PUBLIC REVIEW DRAFT

INITIAL STUDY/
MITIGATED NEGATIVE DECLARATION

WEST COUNTY WASTEWATER COMPREHENSIVE ENERGY AND SUSTAINABILITY UPGRADES PROJECT

RICHMOND, CALIFORNIA

LSA

March 2021

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WEST COUNTY WASTEWATER COMPREHENSIVE ENERGY AND SUSTAINABILITY UPGRADESPROJECT

RICHMOND, CALIFORNIA

Submitted to:

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Richmond, California 94806

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Project No. HAN2001

March 2021

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LIST OF ABBREVIATIONS AND ACRONYMS

$\mu g/m^3$	micrograms per cubic meter
AAQs	ambient air quality standards
AB 32	Assembly Bill 32
AB 52	Assembly Bill 52
AB 939	Assembly Bill 939
ABAG	Association of Bay Area Governments
BAAQMD	Bay Area Air Quality Management District
BCDC	Bay Conservation and Development Commission
BMP	best management practices
BMPs	Best Management Practices
CalFire	California Department of Fire and Forestry Protection
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CCCFPD	Contra Costa County Fire Protection District
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEC	California Energy Commission
CGS	California Geological Survey
CH_4	Methane
CIP	Capital Improvement Plan
Clean Air Plan	2017 Clean Air Plan

CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2	Carbon dioxide
CO_2e	CO_2 equivalents
CUPS	Certified Unified Program Agency
CWA	Clean Water Act
DAF	dissolved air flotation
dB	decibel
dBA	sound level
DC	direct current
DSL	Digital Subscriber Lines
EBMUD	East Bay Municipal Utilities District
EBMUD	East Bay Municipal Utility District
EFZs	Earthquake Fault Zones
EIA	Energy Information Administration
EPA	Environmental Protection Agency
EV	electric vehicle
FC	Federal Candidate Endangered/Threatened
FEMA	Federal Emergency Management Agency
FMMP	Farmland Mapping and Monitoring Program
FP	Fully Protected
FT	Federal Threatened

GHG	greenhouse gas
GWh	gigawatt-hours
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
HiAP	Health in All Policies Strategy
IS/MND	Initial Study/Mitigated Negative Declaration
ISP	Internet Service Providers
kW	kilowatt
L_{dn}	average level
LED	Light-Emitting Diode
L_{eq}	sound level
L_{max}	maximum sound level
LR	Low-Density Residential
LUST	Leaking Underground Storage Tank
Master Plan	District-Wide Master Plan
mgd	million gallon per day
MLD	Most Likely Descendant
MMI	Modified Mercalli Intensity
MRZ-2	Mineral Resource Zone-2
MTC	Metropolitan Transportation Commission
N_2O	nitrous oxide
N_2O	Nitrous oxide
NF_3	Nitrogen Trifluoride
NO_2	nitrogen dioxide

NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NWIC	Northwest Information Center
P-1	Planned Unit
PA	Planned Area
Pb	lead
PCI	Public, Cultural and Institutional
PFCs	Perfluorocarbons
PG&E	Pacific Gas & Electric
PM_{10},	particulate matter
$PM_{2.5}$	fine particulate matter
POTWs	publicly owned treatment works
PPV	peak particle velocity
PR	Parks and Recreation
PRC	Public Resources Code
proposed project	Comprehensive Energy and Sustainability Upgrades Project
PS	Public/Semi-Public
PV	photovoltaic
RFD	Richmond Fire Department
RMS	root-mean-square
ROG	reactive organic gases
RPD	Richmond Police Department
rpm	revolutions per minute
RWQCB	Regional Water Quality Control Board

SE	State Endangered
SF_6	Sulfur Hexafluoride
SO_2	sulfur dioxide
SRA	state responsibility areas
SRT	solids retention time
SSC	Species of Special Concern
SWPPP	Stormwater Pollution and Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
UPRR	Union Pacific Railroad
US EPA	United States Environmental Protection Agency
UST	underground storage tank
VdB	velocity in decibels
VFD	variable frequency drives
VMT	vehicle miles traveled
VOCs	volatile organic compounds
WCCIWMA	West Contra Costa Integrated Waste Management Authority
WCCUSD	West Contra Costa Unified School District
WCW	West County Wastewater
WQRRP	Water Quality Resource and Recovery Plant
WSMP 2040	Water Supply Management Plan 2040
ZE	zero emission

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1.0 PROJECT INFORMATION

1. Project Title:

West County Wastewater (WCW) Comprehensive Energy and Sustainability Upgrades Project

2. Lead Agency Name and Address:

West County Wastewater District
2910 Hilltop Drive
Richmond, CA 94806

3. Contact Person and Phone Number:

Andrew Clough, Deputy General Manager
(510) 222-6700

4. Project Location:

The project area consists of several WCW facilities located throughout Contra Costa County, California. Project activities would primarily occur at the existing Water Quality Resource and Recovery Plant (WQRRP) site located at 2377 Garden Tract Road in the City of Richmond. The project area also includes portions of several other existing WCW sites: Atlas Pump Station (1600 Atlas Road, Richmond), WCW Headquarters (2910 Hilltop Drive, Richmond), the Lakeside Pump Station at Hilltop Lake Park (3223 Blume Drive, Richmond), and Tara Hills Pump Station (2250 Tara Hills Drive, San Pablo). Figures 1 and 2a through 2e show the regional location and aerial view of the project sites, respectively.

