ-6: Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to exposing people or structures to a significant risk of loss, injury, or death involving wildland fires. **Disinfection Improvements near Camino Pablo**. Because this alternative would be constructed within the Orinda WTP like the Project, and because the entire Project area is within a Very High Fire Severity Zone, impacts related to exposing people or structures to a significant risk of loss, injury, or death involving wildland fires would remain less than significant with implementation of Mitigation Measure WF-1 with Disinfection Improvements near Camino Pablo.
Hydrology and Water Quality				
HYD-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to violation of water quality standards. However, refer to the discussion presented under Section 4.6.3 discussing potential future actions if the Project is not implemented. **Disinfection Improvements near Camino Pablo**. Because this alternative would comply with adopted WTTIP Mitigation Measure 3.5-1a, NPDES requirements and Orinda WTP waste discharge requirements for water quality, and be consistent with the Contra Costa Clean Water Program C.3 guidelines for flow control improvements, this alternative would not alter the quality or volume of water discharged to San Pablo Creek. Under this alternative, the Project would be shifted away from the proximity of San Pablo Creek, so Mitigation Measure HYD-2 would not be required to monitor tieback installation. Consequently, this impact would be less than significant with implementation of Mitigation Measure HYD-1.

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The acronym "LTS" is used to indicate that a potentially adverse environmental impact was identified, but that the impact would be less than significant, either because (1) previously adopted WTTIP mitigation measures incorporated into the Project minimize the impact, or (2) the impact is less than significant on its own, without any mitigation measures. In either case, for impacts denoted as "LTS," new project-specific mitigation measures are not required to ensure that impacts remain less than significant.

TABLE 4-4 (CONTINUED)
COMPARISON OF THE PROJECT, NO PROJECT ALTERNATIVE, AND DISINFECTION IMPROVEMENTS NEAR CAMINO PABLO

Impact Statement	Significance[1]			Analysis
	Project	No Project	Disinfection Improvements Near Camino Pablo	
Hydrology and Water Quality (cont.)				
HYD-2: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.	LTS	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to groundwater resources. **Disinfection Improvements near Camino Pablo**. Because temporary dewatering activities would be limited to as-needed pumping of the unconfined groundwater, and no groundwater pumping would occur during operations, this impact would be substantially the same as that of the Project and would remain less than significant.
HYD-3a: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would result in substantial erosion or siltation on or off site.	LSM	NI	LSM+	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to altering drainage patterns. **Disinfection Improvements near Camino Pablo**. Because construction and operation activities for this alternative would generally be similar to those of the Project and within the Orinda WTP, impacts related to the alteration of drainage patterns resulting in substantial erosion or siltation would be similar to those of the Project rendered less than significant with implementation of adopted WTTIP Mitigation Measure 3.5-1a and Mitigation Measure HYD-1. Implementation of this alternative would require relocation of the recently installed North Lane Pipeline (which provides stormwater drainage for the North Lane neighborhood) and another stormwater pipeline within the Orinda WTP. Changed stormwater outfall locations within San Pablo Creek could result in new erosion or sedimentation without proper design, a potentially significant impact. However, assuming pipelines were realigned but associated outfall locations remained the same, the impact would be less than significant.
HYD-3b: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would substantially increase the rate or amount of surface run-off in a manner that would result in flooding on or off site.	LSM	NI	LSM-	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to altering drainage patterns. **Disinfection Improvements near Camino Pablo**. Because this alternative would not increase the total impervious area at the site, and because construction and operation activities for this alternative would generally be similar to those of the Project and within the Orinda WTP, impacts related to the alteration of drainage patterns resulting in a substantial increase in surface runoff would be similar to those of the Project rendered less than significant with implementation of adopted WTTIP Mitigation Measure 3.5-1a and Mitigation Measure HYD-1,.
HYD-3c: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would create or contribute run-off water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted run-off.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to altering drainage patterns. **Disinfection Improvements near Camino Pablo**. Under this alternative, the Project would be shifted away from the proximity of San Pablo Creek, so Mitigation Measure HYD-2 would not be required to monitor tieback installation and because this alternative would not increase the total impervious area at the site, and because construction and operation activities for this alternative would generally be similar to those of the Project and within the WTP, impacts related to the alteration of drainage patterns resulting in an exceedance of the capacity of stormwater drainage systems or substantial additional sources of polluted runoff would be less than significant with implementation of adopted WTTIP Mitigation Measure 3.5-1a and Mitigation Measure HYD-1.
HYD-3d: Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to altering drainage patterns. **Disinfection Improvements near Camino Pablo**. Under this alternative, the Project would be shifted away from the proximity of San Pablo Creek, so Mitigation Measure HYD-3 would not be required to monitor San Pablo Creek bank stability. The electrical control building is located within an area subject to flooding and may impede or redirect flood flows from the North Lane neighborhood. However, due to existing topography, redirected flood flows would be unlikely to affect off-site areas. It is assumed that the UV/CCB Structure and electrical control building would be flood-proofed. For reasons described above under Impacts HYD-1 and HYD-3b, impacts related to the impedance or redirection of flood flows would be less than significant with implementation of adopted WTTIP Mitigation Measure 3.5-1a and Mitigation Measure HYD-1.
HYD-4: In a flood hazard, tsunami, or seiche zone, risk the release of pollutants due to Project inundation.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to releasing pollutants in a flood hazard, tsunami, or seiche zone. **Disinfection Improvements near Camino Pablo**. The risk of release of pollutants due to inundation under this alternative would be similar to the Project because, like the Project, water treatment chemicals would be stored pursuant to an updated spill prevention plan. Like the Project, implementation of adopted WTTIP Mitigation Measure 3.5-1a and Mitigation Measure HYD-1 would reduce this impact to a less-than-significant level.
HYD-5: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to conflicting with or obstructing implementation of a water quality control plan or sustainable groundwater management plan. **Disinfection Improvements near Camino Pablo**. Because the treatment processes would be the same and would be conducted in compliance with NPDES permits applicable to the Orinda WTP, the potential for this alternative to conflict with or obstruct implementation of a water quality control plan would be similar to the Project, and the impact would less than significant with implementation of adopted WTTIP Mitigation Measure 3.5-1a and Mitigation Measure HYD-1.

1 NOTES:

NI = no impact; LTS = less than significant impact (also assumes implementation of adopted WTTIP mitigation measures); LSM = less than significant impact with mitigation measures identified in this Supplemental EIR.
(-) or (+) = lower or higher end of impact range, respectively.

The acronym "LTS" is used to indicate that a potentially adverse environmental impact was identified, but that the impact would be less than significant, either because (1) previously adopted WTTIP mitigation measures incorporated into the Project minimize the impact, or (2) the impact is less than significant on its own, without any mitigation measures. In either case, for impacts denoted as "LTS," new project-specific mitigation measures are not required to ensure that impacts remain less than significant.

TABLE 4-4 (CONTINUED)
COMPARISON OF THE PROJECT, NO PROJECT ALTERNATIVE, AND DISINFECTION IMPROVEMENTS NEAR CAMINO PABLO

Impact Statement	Significance[1]			Analysis
	Project	No Project	Disinfection Improvements Near Camino Pablo	
Noise and Vibration				
NOI-1: Result in the 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.	LTS	NI	LTS+	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no change in noise and thus no impact related to an increase in ambient noise levels. **Disinfection Improvements near Camino Pablo**. The nearest sensitive receptors to the alternative site (across Camino Pablo along North Lane) are as close as 130 feet away (as compared to about 170 feet for the Project, for the South Standby Generator Building). Consequently, although the duration and daily construction activities would be similar to the Project, more construction would occur closer to sensitive receptors, and the magnitude of construction-phase noise impacts without mitigation would be greater with this alternative. With implementation of adopted WTTIP Mitigation Measures 3.10-1a, 3.10-1b, and 3.10-4, construction-phase noise impacts would be less than significant. Regarding operational noise, the UV/CCB Structure would be below ground and rooftop ventilation equipment would be enclosed and roughly 10 feet below Camino Pablo; operational noise would be less than significant. The electrical control building would not produce substantial operational noise and its ventilation equipment would be installed at ground level, adjacent to the building.
NOI-2: Result in the generation of excessive groundborne vibration or groundborne noise levels.	LTS	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to groundborne vibration or groundborne noise levels. **Disinfection Improvements near Camino Pablo**. As with the Project, vibration levels at the nearest sensitive receptors would be well below significance thresholds, and operations would not introduce any new sources of perceivable groundborne vibration. Therefore, the impact would remain less than significant.
Recreation				
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.	LTS	NI	LTS	**No Project.** Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to increasing the use of existing neighborhood and regional parks or other recreational facilities. **Disinfection Improvements near Camino Pablo.** Because this alternative would be constructed within the Orinda WTP like the Project and operations would be similar, impacts related to increasing 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 would remain less than significant with Disinfection Improvements near Camino Pablo.
Transportation				
TRA-1: Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.	LSM	NI	LSM+	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to conflicting with a program, plan, ordinance, or policy related to the circulation system. **Disinfection Improvements near Camino Pablo**. With this alternative, it is assumed that construction vehicle trips (in terms of number and point of origin) would generally be similar to those of the Project given the similarity in construction requirements. With the Project, all concrete delivery, soil and demolition off-haul, and heavy equipment trucks would enter the Orinda WTP via the south entrance to the Orinda WTP and exit via Manzanita Drive. Construction at the alternative site could preclude some trucks from traveling through the Orinda WTP, meaning that some concrete delivery, soil and demolition off-haul and heavy equipment trucks would need to enter and exit the site from Manzanita Drive, increasing the number of construction vehicles on that roadway. As with the Project, soil and demolition off-haul and heavy equipment truck trips would be limited to outside the AM and PM peak periods. In addition, chemical deliveries to the Orinda WTP would be disrupted by this alternative, as chemical trucks currently use the south entrance to the Orinda WTP. Similar to construction trucks, chemical deliveries would be routed to Manzanita Drive to enter and exit the site. It is unknown whether the additional vehicle trips on Manzanita Drive would result in substantial differences in traffic operating conditions at the Camino Pablo/Manzanita Drive intersection from existing conditions and thus whether implementation of this alternative would conflict with the County Congestion Management Plan. Regarding bicycle and pedestrian circulation, like the Project, increased construction traffic on public roadways would potentially decrease safety, but implementation of adopted WTTIP Mitigation Measures 3.8-1 and 3.8-4 (requiring preparation and implementation of a Traffic Control Plan and specific actions with regard to the path adjacent to the Orinda WTP) and Mitigation Measure TRA-1 would reduce this impact to less-than-significant levels. As with the Project, construction-phase impacts on transit and operations-phase impacts would be less than significant.
TRA-2: Conflict or be inconsistent with *CEQA Guidelines* Section 15064.3, Subdivision (b).	LTS	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to conflicting with or being inconsistent with *CEQA Guidelines* Section 15064.3(b). **Disinfection Improvements near Camino Pablo**. For reasons stated under Impact TRA-2 in Section 3.12, this impact would be less than significant for the Project and this alternative.
TRA-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no change to roadway features, and therefore no impact related to increasing hazards due to a geometric design feature or incompatible uses. **Disinfection Improvements near Camino Pablo**. Similar to the Project, increased truck traffic on Camino Pablo and truck turning movements onto roadways used to access the Project site could temporarily and intermittently reduce the capacity of local roadways and conflict with existing vehicles, pedestrians, and bicyclists along Manzanita Drive and Camino Pablo, resulting in a potentially significant impact during construction. With this alternative, the same number of trucks would be turning off of Camino Pablo for access to the Orinda WTP, but the proportion of trucks using the south entrance and the Manzanita Drive entrance would change due to restrictions in access at the south entrance. Deteriorated pavement conditions due to construction traffic could introduce a road hazard from unsafe conditions in the roadway for vehicular and bicycle traffic on collector and residential roadways, including Manzanita Drive. With implementation of adopted WTTIP Mitigation Measure 3.8-1 and 3.8-4, and Mitigation Measure TRA-1, and Mitigation Measure TRA-2, impacts related to construction traffic hazards could would be less than significant.
TRA-4: Result in inadequate emergency access.	LTS	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact on emergency access. **Disinfection Improvements near Camino Pablo**. As with the Project, implementation of adopted WTTIP Mitigation Measure 3.8-1 and 3.8-4 would require coordination with emergency service providers to ensure that emergency responders have access during the construction period, and operations-phase effects on emergency access would remain less than significant.

1 NOTES:

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(-) or (+) = lower or higher end of impact range, respectively.

The acronym "LTS" is used to indicate that a potentially adverse environmental impact was identified, but that the impact would be less than significant, either because (1) previously adopted WTTIP mitigation measures incorporated into the Project minimize the impact, or (2) the impact is less than significant on its own, without any mitigation measures. In either case, for impacts denoted as "LTS," new project-specific mitigation measures are not required to ensure that impacts remain less than significant.