5. Project Sponsor's Name and Address:

West County Wastewater District
2910 Hilltop Drive
Richmond, CA 94806

6. General Plan Designation:

City of Richmond: PCI (Public, Cultural and Institutional); LR (Low-Density Residential); PR (Parks and Recreation)

Contra Costa County: PS (Public/Semi-Public); PR (Parks and Recreation)

7. Zoning:

City of Richmond: PCI (Public, Cultural and Institutional); PA (Planned Area); PR (Parks and Recreation)

Contra Costa County: P-1 (Planned Unit)

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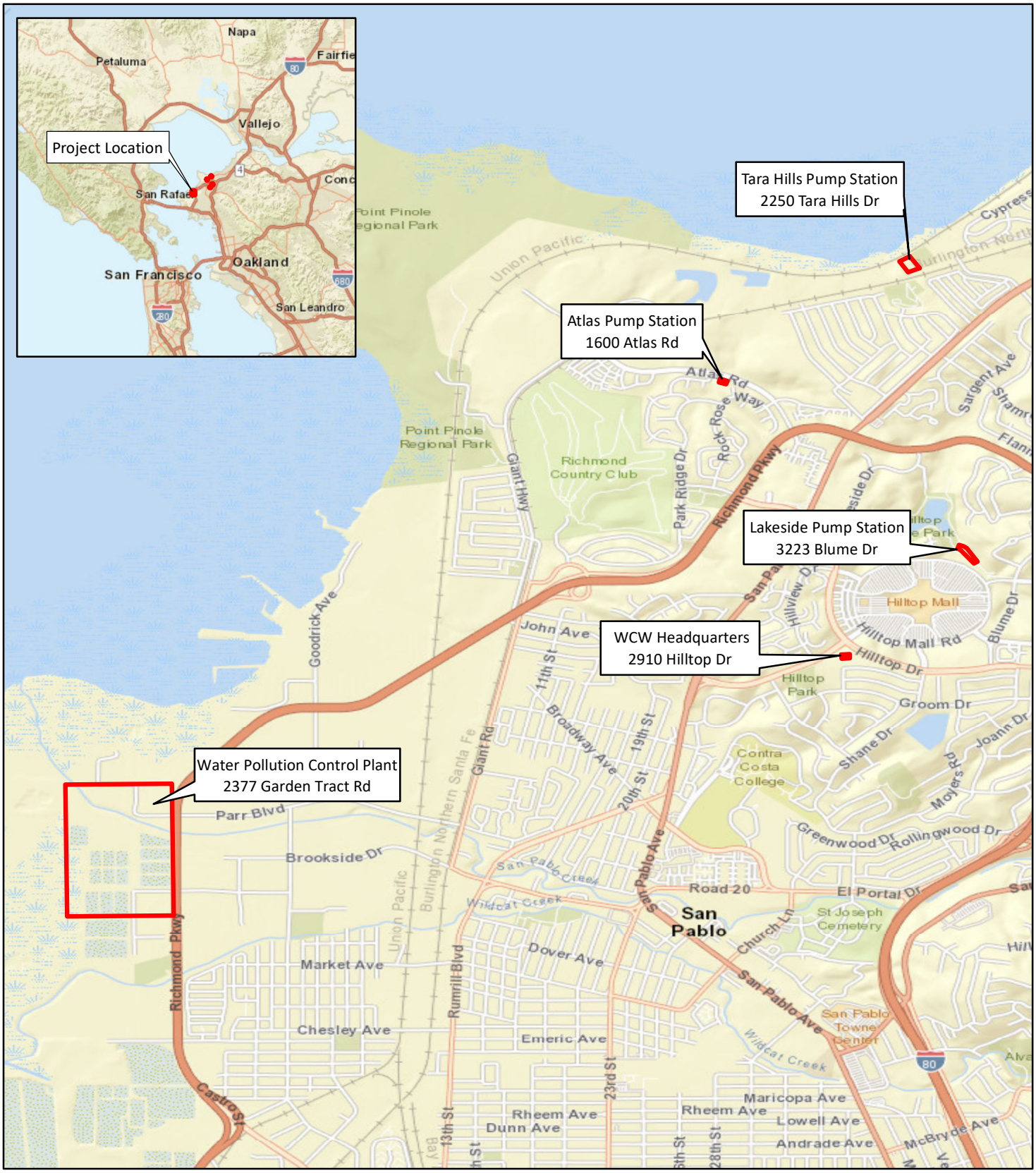

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LEGEND

Project Sites

N

0 1500 3000
FEET

SOURCE: ESRI World Street Map (2020)

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FIGURE 1

West County Wastewater Comprehensive Energy and Sustainability Upgrades Project

Project Site

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FIGURE 2a

N

0 350' 700'
FEET

Project Site
2377 Garden Tract Roaad

West County Wastewater Comprehensive Energy and Sustainability Upgrades Project

Aerial Photograph: 2377 Garden Tract Road

SOURCES: Google Earth, 3/29/2018; LSA 2020

P\HAN2001 WCWD CEQA Documentation\PRODUCTS\Graphics\Figure 2a_2377 Garden Tract Rd.ai (11/16/2020)