TABLE 4-4 (CONTINUED)
COMPARISON OF THE PROJECT, NO PROJECT ALTERNATIVE, AND DISINFECTION IMPROVEMENTS NEAR CAMINO PABLO

Impact Statement	Significance[1]			Analysis
	Project	No Project	Disinfection Improvements Near Camino Pablo	
Tribal Cultural Resources				
TCR-1: Cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe.	LTS	NI	LTS	**No Project.** Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to having a substantial adverse change in the significance of a tribal cultural resource. **Disinfection Improvements near Camino Pablo.** Because this alternative would be constructed within the Orinda WTP like the Project, and because there are no archaeological tribal cultural resources within the Orinda WTP site or staging areas, and there is a low potential to uncover resources during Project implementation, this impact would remain less than significant with Disinfection Improvements Near Camino Pablo.
Wildfire				
WF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan.	LTS	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact on an adopted emergency response plan or emergency evacuation plan. **Disinfection Improvements near Camino Pablo**. Because construction and operation activities would be similar to the Project and within the Orinda WTP, impacts related to substantially impairing an adopted emergency response plan or emergency evacuation plan would remain less than significant with Disinfection Improvements near Camino Pablo.
WF-2: Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to exacerbating wildfire risks. **Disinfection Improvements near Camino Pablo**. Because this alternative would be constructed within the Orinda WTP like the Project, and because the entire Project area is within a Very High Fire Severity Zone, impacts related to exacerbating wildfire risk would remain less than significant with implementation of Mitigation Measure WF-1.
WF-3: 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 on the environment.	LTS	NI	LTS	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to requiring the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment. **Disinfection Improvements near Camino Pablo**. The facilities constructed in this alternative would be similar to those proposed as part of the Project; therefore, impacts related to requiring the installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment would remain less than significant with Disinfection Improvements near Camino Pablo.
WF-4: Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of run-off, post-fire slope instability, or drainage changes.	LSM	NI	LSM	**No Project**. Because there would be no construction or change in operations at the Orinda WTP under the No Project Alternative, there would be no impact related to exposing people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of run-off, post-fire slope instability, or drainage changes. **Disinfection Improvements near Camino Pablo**. Because this alternative would be constructed within the Orinda WTP like the Project, and because the entire Project area is within a Very High Fire Severity Zone, impacts related to exposing people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of run-off, post-fire slope instability, or drainage changes, would remain less than significant with implementation of Mitigation Measure WF-1 with Disinfection Improvements near Camino Pablo.

1 NOTES:

NI = no impact; LTS = less than significant impact (also assumes implementation of adopted WTTIP mitigation measures); LSM = less than significant impact with mitigation measures identified in this Supplemental EIR.
(-) or (+) = lower or higher end of impact range, respectively.

The acronym "LTS" is used to indicate that a potentially adverse environmental impact was identified, but that the impact would be less than significant, either because (1) previously adopted WTTIP mitigation measures incorporated into the Project minimize the impact, or (2) the impact is less than significant on its own, without any mitigation measures. In either case, for impacts denoted as "LTS," new project-specific mitigation measures are not required to ensure that impacts remain less than significant.

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With regard to environmental impacts, both the Project and the Disinfection Improvements near Camino Pablo Alternative would result in few significant environmental impacts, due largely to the fact that the EBMUD Board of Directors adopted numerous WTTIP Mitigation Measures to reduce potential significant impacts. Compared to the Project, the Disinfection Improvements near Camino Pablo Alternative would reduce one significant but mitigable impact (Impact BIO-1) below the level of significance because the alternative would avoid potential impacts to special-status species associated with the riparian woodland along San Pablo Creek. The alternative would also reduce the magnitude of significant but mitigable impacts to historic resources (Impact CUL-1) because demolition of the existing maintenance building would not occur. However, the severity of less-than-significant impacts related to degradation of the visual character of the site and its surroundings (Impact AES-3), alteration of drainage patterns associated with the need to replace stormwater pipelines (Impact HYD-3a), construction-phase noise (Impact NOI-1), and conflicts with plans and policies governing transportation circulation (Impact TRA-1) would be incrementally greater under the Disinfection Improvements near Camino Pablo Alternative as compared to the Project.

4.9 Environmentally Superior Alternative

Only the No Project Alternative would avoid all of the impacts of the Project. Section 15126.6 of the *CEQA Guidelines* specifies that "*If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives*."

Neither the proposed Project nor the Disinfection Improvements near Camino Pablo Alternative would result in any significant and unavoidable impacts. Both the Project and the Disinfection Improvements near Camino Pablo Alternative would result in few significant environmental impacts, due largely to the fact that the EBMUD Board of Directors adopted numerous WTTIP mitigation measures to reduce potential significant impacts. Although the Disinfection Improvements near Camino Pablo Alternative would reduce significant but mitigable biological impacts to a less-than-significant level and would reduce the magnitude of a significant impact on historic resources, the severity of less-than-significant impacts related to aesthetics, hydrology, noise and traffic would be incrementally greater under the Disinfection Improvements near Camino Pablo Alternative as compared to the Project. Consequently, the Project, as proposed, is environmentally superior to the alternatives. EBMUD has worked with the community to incorporate suggestions in the landscape design of the Project, and has developed a Project that would provide long-term water supply reliability without any significant long-term operations impacts.

4.10 References

EBMUD (East Bay Municipal Utility District), 2006a. *Water Treatment and Transmission Improvements Program Environmental Impact Report*, SCH # 2005092019. November 2006.

EBMUD, 2006b. *Resolution Certifying the Final Environmental Impact Report for the Water Treatment and Transmission Improvements Program, Making Findings, Approving the Mitigation Monitoring and Reporting Program, and Selecting Alternative 1 and Approving the Project-level Elements of Alternative 1 of the Water Treatment and Transmission Improvements Program*. December 2006.

EBMUD, 2010. *West of Hills Master Plan*. March 2010.

EBMUD, 2013. *West of Hills Northern Pipelines Project Environmental Impact Report*. Certified December 2013.

EBMUD, 2017. *Basis of Design Report, Orinda Water Treatment Plant UV/Chlorine Disinfection Project. Draft.* Prepared by Carollo Engineers. October 2017.

EBMUD, 2018. *Basis of Design Report, Orinda Water Treatment Plant UV/Chlorine Disinfection Project.* Draft. Prepared by Carollo Engineers. October 2018.

CHAPTER 5
Other CEQA Considerations

5.1 Significant and Unavoidable Impacts

East Bay Municipal Utility District (EBMUD) would be required to adopt Findings and prepare a Statement of Overriding Considerations for unavoidable, adverse impacts as part of its approval of the Orinda Water Treatment Plant Disinfection Improvements Project (Project). However, the analysis presented in this Supplemental EIR finds that there are no significant and unavoidable impacts attributable to the Project.

5.2 Irreversible and Irretrievable Commitment of Resources

The State of California Environmental Quality Act (CEQA) Guidelines (Section 15126(c)) require that an EIR include a discussion of the significant irreversible environmental changes that would be caused by a project should it be implemented.

Irreversible commitment of resources occurs as a result of the use or destruction of a specific resource (e.g., minerals extraction, destruction of cultural resources) that cannot be replaced or, at a minimum, restored over a long period of time. Irretrievable commitment of resources refers to actions resulting in the loss of production or use of natural resources and represents the effects that the use of nonrenewable resources could have on future generations (e.g., land conversion to new uses; construction of levees preventing the natural flooding of floodplains).

The Project would result in the irreversible and irretrievable commitment of the following non-renewable and slowly renewable resources during construction, operation, and maintenance:

- Construction materials such as asphalt, concrete, and steel;
- Energy resources such as electricity, fuel, oil, and natural gas for construction equipment and power supply during operation; and
- Nonrenewable materials such as gravel and petroleum products.

Similar to any infrastructure project of its size and kind, the Project would require the commitment of material resources to construct the new facilities. No other irreversible permanent changes, such as those that might result from construction of a large-scale

mining project, a hydroelectric dam, or other industrial project, would result from development of the Project. Construction of the Project would occur within the footprint of the existing Orinda WTP site and many Project components (e.g., pipelines) would be underground, and would not result in the irreversible or irretrievable commitment of the Project area as a land resource.

Operation of the Project would be similar to current operations and would not require the commitment of additional energy resources, which would only be needed for construction.

5.3 Growth-Inducing Impacts

CEQA requires the Lead Agency to evaluate whether a project would directly or indirectly induce growth of population, economic development, or housing construction. Specifically, *CEQA Guidelines* Section 15126.2(e) states the need to evaluate the potential for a project to *"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 waste water treatment plant might, for example, allow for more construction in service areas)."* Directly induced growth is associated with residential or commercial development projects that would result in a population increase or in an increase in the number of employees. Indirectly induced growth is associated with reducing or removing barriers to growth, or creating a condition that encourages additional population or economic activity. Ultimately, both types of growth induction result in population increase, which *"may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects"* (*CEQA Guidelines* Section 15126.2(e)). Other potential environmental impacts related to growth include increased traffic, air emissions, and noise; degradation of water quality; loss of sensitive biological and cultural resources; increased demand on public services and infrastructure; and changes in land use and conversion of agricultural or open space to accommodate development.

Under CEQA, growth inducement is not considered necessarily detrimental, beneficial, or of little significance to the environment. Projects are considered to have growth-inducing implications when economic, housing, or population growth would be stimulated, either directly or indirectly.

5.3.1 Directly Induced Growth

Operation of the Project would not require new permanent employees who would generate a demand for new housing. Project construction would contribute to local economic growth from construction expenditures for labor and materials, but given the existing population of unemployed construction workers, it is expected that all Project construction labor needs would be readily met by current residents of the region.

5.3.2 Indirectly Induced Growth

The Water Treatment and Transmission Improvements Program (WTTIP) analyzed in the 2006 EIR consisted of improvements at EBMUD's water treatment plants (including the Orinda WTP) and 19 other projects. The purpose of the WTTIP projects was to meet projected (year 2030) water demands in Lafayette, Orinda, Moraga and Walnut Creek; meet future regulatory standards related to water quality; comply with environmental permit conditions; and replace aging infrastructure.

Growth impacts were analyzed in the WTTIP EIR Chapter 4, Growth-Inducement Potential and Secondary Effects of Growth (EBMUD, 2006). The WTTIP EIR found that those WTTIP projects that would increase water distribution capacity to meet 2030 demands would support some growth, and that the WTTIP as a whole would support an amount of growth consistent with regional growth projections, and that secondary effects from the WTTIP could occur because its projects would remove a potential obstacle to planned development. Some of these secondary effects of planned growth were identified in documents prepared by the relevant land use jurisdictions (e.g., City of Orinda) as significant and unavoidable, while others were significant but could be mitigated to less-than-significant levels.

In accordance with California Government Code Section 65300, land use agencies in the EBMUD service area, such as the City of Orinda, develop and adopt long-term planning documents such as general plans for the physical development within their jurisdiction. These planning documents determine the nature and intensity of land uses to be served by EBMUD. Local land use plans provide for land use development patterns and growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as water supply, roadway infrastructure, sewer service, and solid waste service. The impacts of this planned growth have been disclosed in the EIRs for the applicable general plans, community plans, and specific plans.

Updated long-term demand modeling prepared by EBMUD included projections based on recent changes in development within its service area, including within the City of Orinda, due to general plan and development changes, as well as recent drought and economic conditions. As a result, EBMUD's updated long-term demand modeling indicates a reduction in long-term water demands relative to what was anticipated when the WTTIP EIR was prepared. In effect, these and other projections prepared by EBMUD since development of the WTTIP do not reflect a direct link between EBMUD water service and development within EBMUD's service area such that availability of water is an obstacle to planned growth within the service area. While the Project would serve planned land use changes and redevelopment projects within the EBMUD service area as identified in the general plans and long-term planning documents governing development within the service area, the Project would not increase the capacity of the Orinda WTP. Because the demand projections for the EBMUD service area municipalities are based on planned development already disclosed and incorporated into each municipality's general plans and long-term planning documents, including subsequent amendments thereto, implementation of the Project would align with the development goals, policies, and

objectives of the EBMUD service area municipalities and would not support growth beyond planned levels or in areas not planned for development.

The Project would improve the disinfection process associated with the Orinda WTP to ensure continued compliance with water quality regulations, including regulations promulgated by the *Long Term 2 Enhanced Surface Water Treatment Rule, Interim Enhanced Surface Water Treatment (LT2) Rule* and the *Stage 1 and Stage 2 Disinfectants and Disinfection Byproduct (D/DBP) Rules*. The Project would not increase treatment capacity and would not increase the availability of water supply to the West of Hills (via the Claremont Tunnel) and Lamorinda areas, which are served by the Orinda WTP.

In summary, the Project would neither directly nor indirectly support unplanned economic expansion, population growth, or residential construction in the EBMUD service area. Therefore, any potential growth-inducing impacts from the Project would be considered less than significant.

5.4 Cumulative Impacts

CEQA requires consideration of cumulative impacts. A cumulative impact is created as a result of the combination of a project evaluated in an EIR together with other projects causing related 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 a project when added to other closely related past, present, or reasonably foreseeable future projects. Pertinent guidance for cumulative impact analysis is provided in Section 15130 of the *CEQA Guidelines* and include:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (i.e., the incremental effects of an individual project are considerable when viewed in connection with effects of past, current, and probable future projects, including those outside the control of the agency, if necessary).
- An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.
- The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not be as detailed as it is for the effects attributable to the project alone.
- A project's contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
- 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. The cumulative impact analysis for each

individual resource topic is described at the end of each resource section in this chapter, except for the Greenhouse Gas Emissions section, in which the entire analysis is inherently cumulative.