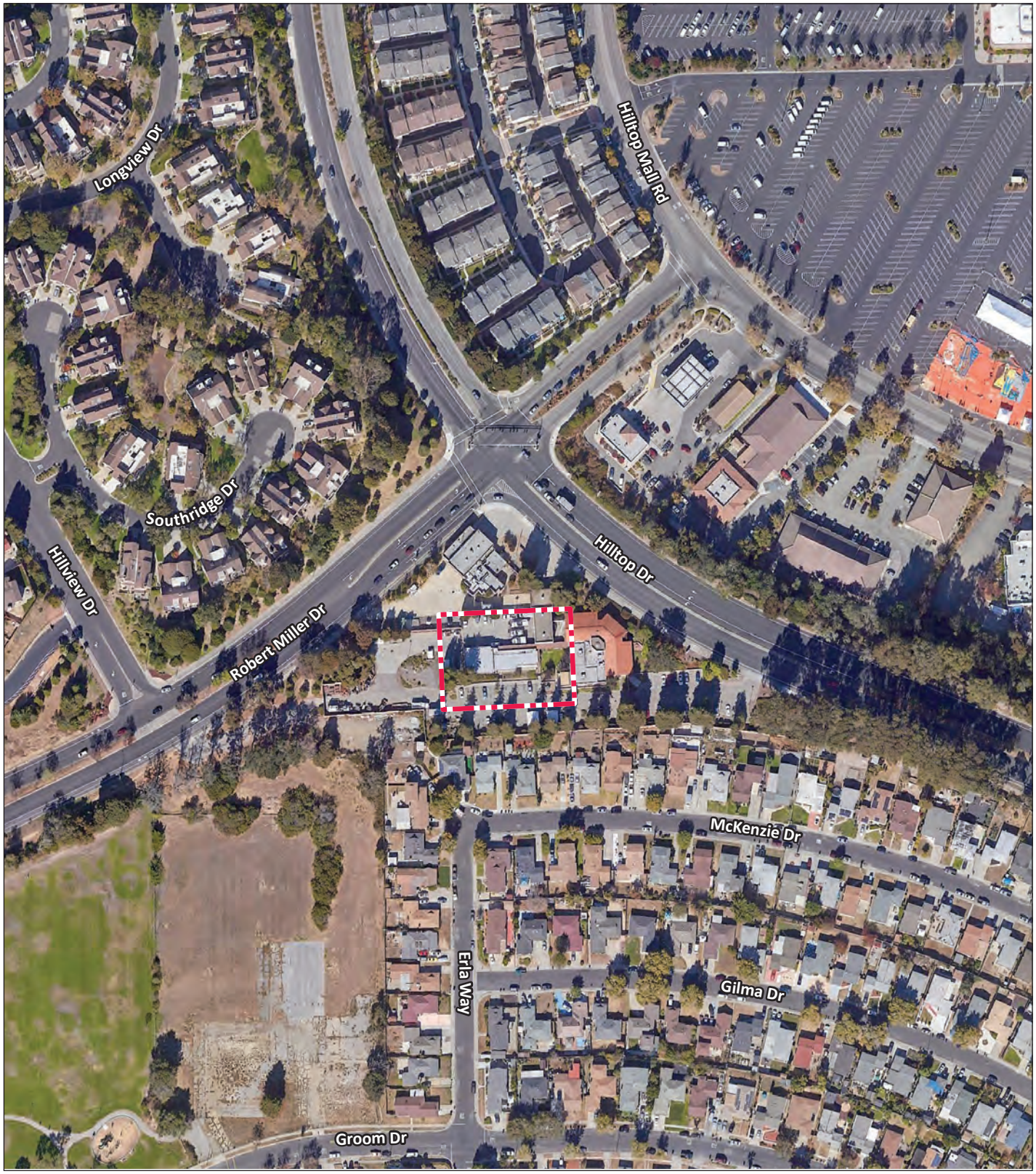

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FIGURE 2b

N

0 100' 200'
FEET

Project Site
2910 Hilltop Drive

West County Wastewater Comprehensive Energy and Sustainability Upgrades Project

Aerial Photograph: 2910 Hilltop Drive

SOURCES: Google Earth, 3/29/2018; LSA 2020

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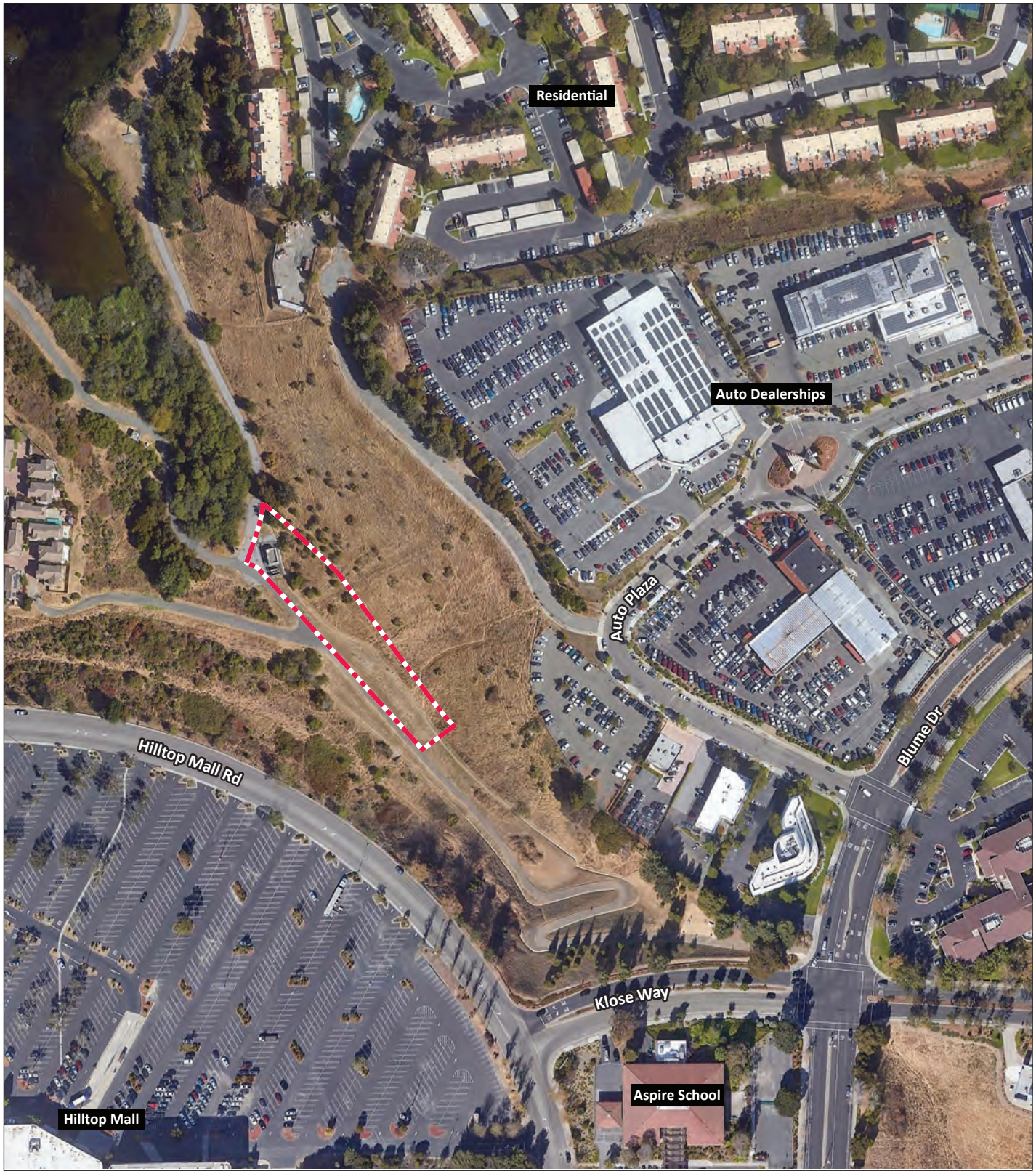

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FIGURE 2c

N

0 100' 200'
FEET

Project Site
3223 Blume Drive

West County Wastewater Comprehensive Energy and Sustainability Upgrades Project

Aerial Photograph: 3223 Blume Drive

SOURCES: Google Earth, 3/29/2018; LSA 2020

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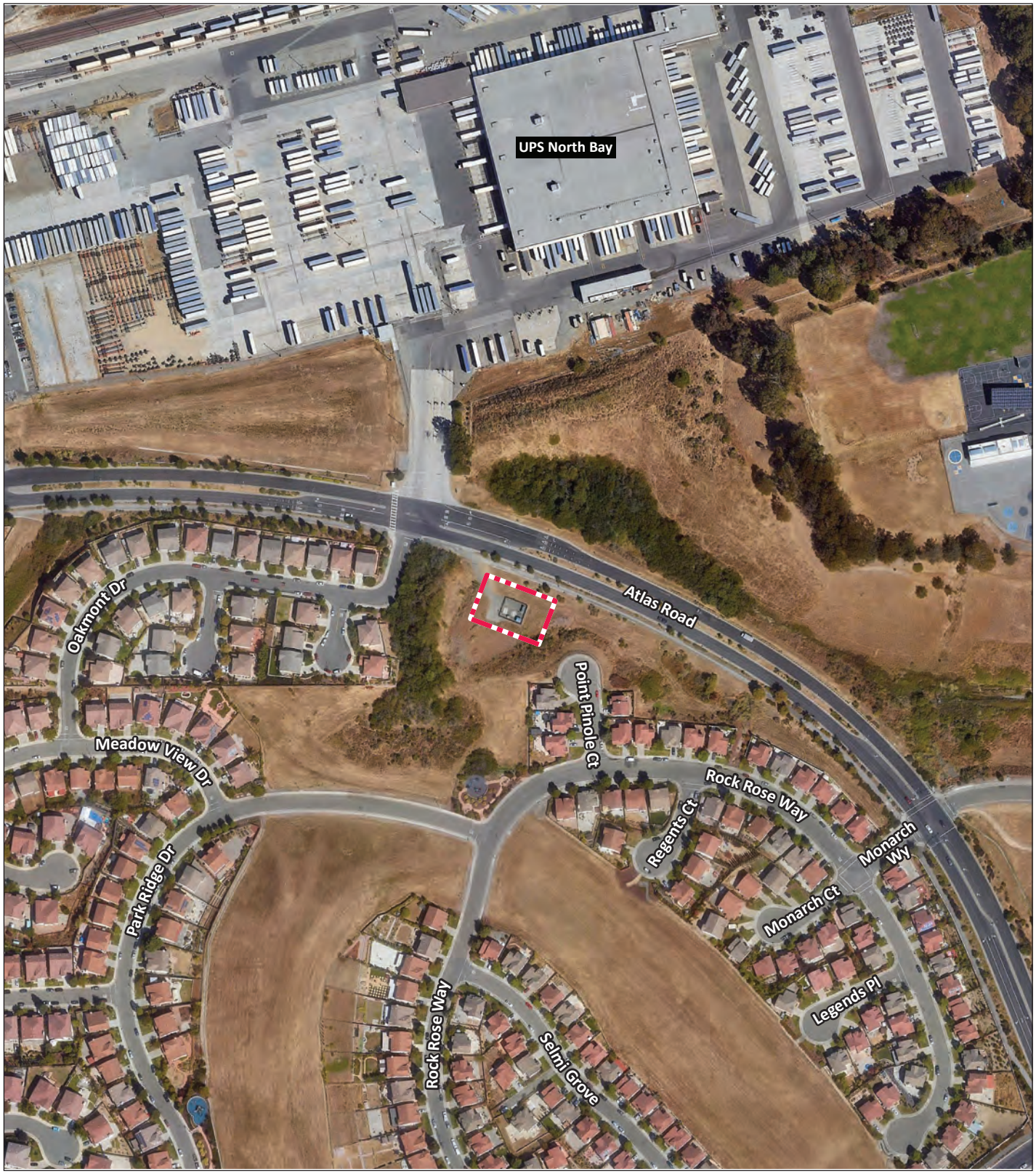