5.4.1 Approach to Analysis

As allowed by Section 15130(b)(1)(b) of the *CEQA Guidelines*, cumulative impact assessments can be based on: (1) growth projections and associated public service improvement projects contained in adopted general plans or related planning documents; or (2) a list of past, present, and probable future projects producing related or cumulative impacts. Environmental effects identified in prior certified environmental documents may also describe and/or evaluate regional or area-wide conditions contributing to the cumulative impacts. Like the WTTIP EIR, this Supplemental EIR largely uses a list-based approach. However, with regard to greenhouse gas (GHG) emissions, this Supplemental EIR follows guidance from the Bay Area Air Quality Management District (BAAQMD), as well as the California Air Pollution Control Officers Association, and considers GHG impacts to be exclusively cumulative impacts as no single project could, by itself, result in a substantial change in climate (BAAQMD, 2017; CAPCOA, 2008). Therefore, the evaluation of the Project's GHG impacts also evaluates whether the Project would make a considerable contribution to cumulative climate change effects.

Because of the breadth and extent of the WTTIP projects, the WTTIP EIR (Chapter 5) provided an analysis of the collective impacts of all project-level and program-level WTTIP projects, as well as the potential for overlap with other pertinent projects proposed and/or planned in the region. The collective impact discussion provided a synthesis of both project- and program-level impacts for all proposed WTTIP facilities, and indicated the potential for overlapping impacts associated with multiple projects proposed for construction within the same time frame and same geographic area. With respect to the Project (evaluated at a program-level), the WTTIP EIR indicates that no other WTTIP projects would be constructed between mid-2021 and late 2025 in the Project area. Table 5-1 of the WTTIP EIR (beginning on p. 3.2-26 in the WTTIP Final EIR) identified over 160 projects in the WTTIP area with potential for cumulative impacts. Given that the list of cumulative projects presented in the WTTIP EIR is approximately 14 years old, none of the findings regarding cumulative impacts from that document are relied on for the analysis of cumulative impacts presented in this Supplemental EIR and thus cumulative impacts from the WTTIP EIR are not summarized in the text that follows.

This cumulative impact analysis focuses on whether the Project could, in conjunction with other projects, exacerbate any significant cumulative environmental effects. Cumulative project information is based on information supplied by the City of Orinda, EBMUD, and other entities, as well as from a review of information posted on agency websites. The cumulative project list is presented in Table 5-1, and the locations of these cumulative projects are shown on Figure 5-1.

TABLE 5-1
CUMULATIVE PROJECTS

Map ID	Project Name	Approximate Distance from Project	Jurisdiction	Project Description	Project Status / Construction Schedule	Source[a]
1	Westside Pumping Plant Replacement Project	0.34 mile	EBMUD	A new 0.6 MGD Westside Pumping Plant at 4 Madera Lane is proposed to replace the existing Encinal and Westside Pumping Plants. A new Encinal Regulator would be installed within the new pumping plant to replace the existing Encinal Reservoir, and approximately 6,900 linear feet (LF) of pipeline improvements are proposed on El Toyonal, La Encinal, and Madera Lane.	Pipeline Construction: Spring 2020 – Spring 2021 Facilities Construction: Summer 2021 – Summer 2023	EBMUD, 2019
2	Duffel Photovoltaic Renewable Energy Project	0.93 mile	EBMUD	Solar panels would be installed on approximately 20 acres across from the PG&E Sobrante substation at 511 Bear Creek Road.	Project Construction: Fall 2020 – Spring 2021	EBMUD, 2019
3	Orinda WTP – Scouring Air System & Roof Replacement	At Project site	EBMUD	The new scouring air system at the Orinda WTP would improve the cleaning of the filter media, conserve backwash water, and increase filtration capacity. The new scouring air system would be installed within the existing filter plant. This project would include replacement of the sub roof (visible tiled roofs would not be altered) of the filter gallery building and chemical building.	Project Construction: Summer 2020 – Summer 2021	EBMUD, 2019
4	Orinda WTP – Chemical Supply Safety Improvements	At Project site	EBMUD	The chemical supply safety improvements at the Orinda WTP would include: replacing chemical storage tanks and chemical feed pumps; improving secondary containment and chemical separation; installing new fire sprinklers, emergency eyewashes and showers; and, other mechanical, seismic, and electrical improvements. A majority of improvements would take place within existing Orinda WTP buildings.	Project Construction: Summer 2021 – Winter 2022	EBMUD, 2019
5	Orinda WTP– Raw Water Treatment Improvements	At Project site	EBMUD	This project would add small carbon dioxide injection systems to the water treatment plant for pH control.	Project Construction: Winter 2020 – Summer 2021	EBMUD, 2019
6	Briones Tower Retrofit	1.7 miles	EBMUD	This project would seismically retrofit and strengthen the Briones inlet/outlet tower by installing a reinforced concrete or steel liner inside the upper section of the existing tower.	Project Construction: Spring 2021 – Winter 2021	EBMUD, 2019
7	Briones Isolation Valve	1.54 miles	EBMUD	This project would relocate the isolation valve for the Briones Aqueduct to a more safely accessible location to improve maintenance access.	Project Construction: Spring 2021 – Winter 2021	EBMUD, 2019
8	Happy Valley Pumping Plant Project	0.84 mile	EBMUD	The Happy Valley Pumping Plant Project includes construction of a new 4.0 MGD pumping plant. Phase II of the Happy Valley Pipeline Project would also be constructed as part of the Happy Valley Pumping Plant Project. The Happy Valley Pipeline Project includes, 3,300 LF of new 16-inch pipeline in Miner Road Van Ripper Lane, and across Lauterwasser Creek.	Project Construction: Summer 2021 – Summer 2022	EBMUD, 2019

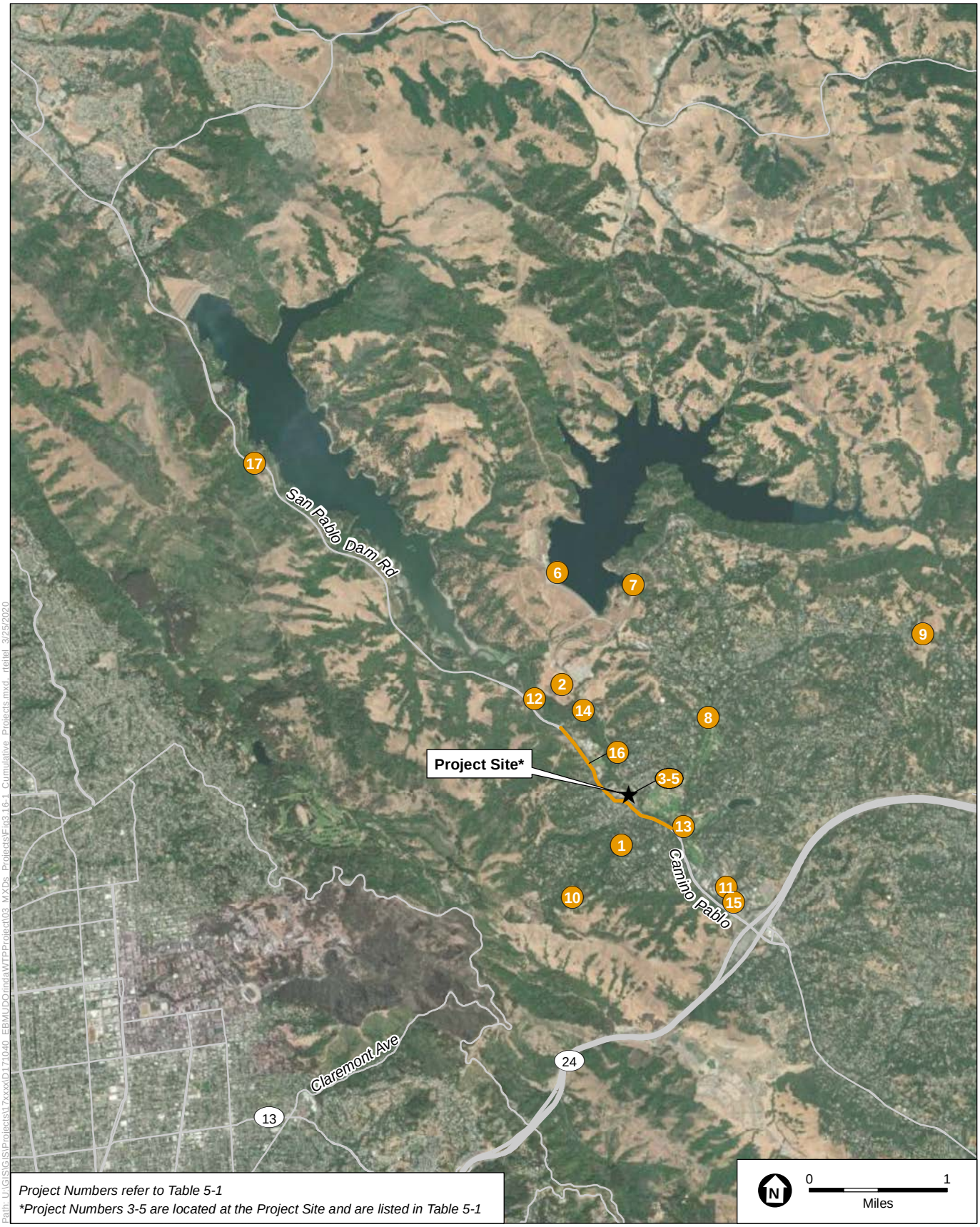
TABLE 5-1 (CONTINUED)
CUMULATIVE PROJECTS

Map ID	Project Name	Approximate Distance from Project	Jurisdiction	Project Description	Project Status / Construction Schedule	Source[a]
9	Sunnyside Pumping Plant Project	2.5 miles	EBMUD	The Sunnyside Pumping Plant Project includes construction of a new 1.5 MGD pumping plant, 240 LF of 12-inch diameter inlet pipeline, and 120 LF of outlet pipeline to connect the new pumping plant to existing pipelines in Happy Valley Road in Lafayette.	Project Construction: Winter 2020 – Winter 2021	EBMUD, 2019
10	Dos Osos Reservoir Replacement	0.82 mile	EBMUD	This project would replace the existing 0.24-million-gallon Dos Osos Reservoir with new dual 0.12 million-gallon, steel-bolted reservoirs on EBMUD-owned watershed property. The new reservoirs would be approximately 70 feet higher in elevation and 300 feet southwest of the existing Dos Osos Reservoir site in the city of Orinda. A new, 12-inch inlet-outlet pipeline would be constructed to connect the existing water distribution system to the new dual reservoirs and would be located in an approximately 800-foot-long permanent access road that would be constructed from Los Norrabos to the new dual reservoirs. The existing Dos Osos Pumping Plant, located at 263 El Toyonal in Orinda, is a 0.3-MGD pumping plant that would be rehabilitated at the same capacity; however, the Dos Osos Pumping Plant would be upgraded with pump units that can pump to a higher total dynamic head (i.e., pump to a higher elevation) to serve the new dual Dos Osos Reservoirs.	Project Construction: Summer 2023 – Summer 2025	EBMUD, 2019
11	Community Center and Park Improvements	1 mile	City of Orinda	Multiple improvement projects would take place at the Orinda Community Center, including installation of a new heating ventilating and air conditioning system, improvements to ADA complaint accessibility, installation of drinking stations adjacent to the tennis courts, renovation and improvements to the community park, roof replacement, and pathway improvements.	Design and Construction: 2019 – 2023 FY	City of Orinda, 2019
12	San Pablo Creek Restoration	1 mile	City of Orinda	This project would involve performing creek hydrology study work, determining potential creek alignments, determining trail alignments for a future pedestrian creek trail, providing a pedestrian connection to the de Laveaga (EBMUD) trail, and performing property acquisition due diligence.	2020 FY and 2021 FY	City of Orinda, 2019
13	Miner Road Bridge Seismic Retrofit Project	0.42 mile	City of Orinda	This project would include seismic retrofitting in the form of construction of new reinforced concrete catcher blocks at abutments and steel catcher blocks at bents, construction of a reinforced concrete pier wall to encase bottom half of bents, installation of new steel X-bracing in upper the half of bents, replacement of the outer edges of the existing concrete deck, and replacement of wood railing with steel “three beam” barriers. Utilities supported by the bridge would be relocated by utility companies. The bridge elevation and width would not be changed.	Construction expected in Spring 2022	City of Orinda, 2019

TABLE 5-1 (CONTINUED)
CUMULATIVE PROJECTS

Map ID	Project Name	Approximate Distance from Project	Jurisdiction	Project Description	Project Status / Construction Schedule	Source[a]
14	Bear Creek Seismic Retrofit	0.72 mile	City of Orinda	This project would include seismic retrofitting in the form of construction of new catcher bents at the abutments and piers to prevent collapse, installation of cast in drilled hole concrete piles on the outside of the existing bridge, and connecting the piles with a concrete beam that would be an integral part of the catcher bents.	Construction expected in Spring 2022	City of Orinda, 2019
15	Orinda Way Pavement Rehabilitation	1.11 miles	City of Orinda	This project would include pavement rehabilitation/maintenance of Orinda Way between a cul de sac near Santa Maria Way and Camino Pablo through the Orinda Village Downtown District. This project includes required upgrades for ADA curb ramps and ADA parking spaces.	Project Construction: Summer 2021	City of Orinda, 2019
16	2020 Paving Program (Camino Pablo)	100 feet	City of Orinda	Maintenance and operation with base repair, seal cracks and microsurfacing along Camino Pablo Road beginning at Miner Road and extending to Bear Creek Road.	Project Construction: 2020	City of Orinda, 2019b
17	Countywide Guardrail Upgrade Project (San Pablo Dam Road)	3.62 miles	Contra Costa County	This project would adjust guardrail on San Pablo Dam Road from the Richmond city limit to Orinda city limits, and replacing guardrail on Marsh Creek Road between Clayton and Camino Diablo Road.	Project construction Summer 2020	Contra Costa County, 2019 and 2019a

NOTE:
[a] Refer to Section 5.5 for information sources.



SOURCE: ESA, 2019; ESRI, 2020.

EBMUD Orinda Water Treatment Plant Disinfection Improvements Project

Figure 5-1
Cumulative Projects

ESA

Subsequent to certification of the WTTIP EIR, EBMUD developed and periodically updates a number of standard construction specifications, standard practices in its *Environmental Compliance Manual* (EBMUD, 2010a), and Engineering Standard Practices. These standard specifications and practices are designed to address typical characteristics of EBMUD construction projects and are not project-specific or tailored to the unique characteristics of any particular EBMUD project. These standard specifications and practices, which are applicable to all EBMUD construction projects and reflect generally applicable EBMUD standard operating procedures, are assumed to be incorporated into the EBMUD projects presented in Table 5-1.

Potential cumulative impacts are summarized by resource topic below.

Aesthetics

The geographic scope of potential cumulative visual impacts includes the Project area and immediate vicinity (i.e., approximately 0.25 mile or unobstructed viewing distance, whichever is farther). Cumulative visual impacts could occur if the Project and the cumulative projects identified in Table 5-1 and shown on Figure 5-1 involve tree removal, construction of new facilities, or other changes that would affect the same visual resources. Temporary cumulative visual impacts could occur if the construction schedules overlapped. Of the cumulative projects listed in Table 5-1, those cumulative projects closest to the Project that occurs within or adjacent to the Orinda WTP with the potential to overlap in time with construction of the Project include (with proposed construction dates):

- Orinda WTP (EBMUD)
  - Scouring Air System and Roof Replacement Project (2020–2021)
  - Chemical Supply Safety Improvements (2021–2022)
  - Raw Water Treatment Improvements (2021)

The cumulative projects occurring on the Orinda WTP site are small in nature and most construction activity would occur within existing structures. The Orinda WTP cumulative projects would not involve construction of new or physically expanded structures that would alter the existing visual quality of the Orinda WTP, remove existing trees, or produce new sources of substantial light or visual glare. The roof replacement for the Filter Gallery and the Chemical Buildings constructed as part of the Scouring Air System and Roof Replacement Project would not affect the existing architectural tiled rooftops of the existing buildings, so there would be no long-term change in the visual character or quality of the building rooftops. Adherence to EBMUD standard practices and procedures would ensure that the visible areas at these Orinda WTP cumulative project sites would be maintained such that construction debris would not be visible for extended periods and materials and equipment stored outside would be maintained in a manner not to compromise the Orinda WTP's visual character or quality. As indicated in Chapter 2, *Project Description*, and pursuant to adopted WTTIP Mitigation Measure 3.3-2a (refer to Table 3.2-1), after construction, additional native vegetation (including trees and shrubs) would be planted as part of the Project to further screen the existing and proposed

facilities (refer to Figure 2-9 for a conceptual planting plan). Trees and shrubs would be planted along Camino Pablo and Manzanita Drive and placed on the Orinda WTP property in a layout that maintains a naturalized pattern and slope compatibility, as well as further screening views into the Orinda WTP.

All of the other cumulative projects listed in Table 5-1 and shown on Figure 5-1 are located more than 0.25 mile away from, and not within the same viewshed as, the Project.

Because the three EBMUD Orinda WTP projects would largely confine construction activities to within existing buildings, would replace rooftops with materials that match existing rooftops, would maintain clean construction sites, and would not introduce new sources of substantial light or glare, these cumulative projects would not substantially alter any scenic resources in the vicinity of the Project. Therefore, with implementation of the proposed Project landscaping and adopted WTTIP Mitigation Measures 3.3-1, 3.3-2a through 3.3-2c, 3.3-3, 3.3-5b, and 3.3-5c, which require site upkeep, site restoration, and design and installation of lighting to reduce glare and light trespass, the Project's contribution to visual impacts would not be cumulatively considerable, and the impact would be less than significant.

Air Quality

The analysis of the Project's potential contribution to a cumulatively considerable net increase of any criteria pollutant for which the Bay Area Air Quality Management District (BAAQMD) is nonattainment under an applicable federal or state ambient air quality standard is found under Impact AIR-2 in Section 3.3, Air Quality.

As discussed under Impact AIR-3 in Section 3.3, uncontrolled health risks associated with Project-related construction emissions were found to exceed CEQA significance thresholds promulgated by BAAQMD, but would be mitigated to a less than significant level with the implementation of Mitigation Measure AIR-1. In addition, the analysis for Impact AIR-3 found that the Project would not exceed the numeric indicators for reactive organic gas (ROG) and nitrogen oxide (NO_X) emissions during either construction or operation; therefore, it would be unlikely that Project ROG and NO_X emissions could result in an increase in ground-level ozone concentrations in proximity to the Project site or elsewhere in the air basin. This analysis and the findings are provided in greater detail under the discussion of Impact AIR-3. Though Project construction health risk would combine with risk from other projects under construction during the same timeframe, cumulative health risk impacts would not exceed the BAAQMD's cumulative thresholds.

EBMUD standard practices and procedures regarding dust and emissions controls and lead and asbestos abatement best management practices (BMPs) would be incorporated into the ten EBMUD-sponsored cumulative projects listed in Table 5-1 and shown on Figure 5-1. EBMUD dust controls include: a Dust Control and Monitoring Plan that details the means and methods for controlling and monitoring dust generated by demolition and other work on the site; tuneup logs that provide records that show construction equipment in use at the Project sites has undergone required maintenance; and implementation of all necessary dust control measures including, but not limited to, watering construction areas, covering haul

trucks and soil stockpiles, street sweeping, and maintaining speed limits in construction zones. EBMUD emissions controls include: minimizing the use of diesel generators where possible; minimizing truck idling times; and requiring that fixed temporary sources of air emissions (such as portable pumps, compressors, generators, etc.) be electrically powered when feasible. EBMUD lead and asbestos controls require proper characterization, handling and disposal of any asbestos or lead encountered at construction sites as mandated by state and federal regulations and, during demolition procedures, the contractor protect against contamination of soils, water, adjacent buildings and properties, and the airborne release of hazardous materials and dusts.

Adherence to EBMUD standard practices and procedures and project-specific avoidance and/or mitigation measures would ensure that construction-related dust and equipment emissions attributable to the cumulative projects are reduced to regulatory standards. As noted above in Section 5.4.1, Approach to Analysis, those cumulative projects not proposed by EBMUD are assumed to be subject to CEQA review and would have similar types of avoidance and/or mitigation measures as those proposed for the Project. Therefore, because Project-related construction emissions and associated mitigated health risks have been found not to exceed CEQA significance thresholds promulgated by BAAQMD, the Project's impact to air quality would not be cumulatively considerable, and the impact would be less than significant with mitigation.

Biological Resources

The geographic scope for cumulative effects on biological resources encompasses the jurisdictional waters and sensitive habitats (i.e., habitats for rare and endangered species and sensitive natural communities identified in federal, state, or local plans and regulations) within the Project area, as well as biologically linked areas in the vicinity of San Pablo Creek.

The area surrounding the Project site is dominated by human development, including residential neighborhoods, a recreation facility, school, and public streets. Development within the city of Orinda has and would likely continue to result in the potential loss of habitat for special-status species and conversion of natural vegetation communities. The potential impacts of the Project, when considered together with similar impacts from other past, present, and reasonably foreseeable future projects in the vicinity, could result in a significant cumulative impact on special-status species.

As discussed under Impact BIO-5 in Section 3.4, Biological Resources, the Project would not conflict with the provisions of an adopted Habitat Conversation Plan (HCP), Natural Conservation Communities Community Plan, or other local, regional, or state HCP. Accordingly, the Project would not contribute to cumulative impacts related to this topic.

Ten EBMUD water infrastructure projects are planned in the vicinity (i.e., within approximately 2.5 miles) of the Project site, including four EBMUD projects that involve at least in part off-site work (e.g., in-road pipeline replacement/installation/connections) potentially overlapping with the Project's proposed construction time frame. Refer to Table 5-1 for a list of projects planned for construction in the vicinity of the Project site and Figure 5-1 for their locations. For the purposes of the cumulative analysis, projects

that could present cumulatively considerable impacts related to biological resources are those that involve visual or noise disturbance, soil or drainage disturbance, riparian or wetland disturbance, or tree removal during construction in proximity to construction of the Project. Of the ten EBMUD water infrastructure projects planned to occur within the vicinity of the Project site, six would occur in proximity to the Project or San Pablo Creek and its tributaries; of these five, three are located on the Orinda WTP site and would overlap the initial stages of Project construction:

- EBMUD Projects
  - Orinda WTP
    - Scouring Air System and Roof Replacement Project
    - Chemical Supply Safety Improvements
    - Raw Water Treatment Improvements
  - Westside Pumping Plant Replacement Project
  - Duffel Photovoltaic Renewable Energy Project
  - Happy Valley Pumping Plant Project

The Westside Pumping Plant Replacement Project, currently underway with completion estimated in summer 2023, is located in a residential area along El Toyonal, La Encinal, and Madera Lane approximately 0.34 mile south of the Orinda WTP. Given its location in a developed area uphill from San Pablo Creek (i.e., outside the riparian corridor), the Westside Pumping Plant Replacement Project would not have the potential to affect biological resources similar to those at the Project site.

The Duffel Photovoltaic Renewable Energy Project is located northwest of the Orinda WTP along Bear Creek Road and involves the installation of solar panels on an approximately 20-acre parcel across from the PG&E Sobrante Substation and approximately 300 feet uphill from San Pablo Creek. A Mitigated Negative Declaration prepared for the Duffel Photovoltaic Renewable Energy Project found that special status species, mixed oak woodland habitat, and seasonal waters/wetlands would be affected (EBMUD, 2020). Like the Project, the Duffel project was found to have the potential to affect the San Francisco dusky-footed woodrat, as well as bird species. With implementation of adopted Project-specific mitigation measures, including pre-construction surveys and habitat compensation, the Duffel Photovoltaic Renewable Energy Project would have a less than significant impact on biological resources similar to those at the Project site.

The Happy Valley Pumping Plant Project, also part of the overall WTTIP, is located approximately 1.4 miles northeast for the Orinda WTP and involves a pipeline replacement across Lauterwasser Creek, which is an upstream tributary to San Pablo Creek. The Draft Supplemental EIR to the WTTIP EIR prepared for the pipeline component of the pumping plant project found that it would have potentially significant impacts on biological resources, such as protected trees, bat and bird species, riparian habitat, and the San Francisco dusky-footed woodrat (EBMUD 2010b). With

implementation of adopted WTTIP mitigation measures and project-specific mitigation measures, the Supplemental EIR analysis found that impacts on biological resources similar to those at the Project site would be reduced to a less-than-significant level.

The three EBMUD Orinda WTP projects all occur within the existing Orinda WTP fence line on developed water treatment plant property. Because the construction activities for all three of these projects would be confined to existing buildings at the Orinda WTP, there is no potential for impacts to jurisdictional waters and sensitive riparian habitats, or biologically linked areas in the vicinity of San Pablo Creek. These three EBMUD projects take place within the existing Orinda WTP in areas that are routinely exposed to a high level of human activity.