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FIGURE 2d

N

0 150' 300'
FEET

Project Site
1600 Atlas Road

West County Wastewater Comprehensive Energy and Sustainability Upgrades Project

Aerial Photograph: 1600 Atlas Road

SOURCES: Google Earth, 3/29/2018; LSA 2020

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FIGURE 2e

N

0 150' 300'
FEET

Project Site
2250 Tara Hills Drive

West County Wastewater Comprehensive Energy and Sustainability Upgrades Project

Aerial Photograph: 2250 Tara Hills Drive

SOURCES: Google Earth, 3/29/2018; LSA 2020

P\HAN2001 WCWD CEQA Documentation\PRODUCTS\Graphics\Figure 2e_Aerial Photo.ai (11/18/2020)

8. Description of Project:

WCW proposes to implement the Comprehensive Energy and Sustainability Upgrades Project (proposed project) at its existing facilities, including the WQRRP. The proposed project would include replacement and modernization of equipment and infrastructure at the WQRRP, as well as installation of solar photovoltaic (PV) generation facilities at several WCW facilities, including the WQRRP, Atlas Pump Station, WCW Headquarters (PV facilities and electric vehicle [EV] charging stations), Lakeside Pump Station at Hilltop Lake Park, and Tara Hills Pump Station. The purpose of the proposed project is to reduce energy consumption and improve operational efficiency.

Project Background. Founded in 1921, WCW provides sewage collection, treatment, and disposal services for the City of San Pablo, all of the northern subdivisions of Richmond, portions of the City of Pinole, the communities of El Sobrante, East Richmond Heights, Tara Hills, Rollingwood, and Bayview and portions of unincorporated Contra Costa County.[1]

Today, WCW serves a population of approximately 93,000 in Western Contra Costa County and owns, operates, and maintains a wastewater collection system with 249 miles of gravity sewer pipelines, 17 lift stations, 6 miles of pressure force mains, and a Water Quality and Resource Recovery Plant with a capacity of 12.5 million gallon per day (mgd), average dry weather flow.[2]

In 2011, WCW initiated a District-Wide Master Plan (Master Plan) to assess all of the WCW facilities, including its collection system, the WQRRP, as well as the facilities needed to support the operations, maintenance, engineering, administrative, and finance departments. As part of the Master Plan process, WCW identified projects to repair and replace existing infrastructure, new facilities needed to meet existing and future regulatory requirements, improvements to address wet weather capacity in the collection system, and improvements to WCW facilities to enhance staff efficiency. The Master Plan also includes a recommended Capital Improvement Plan (CIP) for implementing proposed improvements over the next 20 years. WCW adopted the Master Plan in December 2014.

The proposed project would allow WCW to implement several critical projects, which would address not only the issues of failing infrastructure, a shortage of wet weather storage and potentially unreliable treatment process equipment, but would also provide energy savings, which would allow WCW to implement other equipment and infrastructure projects identified in the CIP. Proposed improvements at the WQRRP are shown in Figure 3.

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1 West County Wastewater District. About Us. Website: www.wcwd.org/about-us/ (accessed November 16, 2020).