However, the three EBMUD Orinda WTP projects – as well as the other seven EBMUD water infrastructure projects – would incorporate EBMUD standard practices and procedures that are designed to protect potentially present sensitive biological resources. EBMUD standard biological BMPs include: pre-construction training on and surveys for sensitive species if found to be potentially present; and appropriate avoidance and minimization measures for sensitive species if found to be potentially present. For potential impacts nesting and migratory birds, including destruction of potential nesting habitat, eggs or occupied nests, direct mortalities of young, and the abandonment of nests with eggs or young birds prior to fledging, the BMPs include provisions for preconstruction nesting bird surveys, avoidance of construction during the nesting season, and delineation of avoidance buffer zones. For roosting bats, BMPs include preconstruction roosting bat surveys, avoidance of construction during bat roosting season, delineation of avoidance buffer zones, and roosting monitoring during construction, as well as tree protection measures for trees potentially impacted by construction activities. The Project-related impacts on biological resources at the Project site and staging areas would be less than significant, as the impacts would occur over a relatively small area and would be reduced by adopted Mitigation Measures from the WTTIP EIR (including Mitigation Measures 3.6-1a, 3.6-1c, 3.6-1d, 3.6-2e, 3.6-2f, 3.6-3c, 3.6-4, 3.6-5, 3.6-6, and 3.6-7a), revised WTTIP Mitigation Measures 3.6-2b - ORWTPDI, 3.6-2c - ORWTPDI, and 3.6-1b - ORWTPDI, and Project-specific Mitigation Measures BIO-1, BIO-2, and BIO-3 (refer to Section 3.4, Biological Resources, and Appendix C for the full text of the mentioned mitigation measures). During the construction phase, impacts on biological resources associated with the Project include effects to mixed riparian woodland habitat (a sensitive natural community), special-status plants associated with the mixed riparian woodland habitat, nesting raptors and special-status nesting birds, special-status bat species, and the San Francisco dusky-footed woodrat. When combined with potential construction impacts of other projects listed in Table 5-1, and considering the limited area of Project-related construction, these effects would be less than significant after implementing the adopted WTTIP mitigation measures, revised WTTIP mitigation measures, and Project-specific mitigation measures.

During construction, impacts on San Pablo Creek and the value and function of its riparian and wetland communities associated with temporary groundwater dewatering, grading, excavation, changes in drainage patterns, and other soil-disturbing activities are limited to the Orinda WTP site and the Manzanita East staging area. Adopted WTTIP

Mitigation Measures 3.6-2e, 3.6-2f, and 3.6-7a, revised WTTIP Mitigation Measures 3.6-2b - ORWTPDI and 3.6-2c -ORWTPDI, and Project-specific Mitigation Measures BIO-3, HYD-2, and HYD-3 would reduce the Project-specific impact to less than significant (refer to Section 3.4, Biological Resources, Section 3.10, Hydrology and Water Quality, and Appendix C for the full text of these mitigation measures). Activities at the Manzanita East staging area would be limited to the upland area of the property outside, but adjacent to, the riparian corridor. The Manzanita East staging area would be restored to its pre-construction condition. During Project operation, changes in the existing drainage patterns on the Orinda WTP site would not change existing discharge points into San Pablo Creek or increase the volume of stormwater discharge. As such, the Project would not present significant adverse impacts on San Pablo Creek that would be an incremental contribution when combined with the impacts of the cumulative projects shown in Table 5-1. The Project's impact on San Pablo Creek would not be cumulatively considerable.

During both the construction and operational phases, the activities proposed at the Project site and San Pablo Creek riparian corridor would not substantially interfere with the movement of wildlife species or impede the use of wildlife nursery sites, as the construction impacts would occur within the existing active, developed, and fenced area of the Orinda WTP site. Although many of the cumulative projects presented in Table 5-1 involve activities that could extend for distances that measured in hundreds of feet (e.g., street repaving, pipeline installation) or involve instream work, the site-specific nature of Project construction activities and operations would not generate a substantial incremental contribution to impacts on wildlife movement or nurseries when considered with the cumulative projects. The Project's impact on wildlife movement or nurseries would not be cumulatively considerable.

For the EBMUD cumulative projects, in addition to any project-specific avoidance and/or mitigation measures, EBMUD standard practices and procedures require implementation of pre-construction training for contractors and pre-construction surveys for sensitive species, including nesting birds and roosting bats; avoidance and minimization measures for sensitive species with the potential to occur in the construction sites; and protection measures for trees in the vicinity of construction activities. As noted above in Section 5.4.1, Approach to Analysis, those cumulative projects not proposed by EBMUD are assumed to be subject to CEQA review and would have similar types of avoidance and/or mitigation measures as those proposed for the Project. Therefore, with implementation of Project mitigation measures listed above, the Project's incremental contribution to cumulative impacts on biological resources would not be cumulatively considerable, and the impact would be less than significant with mitigation.

Cultural Resources

The geographic scope for cumulative effects on **historical resources** consists of the city of Orinda. The City maintains a list of approximately 20 local landmarks, several of which date from early 20th century, including the Orinda WTP.

Potential impacts of the Project would include demolition of a portion of the Orinda WTP (i.e., the existing Grounds/Maintenance Building). However, the Orinda WTP would

remain on the City's list of designated historic landmarks, as the existing Grounds/ Maintenance Building is the least visually and functionally prominent landmark component and would not have a substantial effect on the facility's context, as noted in the discussion of Impact CUL-1 in Section 3.5, Cultural Resources. In addition, implementing Mitigation Measures CUL-1a and CUL-1b would require preparing documentation to include all historic-age buildings, structures, objects, and sites that make up the Orinda WTP. None of the cumulative projects presented in Table 5-1 would involve the demolition or alteration of a documented historical resource. Therefore, with implementation of Mitigation Measures CUL-1a and CUL-1b, the Project's contribution to cumulative impacts on historical resources would not be cumulatively considerable, and the impact would be less than significant with mitigation.

The geographic scope for cumulative effects on **archaeological resources** includes the immediate vicinity of locations where the Project could disturb unique archaeological resources and/or human remains.

Similar to the Project, ground-disturbing activities for cumulative projects in the Project vicinity presented in Table 5-1 and shown on Figure 5-1 could have a significant impact on previously undiscovered archaeological resources, including human remains interred outside of formal cemeteries. EBMUD cumulative projects would incorporate EBMUD standard practices and procedures that have been established in the event of an unanticipated discovery of archaeological resources and that comply with statutory requirements, including pre-construction cultural resources awareness training for construction personnel performing ground-disturbing activities and halting all work within 100 feet of an identified archaeological resource pending evaluation by a qualified archaeologist. In addition, cumulative projects undergoing CEQA review would have similar types of measures to address inadvertent discoveries and would comply with federal, state, and local lows regarding cultural resources.

The potential impacts of the Project, when considered together with similar impacts from other past, present, and reasonably foreseeable future projects in the vicinity of locations where the Project could disturb unique archaeological resources and/or human remains, could result in a significant cumulative impact on buried archaeological resources or human remains. However, implementing adopted WTTIP Mitigation Measure 3.7-1a would require that work halt in the vicinity of a find until it is evaluated by a qualified archaeologist, and in the case of human remains, by the county coroner.

For the EBMUD cumulative projects, in addition to any project-specific avoidance and/or mitigation measures, EBMUD standard practices and procedures address the inadvertent discovery of archaeological resources and statutory regulations regarding cultural resources. As noted above in Section 5.4.1, Approach to Analysis, those cumulative projects not proposed by EBMUD are assumed to be subject to CEQA review and would have similar types of avoidance and/or mitigation measures as those proposed for the Project and would also comply with statutory regulations regarding cultural resources. Therefore, with implementation of adopted WTTIP Mitigation Measure 3.7-1a that requires halting of work in the event of an unanticipated cultural resource discovery, the Project's incremental contribution to cumulative impacts on unique archaeological

resources and human remains would not be cumulatively considerable, and the impact would be less than significant.

Energy

As discussed in Section 3.6, Energy, the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Accordingly, the Project would not contribute to cumulative impacts related to this topic. The cumulative analysis for energy focuses on the Project and cumulative projects identified in Table 5-1 and shown on Figure 5-1.

Construction of the cumulative projects would result in the consumption of fuels in construction equipment, as well as vehicles used for worker commute and material hauling. However, as with the Project, use of these fuels would be consistent with standard construction and manufacturing practices, energy standards that promote strategic planning, and building standards that reduce the consumption of fossil fuels and enhance energy efficiency. The use of energy related to the cumulative projects would not be considered wasteful or unnecessary. Additionally, all construction vehicles and equipment would be required to comply with federal standards for vehicle fuel efficiency. The impact on energy resources generated by the cumulative projects proposed by EBMUD would be further reduced by the incorporation of a number of EBMUD standard practices and procedures. EBMUD standard practices and procedures include measures that would reduce the inefficient use of fuels, including limiting idling, keeping engines properly tuned, requiring the use of alternative-fueled construction equipment, and recycling or reusing construction waste or demolition materials to the extent feasible.

Therefore, although the use of energy for construction would constitute an irreversible use of a finite resource, given that construction activities would occur over a limited period of time, and given that construction practices and equipment used would be consistent with applicable standards and regulations, Project impacts from the consumption of energy would not be cumulatively considerable and the impact would be less than significant.

The Project-specific evaluation of operational energy usage under Impact EN-1 identifies the increased electricity demand estimated for the Project and an increase of one truck trip per month (on average) for maintenance. The amount of transportation fuel and electricity use required for Project operation is not considered an inefficient or wasteful use of energy, as fuel use would be consistent with current construction and manufacturing practices, energy standards that promote strategic planning, and building standards that reduce the consumption of fossil fuels and enhance energy efficiency. Additionally, as described above in Section 3.6, Energy, Section 3.6.1, Environmental Setting, EBMUD is a net energy generator, producing more energy through hydropower, solar power, and biogas production than is used by its water and wastewater facilities, which is a necessary use to ensure continued compliance with drinking water quality regulations. Therefore, the Project's incremental contribution to energy consumption would be negligible and not be cumulatively considerable, and the impact would be less than significant.

Geology, Soils, Seismicity, and Paleontological Resources

Impacts on geology and soils are generally localized and do not result in regionally cumulative impacts. The geographical extent for cumulative geologic impacts includes areas in and immediately adjacent to the Project site because impacts relative to geologic hazards are generally site-specific. For example, the effect of erosion would tend to be limited to the localized area of a project and could only be cumulative if erosion occurred as the result of two or more adjacent projects that spatially overlapped.

The time frame during which the Project could contribute to cumulative geologic hazards includes the construction and operation phases. For the Project, the operation phase is permanent. However, similar to the geographic limitations described above, impacts relative to geologic hazards are generally time-specific. Geologic hazards could only be cumulative if two or more geologic hazards occurred at the same time, as well as overlapping at the same location.

Several of the cumulative projects presented in Table 5-1 and shown on Figure 5-1 would be near or adjacent to the Project site and may be constructed at the same time, which could result in cumulative erosion effects. As noted in the evaluation of Impact GEO-2 in Section 3.7, Geology, Soils, Seismicity, and Paleontological Resources, the Project would incorporate adopted WTTIP Mitigation Measure 3.9-1b, which requires stabilizing disturbed areas in construction sites, erosion control for runoff from construction site, and re-vegetation of disturbed areas; these measures from adopted WTTIP Mitigation Measure 3.9-1b would reduce the Project's erosion impact to less than significant. As noted below in the discussion of Hydrology and Water Quality, Mitigation Measure HYD-1 requires the Project to obtain authorization of discharges of stormwater associated with construction activity pursuant to the Construction General Permit (CGP) issued by the State Water Resources Control Board (SWRCB)[1] which requires preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The EBMUD cumulative projects listed in Table 5-1 and shown on Figure 5-1 would incorporate EBMUD standard practices and procedures which would also require the cumulative projects to prepare and implement a SWPPP. The SWPPPs would describe BMPs to control run-off and prevent erosion for each project. Erosion impacts attributable to the cumulative projects proposed by EBMUD would be further reduced by the incorporation of a number of EBMUD standard practices and procedures. EBMUD standard erosion control practices include: requiring all planned, unplanned, and emergency potable water discharges to be captured, treated, and discharged according to Regional Water Quality Control Board requirements; and, requiring a Water Control and Disposal Plan that outlines proper control, treatment and disposal of planned and unplanned liquid discharges. Because EBMUD standard practices and procedures require preparation of a SWPPP and a Water Control and Disposal Plan, the adherence of the other cumulative projects to CGP requirements, and the Project's adherence to adopted WTTIP Mitigation Measure 3.9-1b and Mitigation Measure HYD-1, the Project's

[1] National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ), also referred to as the Construction General Permit (CGP).

incremental contribution to the potential impact from erosion would not be cumulatively considerable and the impact would be less than significant with mitigation.

Seismically induced groundshaking, liquefaction and lateral spreading, landslides, and expansive or corrosive soils could cause structural damage or ruptures during construction and operations phases. As noted in the evaluation of Impacts GEO-1, GEO-3, and GEO-4 in Section 3.7, Geology, Soils, Seismicity, and Paleontological Resources, the Project would incorporate adopted WTTIP Mitigation Measures 3.4-2, 3.4-3a, 3.4-3b, and 3.4-4, as well as implement Mitigation Measure HYD-3, which would reduce the Project's impacts to less than significant. The EBMUD cumulative projects would incorporate EBMUD standard practices and procedures, including, but not limited to, adherence to standard engineering seismic and water distribution system design requirements. Through compliance with these requirements, the potential for impacts from EBMUD cumulative projects would be reduced. Additionally, state building regulations and standards address and reduce the potential for such impacts to occur. The California Building Code (commonly referred to as the CBC) regulates and controls the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction; by design, it is intended to reduce the cumulative risks from buildings and structures. The Project and cumulative projects would be required to comply with the same applicable provisions of these laws and regulations. Based on compliance with these requirements, the incremental impacts of the Project, combined with impacts of other projects in the area, would not combine to cause a significant cumulative impact related to seismically induced groundshaking, liquefaction and lateral spreading, landslides, or expansive or corrosive soils.

For paleontological resources, the study area includes all areas within one mile of the Project site, and in particular, the Orinda Formation. For paleontological resources, the geographic scope for this cumulative impact analysis includes all areas underlain by the Orinda Formation, which has a high potential for paleontological resources as noted in the discussion of Impact GEO-5 in Section 3.7, Geology, Soils, Seismicity, and Paleontological Resources, because projects disturbing the ground or excavating within this formation have the potential to directly or indirectly destroy the same types of resources that may be destroyed by Project ground disturbance. Incorporation of adopted WTTIP Mitigation Measure 3.7-2 into the Project would reduce the Project's impact on paleontological resources to less than significant. Section 3.7.2, Regulatory Framework, provides a description of the state requirements for management of paleontological resources found in Public Resources Code (PRC) Section 5097.5 and Section 30244. The EBMUD cumulative projects listed in Table 5-1 and shown on Figure 5-1 would incorporate EBMUD standard practices and procedures and would comply with these state requirements, thereby reducing their respective impacts on paleontological resources.

Because the Project, with incorporation of adopted WTTIP Mitigation Measure 3.7-2, would halt all work within 100 feet of an identified paleontological resource pending evaluation by a qualified paleontologist, and implementing monitoring as required by the qualified paleontologist, the Project's impact on unique paleontological resources would not be cumulatively considerable, and the impact would be less than significant.

Greenhouse Gas Emissions

Climate change is a global problem and, therefore, greenhouse gas (GHG) emissions are considered pollutants of global concern, and the geographic context within which the Project's contribution to GHG impacts is considered is globally.

Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Therefore, the effects of GHGs are also experienced globally. The atmospheric concentration of GHGs determines the intensity of climate change, with current levels already leading to increases in global temperatures, sea level rise, severe weather, and other environmental impacts. The continued increase in atmospheric GHG concentrations will only worsen the severity and intensity of climate change, leading to irrevocable environmental changes. Therefore, from the standpoint of CEQA, GHG impacts on global climate change are inherently cumulative. As with criteria air pollutants, no single project could generate enough GHG emissions to contribute noticeably to a change in the global average temperature. However, the combination of GHG emissions from past, present, and future projects contributes substantially to the phenomenon of global climate change and its associated environmental impacts.

As discussed under Impact GHG-1, GHG emissions from the construction and operation of the Project would be less than significant. Also as noted in the discussion of Impact GHG-2, the Project would comply with the goals and actions of applicable GHG reduction plans at the state and local levels that aim to achieve the 2030 target established by Senate Bill (SB) 32 for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The analysis of potentially cumulative effects assumes the cumulative projects presented in Table 5-1 and shown on Figure 5-1 would also comply with GHG goals and actions. The GHG emissions generated by the cumulative projects proposed by EBMUD would be further reduced by the incorporation of EBMUD standard practices and procedures, including specified air emission control practices to minimize short-term construction diesel exhaust emissions, and GHG emission controls which would reduce GHG emissions from fuel combustion. Therefore, because the Project's construction and operation emissions of greenhouse gases is negligible, the Project's incremental contribution to greenhouse gases would not be cumulatively considerable, and the impact would be less than significant.

Hazards and Hazardous Materials

The geographic scope of the analysis for cumulative hazards and hazardous materials impacts is limited to the Project site and its immediately adjacent area that would experience construction activity by cumulative projects at the same time as the Project. Impacts relative to hazards and hazardous materials are generally site-specific and depend on the nature and extent of the hazards and hazardous materials released, and existing and future soil and groundwater conditions. A significant cumulative impact related to hazards and hazardous material would occur if the incremental impacts of the Project combined in

space and time with that of a cumulative project to substantially increase risk that people or the environment would be exposed to hazards and hazardous materials.

Construction

Four of the cumulative projects presented in Table 5-1 and shown on Figure 5-1 on or adjacent to the Project could be constructed at the same time:

- Orinda WTP (EBMUD)
  - Scouring Air System and Roof Replacement Project (2020–2021)
  - Chemical Supply Safety Improvements (2021–2022)
  - Raw Water Treatment Improvements (2021)
- City of Orinda
  - 2020 Paving Program (2020)

Each project would be subject to the same regulatory requirements, including the implementation of health and safety plans and soil and groundwater management plans, as needed. That is, cumulative projects involving releases of or encountering hazardous materials would all be required to remediate their respective sites to the same established regulatory standards. This would be the case regardless of the number, frequency, or size of the release(s), or the residual amount of chemicals present in the soil from previous spills. While it is possible that the Project and cumulative projects could result in releases of hazardous materials at the same location and time, the responsible party associated with each spill would be required to remediate site conditions to the same established regulatory standards.

EBMUD cumulative projects have incorporated EBMUD standard practices and procedures which include implementation of the following plans:

- Construction and Demolition Waste Disposal Plan that requires hazardous materials to be disposed of in a manner such that no water quality standard or waste discharge requirement violations occur due to accidental releases into the environment.
- Project Safety and Health Plan to be submitted if actual, potential, or anticipated hazards include hazardous substances that requires all personnel who, as the result of work on EBMUD projects, will likely be exposed to hazardous conditions or hazardous substances at the site have received the appropriate training for the hazards they may encounter.
- Spill Prevention and Response Plan which includes methods for preventing and controlling the accidental release of hazardous materials used during project construction.
- Water Control and Disposal Plan that requires proper control, treatment and disposal of planned and unplanned liquid discharges.

EBMUD standard practices and procedures also include hazardous waste removal procedures which define hazardous waste and establish responsibilities for removal of hazardous wastes from EBMUD facilities, proper characterization, handling and disposal of any asbestos or lead encountered at construction sites as mandated by state and federal regulations, and, during demolition procedures, requires the Contractor to protect against contamination of soils, water, adjacent buildings and properties, and the airborne release of hazardous materials and dusts.

The potential residual effects of the Project that would remain after compliance with regulatory requirements would not combine with the potential residual effects of cumulative projects to cause a significant cumulative impact because residual impacts would be site-specific and would have been cleaned up to the same regulatory standard. In addition to the regulatory requirements, the Project would also be subject to adopted WTTIP Mitigation Measures 3.11-1 and 3.11-2, as well as Mitigation Measures HAZ-1a through 1d, which require that site-specific surveys be conducted prior to the initiation of construction to determine the presence or absence of potentially hazardous materials, as well as the preparation and implementation of a Project Health and Safety Plan, Construction Demolition Waste and Disposal Plan, Water Control and Disposal Plan, and Spill Prevention and Response Plan prior to construction that provide direction for the prevention of and response to hazardous materials events. Accordingly, no substantial cumulative impact with respect to the use of hazardous materials would result. Therefore, because the Project would implement the mitigation measures listed above that provide controls for the use and accidental release of hazardous materials, the Project's incremental contribution to an impact with respect to hazards and hazardous materials during construction would not be cumulatively considerable, and the impact would be less than significant with mitigation.

The City of Orinda's work on Camino Pablo as part of its 2020 Paving Program could require temporary lane closures that could interfere with emergency plans or routes, which would be a significant cumulative impact. As noted above in Section 5.4.1, Approach to Analysis, those cumulative projects not proposed by EBMUD are assumed to be subject to CEQA review and would have similar types of avoidance and/or mitigation measures as those proposed for the Project. EBMUD cumulative projects would incorporate the EBMUD standard practice that requires a Traffic Control Plan for EBMUD projects to designate project traffic controls, emergency routes and coordination with local agencies. Adopted WTTIP Mitigation Measure 3.8-1 requires a Traffic Control Plan to reduce Project-related impact. Also, the Project would be required to implement Mitigation Measure WF-1, which requires preparation of a Fire Safety Plan addressing, in part, evacuation in the event of wildfire. Cumulative projects that require temporary lane closures would also be required by the local agency with jurisdiction to implement traffic control plans to enable flow around construction zones. Therefore, because the Project would be subject to mitigations measures listed above, its contribution to potential impairment of emergency access would not be cumulatively considerable, and the impact would be less than significant with mitigation.

Operation

Operation of the Project would result in the minimal additional routine use or transport of hazardous materials (i.e., less than 50 gallons of phosphoric acid stored at the Ultraviolet Structure) within the Project area and would not generate hazardous waste or release hazardous materials into the environment. Therefore, operation of the Project would have a minimal incremental contribution to hazardous materials that would not be cumulatively considerable.

The Project would add one trip per month to typical vehicle trips generated by Project operations. With this additional trip for operation and maintenance activities, the Project's contribution to the existing street network would be negligible and would not cumulatively interfere with an adopted emergency response plan or emergency evacuation plan.

Hydrology and Water Quality

The geographic scope of cumulative impacts related to drainage patterns at the Project site include projects within the San Pablo Creek watershed upstream of the Orinda WTP site that could affect the volume or rate of stormwater run-on that flows onto the Orinda WTP site. Likewise, the geographic scope of cumulative impacts related to water quality include the same projects upstream of the Orinda WTP site that could combine with stormwater discharged from the site affecting its compliance with stormwater discharge regulations. Cumulative projects considered for this cumulative analysis include those presented in Table 5-1 and shown on Figure 5-1.

Two EBMUD cumulative projects, the Westside Pumping Plant Replacement Project and the Dos Osos Reservoir Replacement Project, would occur in areas upstream of the Orinda WTP site. These two projects would incorporate EBMUD standard practices and procedures for stormwater control requiring a SWPPP to control stormwater runoff during construction and a Water Control and Disposal Plan that that requires proper control, treatment and disposal of planned and unplanned liquid discharges. These projects would both replace existing pumping and water storage infrastructure, and would be subject to the same regulatory requirements as the Project, including the CGP issued by the SWRCB[2], and any changes in impervious area would be designed consistent with the *Contra Costa Clean Water Program Stormwater C.3 Guidebook,* which is designed to be consistent with the National Pollutant Discharge Elimination System (NPDES) Municipal Regional Permit[3]. Three other EBMUD cumulative projects – the Scouring Air System and Roof Replacement Project, the Chemical Supply Safety Improvements, and the Raw Water Treatment Improvements – would occur on the Orinda WTP site, but they are small in nature and most construction activity would occur within existing structures. As noted above in Section 5.4.1, Approach to Analysis, those cumulative projects not proposed by

[2] National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ), also referred to as the Construction General Permit (CGP).

[3] Municipal Regional Stormwater NPDES Permit (MRP; Order R2-2015-0049, NPDES Permit No. CAS612008, as revised).

EBMUD are assumed to be subject to CEQA review and would have similar regulatory requirements and/or mitigation measures as those proposed for the Project.

Hydrology impacts of the Project are related to temporary changes in drainage patterns attributable to Project construction and permanent changes in drainage patterns due to the addition of structures and impervious surfaces at the northern and southern areas of the Project site. During Project construction, the Project would implement adopted WTTIP Mitigation Measure 3.5-1a requiring contract specifications to include measures to contain surface run-off and Mitigation Measure HYD-1 requiring containment or slowing surface run-off consistent with CGP requirements. Also, EBMUD would implement Mitigation Measure HYD-2, which requires monitoring of the installation of the MAUVE/UV/CCB Structure[4] shoring and tieback system to avoid or minimize the risk of frac-out occurring during grouting. To address the post-construction effect to drainage patterns on-site, the Project has been designed to be consistent with the Contra Costa Clean Water Program Stormwater C.3 guidelines. The Grounds Maintenance Building and parking area would add impervious surface, along with a stormwater detention structure in the northern area of the site. The Maintenance and UV Electrical (MAUVE) Building would redirect flood flows on site, but would not alter floodwater depths or inundation areas outside the Orinda WTP site. Given the MAUVE/UV/CCB Structure's close proximity to the south and west banks of San Pablo Creek, EBMUD would implement Mitigation Measure HYD-3, which would require EBMUD to take corrective action if the monitoring, also required in this mitigation measure, indicates the potential for creek bank instability at the MAUVE/UV/CCB Structure. With implementation of these stormwater BMPs and Project-specific mitigation measures during construction and operation, the Project's incremental contribution to cumulative impacts on hydrology would not be cumulatively considerable, and the impact would be less than significant with mitigation.

All of the projects listed in Table 5-1 and shown on Figure 5-1 are located within San Pablo Creek watershed and have the potential to contribute to cumulative impacts related to water quality. The EBMUD cumulative projects, in addition to any project-specific avoidance and/or mitigation measures, have incorporated EBMUD standard practices and procedures, including implementation of the following plans:

- Construction and Demolition Waste Disposal Plan that requires hazardous materials to be disposed of in a manner such that no water quality standard or waste discharge requirement violations occur due to accidental releases into the environment.
- Spill Prevention and Response Plan which includes methods for preventing and controlling the accidental release of hazardous materials used during project construction.
- Water Control and Disposal Plan that requires proper control, treatment and disposal of planned and unplanned liquid discharges.