2 West County Wastewater District. 2014. District Master Plan - Executive Summary. December.

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FIGURE 3

N NOT TO SCALE

West County Wastewater Comprehensive Energy and Sustainability Upgrades Project

Proposed Site Plan - WWTP Improvements

SOURCE: WCWD, April 2020

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Project Purpose. WCW proposes to implement various infrastructure improvements at the WQRRP in order to reduce energy consumption and improve the efficiency of the existing system. Specifically, the proposed project is intended to support three of WCW's strategic goals:

- Adopt infrastructure maintenance and modernization strategies that maximize performance, reduce risk and ensure reliable service by upgrading several key components in the wastewater treatment process at the WQRRP.

- Reduce carbon emissions, maximize resource recovery, minimize the environmental footprint of the facilities and make significant strides toward becoming a carbon neutral enterprise through the installation of solar energy producing equipment at several WCW facilities and replacement of equipment at the WQRRP with more energy efficient equipment. In addition, the proposed project would include implementation of a cogeneration process to recover and reuse resources to produce energy to power the WQRRP. The proposed project would also eliminate the need to use WCW land for drying sludge, allowing the land to be used for additional wet weather storage, and to reduce the amount of methane released into the environment through the drying process.

- Promote financial policies and practices that promote sustainability, integrity, innovation, and responsible resource allocation by using the energy savings to finance the proposed project.

The proposed project is not intended to expand the capacity of the current systems to serve additional population growth or development within the WCW service area. Rather, the proposed project would enhance energy efficiency and improve the reliability of the existing system.

Project Components. The following components would be implemented as part of the proposed project:

Influent Pumps Upgrade. Influent pumps lift the wastewater to a level sufficient to allow it to flow through the rest of the WQRRP by gravity. The objective of the influent pump upgrade is to provide new infrastructure that is responsive to variations in the influent flow, which result in peaks in the flow to the plant throughout the day. As part of the proposed project, WCW would install new influent pumps capable of being driven by variable frequency drives (VFD). The existing jockey pump would be replaced with a new 4.5 mgd pump with a VFD capable motor. The existing 12.5 mgd pump would be replaced by a new VFD optimized pump.

Grit Removal System Upgrade. Grit includes sand, gravel, cinder, and other heavy solid materials that are "heavier" than the organic biodegradable solids in wastewater. Two new modern grit separation systems would be installed in the existing aerated grit separation basins, which would remove 95 percent of all wastewater grit 75 microns or larger. The existing grit screw would be integrated into a grit washing system. The upgraded grit removal system would reduce wear on pumps and diffusers and help preserve the active volume of the digesters, resulting in a steady flow of biogas.

Carbon Redirection in the Primary Clarifiers. The primary clarifier removes a significant portion of the influent biochemical oxygen demand, reducing the load on the subsequent aeration stages. Carbon redirection (also known as chemically enhanced primary treatment) would be implemented to improve settling in the primary clarifier, increase the production of primary sludge and increase the biogas yield. With a higher solids concentration from the primary clarifier, solids retention time (SRT) in the digesters would be improved, resulting in additional biogas production.

High Efficiency Turbo Blowers Installation. Air is needed in the activated sludge wastewater treatment process to provide oxygen to the microorganisms that break down the waste. The existing engine-driven blowers incur high maintenance costs and are approaching the end of their useful life and would be replaced by a highly mechanically efficient dual turbo blower with 4 to 1 turndown. The existing electric blowers would remain as back up for the new turbo blower, if needed. The total digester gas produced would be diverted to electrical power generation. The turbo blower would be installed in the existing electric blower room, replacing one of the existing blowers.

Redundant Rotary Drum Thickener Installation. Waste activated sludge needs to be thickened prior to digestion to increase the SRT and allow digestion to take place, since anaerobic digestion is a biological process and microorganisms require time to digest the sludge. Currently, only one of the two existing dissolved air flotation (DAF) thickeners is in operation and is nearing the end of its useful life. Two new rotary drum thickeners would be installed within the existing DAF thickener building. The new rotary drum thickeners would allow waste activated sludge solids to be concentrated to 4 to 6 percent solids prior to anaerobic digestion, increasing the SRT in the digester and optimizing the yield of biogas produced.

Anaerobic Digester Installation. Anaerobic digesters stabilize the biosolids by accelerating decomposition and yield energy in the form of biogas, which can be used for digester heating, power generation, and drying sludge, allowing Class A biosolids to be produced. The existing digesters are past their useful life; therefore, two new digesters, approximately 68 feet in diameter with a sidewall depth of 30 feet, would be installed. Both of the existing digesters would be demolished and replaced with the new digesters. The second new digester would be built on vacant land adjacent to the existing digesters. Two side walls, roof, and a portion of the floor of the existing digester building would be removed. The portion of the floor that contains the piping would remain in place.

In addition, a total of twelve (six per digester) Suez Cannon mixing systems would be installed to recirculate the contents of the digester and provide uniform heating. The primary source of heat would be waste heat from the cogeneration system.

Biogas-Powered Co-Generation System Installation. Biogas provides a renewable form of energy that can be used to produce electricity without increasing greenhouse gas emissions, dramatically reducing the greenhouse gas emissions of WCW. The gas requires cleaning to remove harmful substances – hydrogen sulfide, which can corrode metal parts, moisture, which decreases the energy content, and siloxanes, which can decompose to form abrasive

silica under combustion. When these criteria are met, the energy contained within biogas can be used to produce electricity and the waste heat from the combustion process can be used for heating the digester and drying the digested biosolids. Two redundant approximately 450 kilowatt (kW) cogenerations systems would be installed to generate power from biogas and to provide waste heat for digester heating and for drying the biosolids. The new cogeneration system would be constructed on currently undeveloped land within the boundaries of the WQRRP. The cogeneration building would be approximately 10 feet wide, 78 feet long with a maximum height of 22 feet, and discharge stacks 33 feet tall.

Centrifuge Installation. The digested sludge from the digesters is a thin liquid containing 2 percent solids. In order to facilitate drying, some form of dewatering is required. Centrifuges can remove the water by spinning the liquid at 30,000 revolutions per minute (rpm), allowing the sludge to be compressed to a cake of 20 to 25 percent solids. The water that is spun off ("the centrate") would be collected and returned to the headworks of the WQRRP, eliminating the labor needed for the current practice, which is to move the sludge around in the sludge drying beds until the drying process is complete. Two new centrifuges capable of handling the entire output of digested sludge from both the WQRRP and from Richmond would be installed within the biosolids building. Elimination of the sludge ponds and replacement with the proposed centrifuges would significantly reduce GHG emissions associated with operations at the WQRRP.

Installation of a Thermal Dryer for the Digested Sludge. A thermal dryer system would be installed to dry to the sludge to 80 percent solids, significantly reducing disposal costs. The dryer would operate on waste heat from the cogeneration system and would be supplemented by natural gas, as needed. The resulting dry sludge would conform to the Class A biosolids standard, as defined by the United States Environmental Protection Agency (US EPA). Class A biosolids can be used as a soil amendment for non-food crops.

Increase Capacity of the Influent Equalization Basins. The infiltration of stormwater into the collection system increases the flow of water to the plant during rain events. An equalization basin is necessary to contain the influent until it can be processed by the WQRRP, which prevents the discharge of untreated wastewater into the Bay. The WQRRP currently has 53 million gallons of storage capacity in its equalization basins. As part of the proposed project, the existing south sludge drying beds (which would no longer be required with installation of the thermal dryer) would be converted into additional equalization basin capacity, adding approximately 23 million gallons of storage. This increased capacity would allow the WQRRP to accommodate a 100-year storm event with a 24-hour duration.

Solar Photovoltaic Facility Installation. In addition to the WQRRP improvements, WCW proposes to construct solar PV power generating facilities at several of its existing facilities, including the WQRRP, WCW Headquarters, Atlas Pump Station, Lakeside Pump Station, and the Tara Hills Pump Station. The size and capacity of each of these facilities is shown in Table 1.A and shown in Figures 4 through 8.

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FIGURE 4

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West County Wastewater Comprehensive Energy and Sustainability Upgrades Project

Proposed Solar Facility - WQRRP

SOURCE: WCWD, 2020

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FIGURE 5

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West County Wastewater Comprehensive Energy and Sustainability Upgrades Project

Proposed Solar Facility - WCW Headquarters

SOURCE: WCWD, 2020

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FIGURE 6

NOT TO SCALE

West County Wastewater Comprehensive
Energy and Sustainability Upgrades Project
Proposed Solar Facility - Lakeside Pump Station

SOURCE: WCWD, 2020

P\HAN2001 WCWD CEQA Documentation\PRODUCTS\Graphics\Figure 7.ai (11/18/2020)

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FIGURE 7

NOT TO SCALE

West County Wastewater Comprehensive Energy and Sustainability Upgrades Project

Proposed Solar Facility - Atlas Pump Station

SOURCE: WCWD, 2020

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FIGURE 8

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West County Wastewater Comprehensive Energy and Sustainability Upgrades Project

Proposed Solar Facility - Tara Hills Pump Station

SOURCE: WCWD, 2020

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Table 1.A: Proposed Solar Facilities

Facility	Size of Solar Facilities	Total Land Area Required	Estimated Power Generation (kW)
WQRRP	39,900 square feet	115,000 square feet	831.6
WCW Headquarters	2,105 square feet	N/A (canopy over parking)	57.1
Lakeside Pump Station	2,900 square feet	7,200 square feet	60.5
Atlas Pump Station	1,200 square feet	4,000 square feet	26.9
Tara Hills Pump Station	6,525 square feet	24,000 square feet	136.1

Source: WCW (2020).

With the exception of the solar PV facility at WCW Headquarters, proposed solar facilities would consist of ground mounted PV modules that would be configured in several array blocks. The blocks would vary in size and would be repeated to create total electrical capacity. PV modules would be made of thin-film, polycrystalline silicon or other technology. The PV modules would be mounted on fixed-tilt tracker mounting systems. The maximum height of the panels would be approximately 8 feet and the bottom of the panels would be a minimum of 24 inches above the ground. The modules would be fixed in place and positioned to receive optimal solar energy at an angle of 25 degrees.

The mounting system for the fixed-tilt module would include steel posts driven into the ground with steel table frames bolted to the driven posts. The steel posts would be approximately 4 to 6 inches across and driven to a depth not to exceed 8 feet. The modules would be mechanically fastened to the steel table frame.

At WCW Headquarters, solar panels would be mounted on a free-standing canopy structure over the parking lot south of the existing building.