[4] MAUVE/UV/CCB Structure refers to the whole of the Maintenance and UV Electrical (MAUVE) Building, ultraviolet (UV) disinfection unit, and chlorine contact basin (CCB) and effluent weir.

As noted above in Section 5.4.1, Approach to Analysis, those cumulative projects not proposed by EBMUD are assumed to be subject to CEQA review and would have similar regulatory requirements and/or mitigation measures as those proposed for the Project, limiting their incremental contributions to water quality impacts.

As discussed in Impact HYD-1, the Project would incorporate adopted WTTIP Mitigation Measure 3.5-1a and implement Mitigation Measure HYD-1 to ensure compliance with applicable regulatory requirements designed to reduce the cumulative effects of development on water quality (such as the CGP). Therefore, because the Project is subject these mitigation measures, the Project's contribution to water quality impacts in the San Pablo Creek watershed would not be cumulatively considerable, and the impact would be less than significant with mitigation.

Noise and Vibration

Construction

As noise and vibration are localized impacts, the geographic context for changes in the noise and vibration environment due to construction and operation of the Project would be limited to the area surrounding the Project site. To contribute to a cumulative noise and vibration impact, another project in close proximity would have to be constructed or operational at the same time as the Project. Several cumulative projects both within and near the Orinda WTP site are currently in the planning stages and could be constructed and operational in the foreseeable future. A list of cumulative projects can be found in Table 5-1, with their locations relative to the Project site shown on Figure 5-1. As shown in Table 5-1, there are three projects at the Orinda WTP and one City of Orinda project that would immediately proceed or coincide with the first 7 months of the Project's construction schedule:

- Orinda WTP (EBMUD)
  - Scouring Air System and Roof Replacement Project (2020–2021)
  - Chemical Supply Safety Improvements (2021–2022)
  - Raw Water Treatment Improvements (2021)
- City of Orinda
  - 2020 Paving Program (2020)

Construction associated with the 2020 Paving Program is expected to complete in 2020 and would not coincide with the Project's schedule generating an additive noise or vibration effect. The three EBMUD Orinda WTP projects incorporate EBMUD standard practices and procedures that are designed to minimize noise and vibration impacts, including: conforming to local noise ordinances, limiting surface vibrations at nearby structures, following BMPs for the use of high impact construction equipment, and notification of noise-generating activities to nearby receptors, as required.

Of the other cumulative projects considered in this analysis, the nearest project is located approximately one-third of a mile away from the Project site; noise and vibration would

attenuate sufficiently over this distance and not contribute to cumulative noise and vibration impacts at the same receptors impacted by Project construction.

As discussed under Impact NOI-1, construction of the Project would expose existing sensitive receptors to noise levels that would exceed the speech interference criterion used as the significance threshold for the Project's noise analysis and result in a significant impact (see the discussion in Section 3.11, Noise, Section 3.11.3 Impact Analysis, Significance Criteria). As discussed under Impact NOI-2, Project vibration impacts from construction would be less than significant. As Project-related activities could coincide with construction activities associated with the other cumulative projects noted at the Orinda WTP site, the combined effect could result in the exposure of off-site sensitive land uses to higher noise and vibration levels than what was estimated under the Project alone and lead to a potentially significant cumulative impact. However, as Project construction noise impacts would be mitigated to a less-than-significant level with the implementation of adopted WTTIP Mitigation Measures 3.10-1a and 3.10-1b, the Project's contribution to the cumulative noise impact during construction would not be cumulatively considerable. The Project's contribution to the cumulative vibration impact from construction activities would also not be cumulatively considerable. Because the Project incorporates the adopted WTTIP Mitigation Measures listed above, the Project's contribution to noise and vibration impacts would not be cumulatively considerable, and the impact would be less than significant.

Operation

As discussed in Impact NOI-2, operation of the Project would not expose the nearest sensitive receptor to noise levels that would conflict with the City of Orinda Municipal Code or result in a substantial permanent increase in ambient noise levels. Therefore, the Project's incremental contribution to operational noise impacts would not be cumulatively considerable, and the impact would be less than significant.

Recreation

The scope for analysis of cumulative impacts on recreational resources encompasses the city of Orinda and includes the cumulative projects listed in Table 5-1 and shown on Figure 5-1. These projects could occur during construction and operation of the Project. A significant cumulative effect on recreational resources would result if the effects of the Project combined in space and time with those of cumulative projects to cause substantial degradation of existing recreational facilities.

The existing staging area south of the EBMUD-owned North Orinda Sports Field parking lot would be used as a staging area for the temporary relocation of grounds and mechanical maintenance facilities. The Project staging activities would occur in an approximately 0.5-acre area south of the North Orinda Sports Field (in the North Orinda Sports Field staging area); staging activities would not occur in the existing parking lot or on the sports fields, and would not directly disrupt park activities. Since no other EBMUD cumulative project could use the North Orinda Sports Field staging area during the Project, no cumulative impacts to the existing parking or ballfields at North Orinda Sports Field would arise due to use of the North Orinda Sports Field staging area by multiple projects.

None of the other cumulative projects listed in Table 5-1 would create an increased need for recreational facilities that would degrade existing recreational facilities.

Operation of the Project would not add to the City's existing housing stock or businesses and would not increase the number of residents in the Project area. By their nature, the cumulative projects as listed and described in Table 5-1 would also not add to the city's existing housing stock or businesses and would not increase the number of residents in the Project area. Cumulative construction activities at all of the cumulative project sites would not cause an increase in the use of existing recreational facilities such that substantial physical degradation of these facilities would occur. Therefore, the Project's cumulative impacts from construction or operation activities on recreational resources would not be cumulatively considerable, and the impact would be less than significant.

Transportation

The geographical extent for cumulative impacts related to transportation includes areas in the vicinity of the Project site that would experience construction activity at the same time as the Project. These cumulative projects are listed in Table 5-1 and shown on Figure 5-1. Given that the Project would result in the addition of one monthly trip during its operational period, only the construction period is evaluated relative to potential cumulative impacts.

As noted in Section 3.13, Transportation, Section 3.13.2 Regulatory Framework, the current *CEQA Guidelines* Section 15064.3, Subdivision (b) was revised and adopted in December 2018 by the California Natural Resources Agency. These revisions to the *CEQA Guidelines* criteria for determining the significance of transportation impacts, promulgated by SB 743 are primarily focused on projects within transit priority areas, and shift the focus from driver delay to reduction of GHG emissions, creation of multimodal networks, and promotion of a mix of land uses (which in turn reduces vehicle trips).

The newly adopted guidance provides that a lead agency may elect to be governed by the provisions of this section immediately. Beginning July 1, 2020, the provisions of this section shall apply statewide. The City of Orinda has not yet formally adopted its updated transportation significance thresholds or its updated transportation impact analysis procedures. This Supplemental EIR provides information regarding automobile delay to help members of the community surrounding the Orinda WTP better understand the Project's potential to cause changes in traffic that could affect day-to-day life. Ultimately, however, consistent with SB 743 and the resulting changes in the *CEQA Guidelines*, vehicle miles traveled (VMT) is used to determine the transportation impact significance. Because the Project minimizes the VMT to the extent practicable by locating major construction areas on or within walking district of the Project site, and by requiring carpooling of construction workers from the San Pablo Reservoir Staging Area to and from the Project site, and because the Project worker vehicles (80 vehicles per day) are fewer than the state Office of Planning and Research (or OPR) screening threshold for small projects (110 vehicles per day), the construction impacts related to Project-level VMT (*CEQA Guidelines* Section 15064.3(b)) would be less than significant. For this

same reason, the Project's incremental contribution to cumulative VMT would be less than significant.

This cumulative impact analysis for transportation is based on a Transportation Impact Study (TIS) that was prepared as a resource document for the Project (Fehr & Peers, 2020, refer to Appendix G). To determine what cumulative projects could potentially occur simultaneously with the Project, EBMUD provided a construction schedule and the number of workers and trucks for five of the EBMUD cumulative projects presented in Table 5-1 that are planned within or near the city of Orinda, that are expected to occur during the Project construction period, and that include heavy construction traffic requiring concrete deliveries and/or soil-off haul trucks. Construction of these projects is estimated to occur between summer 2021 and summer 2025.

This subset of the cumulative projects listed in Table 5-1 is the focus of the quantitative cumulative impact analysis for transportation because these five projects are the most likely to generate a substantial amount of construction traffic that could utilize some or all of the same transportation facilities that would be used to construct the Project. Those projects not sponsored by EBMUD consist of minor facility improvements, creek restoration, bridge retrofits, and roadway improvements that would involve relatively few workers, minor and sporadic materials deliveries, and short construction schedules.

Cumulative worker and truck trips for the cumulative EBMUD projects presented in Table 5-2 planned within or near the city of Orinda were calculated using the highest total number of hourly one-way worker and truck trips occurring over one period of time given the current schedules for all projects. Consistent with the Project assumption, all workers were assumed to travel to the various planned project sites in the AM peak period (7:00 a.m. to 9:00 a.m.) and travel home in the PM peak period (4 p.m. to 6 p.m.). Truck trips would occur in the AM, midday (11:00 a.m. to 3 p.m.), and PM peak periods, with one-half of the trips going in and one-half of the trips going out. The schedules and traffic for the five EBMUD projects analyzed in the TIS were aligned and the period of time with the greatest number of total vehicle trips (summer/fall 2023) was chosen to be used for the cumulative trip generation analysis. As a result, the Happy Valley Pumping Plant Project and Dos Osos Reservoirs Replacement Projects were included in the cumulative trip generation analysis[5]. The cumulative trip generation estimates for summer/fall 2023 are summarized in Table 5-2.

[5] The other three of the five EBMUD cumulative projects analyzed in the TIS (Fehr & Peers, 2020), but not included in the cumulative trip generation analysis, were the Duffel Photovoltaic Renewable Energy Project, the Briones Reservoir Inlet/Outlet Tower Retrofit Project, and the Westside Pumping Plant Replacement Project. These projects would not generate any trips during the period of highest overall trip generation, as they are scheduled to be completed prior to the summer/fall of 2023.

TABLE 5-2
CUMULATIVE PROJECT TRIP GENERATION ESTIMATES
COINCIDING WITH PROJECT CONSTRUCTION SUMMER/FALL 2023

Trip Type[a]	AM Peak Hour			Midday Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out	Total	In	Out
Happy Valley Pumping Plant Project (Cumulative Project 8[b])									
Workers	13	13	0	0	0	0	13	0	13
Trucks (PCE)	12	6	6	12	6	6	12	6	6
Total (PCE)	25	19	6	12	6	6	25	6	19
Dos Osos Reservoirs Replacement Projects (Cumulative Project 10[b])									
Workers	10	10	0	0	0	0	10	0	10
Trucks (PCE)	0	0	0	16	8	8	0	0	0
Total (PCE)	10	10	0	16	8	8	10	0	10
Total (PCE)	**35**	**29**	**6**	**28**	**14**	**14**	**35**	**6**	**29**

NOTES:

[a] PCE: Passenger car equivalent (1 truck = 2 passenger cars).

[b] Refer to Table 5-1 for a description of this cumulative project and Figure 5-1 for its location.

SOURCE: Fehr & Peers, 2020.

Trip distributions for worker vehicles and construction trucks for the cumulative projects are assumed to be the same as Project distribution. Approximately one-third of workers access the site from Highway 24 travelling east, one-third from Highway 24 travelling west, and one-third from Camino Pablo travelling south. Trucks were assumed to have an even split per cumulative project coming from and going to the north (I-80) and south (Highway 24). All workers and trucks would access the Happy Valley Pumping Plant Project site via Miner Road; and Dos Osos Reservoirs Replacement Project sites via El Toyonal.

Cumulative trips were assigned to the roadway network and added to Existing Plus Project volumes. Peak-hour intersection operations for Existing, Existing Plus Project, and Existing Plus Cumulative Projects conditions are summarized in Table 5-3.

Construction traffic generated by the cumulative projects (including the Project) is not expected to increase intersection delay to exceed the LOS standard at intersections currently operating at or above the LOS standards in any peak period. Cumulative project construction traffic is also not expected to degrade intersections already exceeding the LOS standard in any peak period. All of the study intersections that currently operate below the City of Orinda LOS standards based on the General Plan would continue to do so under cumulative projects conditions:

1. Camino Pablo & Highway 24 Eastbound Off-Ramp (PM)
3. Camino Pablo & Camino Sobrante (PM)
4. Camino Pablo & Orinda Way/El Toyonal (PM)

TABLE 5-3
INTERSECTION LEVEL OF SERVICE: EXISTING PLUS CUMULATIVE PROJECTS
WEEKDAY AM, MIDDAY, AND PM PEAK HOURS

Intersection	Peak Hour[a]	Existing		Existing Plus Project		Existing Plus Cumulative Projects	
		Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS
1. Camino Pablo & Highway 24 Eastbound Off-Ramp[c]	AM	45.9	D	46.0	D	46.1	D
	MD	42.7	D	42.7	D	42.8	D
	PM	**>100 (105.3)**	**F**	**>100 (105.4)**	**F**	**>100 (105.4)**	**F**
2. Camino Pablo, Santa Maria Way & Camino Pablo Southbound/ Highway 24 Westbound On-Ramp	AM	15.1	B	15.3	B	15.3	B
	MD	14.1	B	14.2	B	14.2	B
	PM	23.3	C	23.4	C	23.4	C
3. Camino Pablo & Camino Sobrante	AM	7.2	A	7.2	A	7.2	A
	MD	17.5	B	17.5	B	17.5	B
	PM	**87.0**	**F**	**88.1**	**F**	**88.3**	**F**
4. Camino Pablo & Orinda Way/El Toyonal	AM	12.9	B	12.9	B	13.2	B
	MD	26.0	C	26.0	C	26.1	C
	PM	**82.9**	**F**	**84.4**	**F**	**84.8**	**F**
5. Camino Pablo & Miner Road	AM	15.0	B	15.0	B	15.4	B
	MD	15.0	B	15.0	B	15.2	B
	PM	39.6	D	40.2	D	40.8	D
6. Camino Pablo & Ardilla Road	AM	1.4	A	1.4	A	1.4	A
	MD	2.4	A	2.4	A	2.4	A
	PM	2.9	A	3.0	A	3.1	A
7. Camino Pablo & Orinda WTP South Gate Entrance/ Unnamed Road	AM	1.5	A	1.4	A	1.4	A
	MD	15.5	B	15.7	B	15.9	B
	PM	13.5	B	14.4	B	16.0	B
8. Camino Pablo & Claremont Avenue	AM	5.0	A	5.3	A	6.8	A
	MD	7.3	A	7.3	A	7.4	A
	PM	7.8	A	10.1	B	12.2	B
9. Camino Pablo & Manzanita Drive	AM	25.6	C	33.0	C	36.8	D
	MD	3.0	A	3.0	A	3.1	A
	PM	**56.8**	**E**	**57.5**	**E**	**58.3**	**E**
10. Camino Pablo & Los Amigos Court/ Sports Field	AM	**55.2**	**E**	**59.7**	**E**	**64.4**	**E**
	MD	1.4	A	1.4	A	1.4	A
	PM	22.2	C	26.7	C	29.6	C
11. Camino Pablo & Monte Vista Road/ Wagner Ranch	AM	**55.7**	**E**	**60.7**	**E**	**65.3**	**E**
	MD	5.5	A	5.5	A	5.5	A
	PM	30.5	C	33.6	C	36.3	D
12. Camino Pablo & Wildcat Canyon Road/ Bear Creek Road	AM	**87.5**	**F**	**90.0**	**F**	**92.4**	**F**
	MD	10.5	B	10.5	B	10.5	B
	PM	**52.8**	**D**	**53.9**	**D**	**54.7**	**D**

NOTES:

[a] AM = morning; MD = midday; PM = evening.

[b] Delay measured in seconds.

[c] LOS reported in HCM 2000.

BOLD text indicates exceedance of City of Orinda LOS standard.

SOURCE: Fehr & Peers, 2020.

9. Camino Pablo & Manzanita Drive (PM)
10. Camino Pablo & Los Amigos Court/Sports Field (AM)
11. Camino Pablo & Monte Vista Road/Wagner Ranch (AM)
12. Camino Pablo & Wildcat Canyon Road/Bear Creek Road (AM and PM)

Because of increased traffic disruptions, concurrent construction of the Project and the EBMUD cumulative projects described above could result in potentially significant cumulative impacts on traffic. Such impacts would include a short-term increase in vehicle traffic, and increased traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways. Access to adjacent land uses and streets for both general traffic and emergency vehicles could be disrupted.

The EBMUD-sponsored cumulative projects evaluated in this cumulative transportation analysis, as well as those EBMUD and other cumulative projects listed in Table 5-1 not included in this cumulative transportation analysis, would incorporate EBMUD standard practices and procedures, including: preparation of a Traffic Control Plan to include: circulation and detour plans to minimize impacts to local street circulation, a description of emergency response vehicle access, designated Contractor staging areas, and locations for parking by construction workers. As noted above in Section 5.4.1, Approach to

Analysis, those cumulative projects not proposed by EBMUD are assumed to be subject to CEQA review and would have similar regulatory requirements (i.e., City of Orinda) and/or mitigation measures as those proposed for the Project.

As described in Table 3.13-5, adopted WTTIP Mitigation Measure 3.8-1 would require the contractor to prepare a Traffic Control Plan, which would reduce the Project's safety hazards, emergency access, and bicycle and pedestrian facilities impacts due to a geometric design feature or incompatible uses, and adopted WTTIP Mitigation Measure 3.8-4 would require the contractor to reduce potential safety impacts by relying on adopted WTTIP Mitigation Measure 3.8-1. Mitigation Measure TRA-1 implements measures for heavy construction vehicle traffic safety monitoring, including requiring the contractor to: distribute written traffic safety requirements to all heavy construction vehicle drivers, obtain drivers' written acknowledgement of the traffic safety requirements, provide radar speed feedback signs on Camino Pablo to reduce vehicle speeds, and coordinate with the OPD on the Project construction schedule and OPD officer patrol car services along construction access routes within the City of Orinda .Mitigation Measure TRA-2 would require pavement monitoring to ensure that any Project-related damage to residential roadways used for Project access (i.e., Manzanita Drive) would be repaired to a structural condition equal to that which existed prior to Project construction activity. Therefore, because the Project would require preparation of a Traffic Control Plan with safety features during construction, heavy construction vehicle traffic safety monitoring, and pavement monitoring, the Project's incremental contribution to construction-related transportation impacts would not be cumulatively considerable, and the impact would be less than significant with mitigation.

Tribal Cultural Resources

The geographic scope for cumulative effects on tribal cultural resources includes the immediate vicinity of locations where the Project could cause disturbance to known tribal cultural resources. As the Project would not have an impact on known tribal cultural resources, there would be no cumulative impact. Similar to the Project, cumulative projects in the Project vicinity could have a significant impact on previously undiscovered archaeological resources, including human remains interred outside of formal cemeteries, during ground-disturbing activities that could be considered tribal cultural resources. EBMUD cumulative projects would incorporate EBMUD standard practices and procedures that have been established in the event of an unanticipated discovery of tribal cultural resources and that comply with statutory requirements, including: pre-construction cultural resources awareness training for construction personnel performing ground-disturbing activities, halting all work within 100 feet of an identified tribal cultural resource pending evaluation by a qualified archaeologist; halting all work within 100 feet of a discovery of human remains pending evaluation by the county coroner; and implementing consultations and monitoring as required by the qualified archaeologist and/or the Native American Heritage Commission in the event human remains are determined to be Native American by the county coroner.

Incorporated into the Project, adopted WTTIP Mitigation Measure 3.7-1a would require that work halt in the vicinity of a find until it is evaluated by a qualified archaeologist, and in the case of human remains the county coroner. In addition, cumulative projects undergoing CEQA review would have similar types of inadvertent discovery measures and would also be subject to statutory requirements regarding tribal cultural resources. Therefore, with implementation of adopted WTTIP Mitigation Measure 3.7-1a, the Project's incremental contribution to cumulative impacts would not be cumulatively considerable; the impact would be less than significant.

Wildfire

As analyzed in Section 3.14, Wildfire, depending on the behavior of a potential fire, the geographic scope for cumulative effects relating to wildfires would be the air basin, watershed boundary, or extent of adjacent wildlands. Cumulative wildfire hazards could arise during Project construction or operation and maintenance-related activities. Many of the potential cumulative projects (identified in Table 5-1 and shown on Figure 5-1) involve construction and, therefore, could introduce potential sources of ignition (such as smoking, vehicle or equipment use, campfires, or electrical power) that could contribute to a cumulative risk of wildfire in the Project area.

Project construction activities would not impair implementation of an adopted emergency response plan or emergency evacuation plan. The Project would not require any detours, full roadway closures, or partial lane closures, as most of the activities would be contained within the Orinda WTP site. Effects to the local roadway network would be caused by the movement of construction workers, equipment, and materials between the Project site and the Project staging areas and sources from equipment and materials. Adopted WTTIP Mitigation Measure 3.8-1 requires a Traffic Control Plan, including a

description of emergency response vehicle access. The Traffic Control Plan would include specific measures to control traffic and provide guidance to motorists, including emergency responders, as to when and how to safely move around the Project site during construction. Impacts on emergency access would be less than significant because the Traffic Control Plan would require coordination with facility owners or administrators of nearby police and fire stations, transit stations, schools, and hospitals, providing advance notification of the timing, location, and duration of construction activities to ensure that emergency responders have access during times of emergency. The EBMUD-sponsored cumulative projects evaluated in this cumulative transportation analysis, as well as those EBMUD and other cumulative projects listed in Table 5-1 not included in this cumulative transportation analysis, would incorporate EBMUD standard practices and procedures, including preparation of a Traffic Control Plan to include; circulation and detour plans to minimize impacts to local street circulation, a description of emergency response vehicle access, designated Contractor staging areas, and locations for parking by construction workers. As noted above in Section 5.4.1, Approach to Analysis, those cumulative projects not proposed by EBMUD are assumed to be subject to CEQA review and would have similar regulatory requirements and/or mitigation measures as those proposed for the Project, limiting their incremental contributions to the potential impairment of adopted emergency response plans or emergency evacuation plans.

Project operation would add one additional trip per month to the local roadway network. Likewise, with the exception of the Duffel Photovoltaic Renewable Energy Project, the EBMUD-sponsored cumulative projects would be functional improvements to, or replacement of, existing EBMUD facilities and would not be expected to generate additional trips. Once constructed, the Duffel Photovoltaic Renewable Energy Project would be a static operation that would primarily require periodic maintenance. The Duffel Photovoltaic Renewable Energy Project would not be expected to generate any additional trips in excess of the other EBMUD cumulative projects. The same would be true for the other cumulative projects not sponsored by EBMUD. Once constructed, these cumulative projects would not generate additional trips beyond those currently experiences. The incremental contributions of the cumulative projects listed in Table 5-1 to the potential impairment of adopted emergency response plans or emergency evacuation plans would not be cumulatively considerable.

Therefore, the Project's incremental contribution to interfere with adopted emergency response or evacuation plans during Project construction and operation would not be cumulatively considerable, and the impact would be less than significant.

As noted in Section 3.14.3, Impact Analysis, under Impact WF-2, the Project would be located in a very high fire hazard severity zone. Approximately two-thirds of Contra Costa County, including substantial portions of the city of Orinda, is located in a fire hazard severity zone (Kawamoto, 2019). Contra Costa County has experienced numerous fires, primarily in the undeveloped hilly regions in the eastern and northern portions of the county. Significant fires near the Project site include the Oakland Hills firestorm of 1991, the footprint of which is approximately 2.3 miles west of the Project site. Although the Project would not accommodate occupants, it is located within an existing community (i.e., city of Orinda) and could expose this community to wildfire risks. However, as

noted in Section 3.14.3, Impact Analysis, Project operation would not introduce a significant new source of wildfire risk. While maintenance activities have a low potential to result in an ignition, this risk would not be significantly different from existing conditions. Project construction could result in some additional sources of ignition; however, the additional risk that would be introduced by Project construction would be mitigated by Mitigation Measure WF-1, Construction Fire Prevention Plan. For EBMUD cumulative projects, the incorporation of EBMUD standard practices and procedures for fire prevention during construction, would require: mandatory fire-fighting equipment at construction sites, spark arrestors to be installed in construction equipment, and vegetation management at construction sites following defensible space guidelines. As noted above in Section 5.4.1, Approach to Analysis, those cumulative projects not proposed by EBMUD are assumed to be subject to CEQA review and would have similar regulatory requirements and/or mitigation measures as those proposed for the Project, limiting their incremental contributions to exacerbate wildfire risks.

Therefore, with the implementation of Mitigation Measure WF-1, the Project's impact on construction and operation potential to exacerbate wildfire risks would not be cumulatively considerable, and the impact would be less than significant with mitigation.

As noted in Section 3.14.3, under Impact WF-4, the Project would not include any housing structures and, therefore, would not expose people or structures to any increased level or risk associated with flooding, landslides, or post-fire slope instability. The analysis also notes that the Project would not result in changes in drainage patterns that could exacerbate downslope or downstream flooding, nor exacerbate existing risks associated with landslides or mudslides. These findings of less-than-significant impacts are attributable to the Project's adherence to the CGP under Mitigation Measure HYD-1, as noted in the discussion of Hydrology and Water Quality above, and adopted WTTIP Mitigation Measure 3.5-1a, which requires that contract specifications include measures to contain surface run-off and prevent any contaminants associated with construction staging areas from entering receiving waters, as well as Mitigation Measure WF-1. Therefore, the Project's incremental contribution to impacts associated with wildfire and increased level or risk associated with flooding, landslides, or post-fire slope instability would not be cumulatively considerable; the impact would be less than significant with mitigation.

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CHAPTER 6
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