PV modules convert sunlight into direct current (DC) electricity. The DC electricity generated by the PV module would be collected and converted to AC electricity through a system of inverters, transformers, converters, switchgear and combiner boxes. The energy would be delivered via an underground AC conductor connecting to existing electrical infrastructure at WCW's facilities. Underground cables would be direct buried at a depth of 3 feet in accordance with the National Electrical Safety Code.

Light-Emitting Diode (LED) Lighting Improvements. All fixtures at both WCW Headquarters and throughout the WQRRP would be upgraded/replaced to provide better quality light with less maintenance. However, lumen levels and color temperature would be maintained with minimal visual change.

Electric Vehicle Charging Stations. Two electric vehicle charging stations would be installed at WCW Headquarters. Each station would have two ports. One charging station would be located behind the gate; the other would be located in front of the building for public use.

Project Construction. For projects located at the WQQRP, construction would occur on WCW-owned land within the boundaries of the WQRRP. For the solar installation projects, construction would occur on WCW-owned land adjacent to, or within existing WCW facilities.

The majority of proposed improvements at the WQRRP would include structural, mechanical, and electrical modifications within existing structures. Construction of these items would require demolition and installation of structural, mechanical, and electrical equipment. Minimal site trenching for utility connections would also be required, not to exceed 5 feet deep. The new anaerobic digesters and co-generation system would require construction of new facilities or structures. All structures would be located either in the same location as other structures planned for demolition or in currently open, undeveloped areas within the boundaries of the WQRRP. Depth of excavation required for these facilities would be approximately 20 feet. The types of equipment that would be used for construction of proposed improvements would include but would not be limited to the following: asphalt pavers, compactors, water trucks, brooms and sweeping equipment, electric generators, drilling equipment, backhoes, loaders, excavators, cranes, sprayers and rollers, concrete mixers, concrete pumps and vibrators, graders, trucks and trailers, and welding and cutting equipment.

As described above, proposed solar facilities would be located on undeveloped land adjacent to the existing WCW pump stations, or within currently developed areas at the WQRRP and WCW Headquarters. Excavations for proposed PV facilities would be approximately 3 feet deep.

The WQRRP would continuously operate throughout the entire duration of construction. The WQRRP would continue receiving, treating, and disposing wastewater from its service area without interruption for the entire duration of the project.

Construction of all of the above WQRRP improvements would begin in April 2022 and be completed within two years. Construction activities would generally be limited to the hours between 8:00 a.m. and 6:00 p.m. on weekdays and between 9:00 a.m. and 6:00 p.m. on Saturdays. No construction activities would be permitted on Sundays or holidays during any construction phases, except for emergencies and for critical work with prior notice to and approval by WCW. Construction personnel may arrive on site and depart approximately one hour prior to or after regular construction times.

Construction would require demolition of existing facilities and removal of associated debris, excavation, site preparation, grading, installation of sheet piles for the below grade structures, sub-grade preparation, forming and pouring of concrete slabs and walls, and equipment and electrical installation. Following construction of the new facilities, clean fill would be used to backfill around the subgrade portions of trenches and structures. It is anticipated that excavated soil would be used to balance the site and establish grades for the proposed project. Minimal metal debris would be recycled off-site. Final grade treatment would be asphalt pavement, which would be expanded by approximately 800 square feet, in addition to the structures identified above, as a result of project construction.

Prior to construction, temporary contractor staging areas would be identified within the WQRRP site and on the WCW properties where solar facilities are proposed. All staging areas would be

located within the boundaries of WCW properties. Primary access for material hauling for the WQRRP would occur along Parr Avenue via Richmond Parkway.

The on-site construction workforce would consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. It is conservatively assumed that a maximum of 30 to 40 workers would be on-site during construction activities. In addition, the WCW would have an inspector or project engineer on-site to review construction activities

Project Operation. The proposed project would not increase the capacity of the current WQRRP; rather, the proposed project would improve energy efficiency at the WQRRP and provide energy generating facilities to serve the entire WCW system. Upon completion of construction activities, operation of the proposed project would not require any additional employees or generate additional vehicle trips to/from any of the project sites. The existing WCW workforce would be sufficient to operate the WQRRP and perform period inspections, maintenance and minor repairs of proposed solar facilities. These activities would be concurrent with maintenance activities that currently occur at the existing pump stations.

9. Surrounding Land Uses and Setting:

Existing conditions on and in the vicinity of the project sites are discussed below.

Existing WQRRP. The majority of the project improvements would be located at the existing WQRRP at 2377 Garden Tract Road in the City of Richmond. The wastewater treatment processes at the WQRRP consists of the headworks with coarse and fine bar screens, aerated grit tanks, primary settling basins, roughing trickling filter, fine bubble secondary aeration tanks, secondary sedimentation tanks, and chlorine contact chambers. The treated wastewater from the WQRRP is transported to the City of Richmond Wastewater Treatment Plant for de-chlorination and discharge. The existing WQRRP has three flow equalization basins for management of wet weather flows. During periods when wet weather flows exceed the plant's secondary treatment capacity, influent wastewater is diverted to and stored in these basins. After peak flows have sufficiently subsided, stored wastewater is returned to the plant headworks to receive full secondary treatment.[3]

The WQRRP is bordered to the east by Richmond Parkway and light industrial uses; to the west by the Wildcat Creek Regional Trail and Bay marshlands; to the south by Wildcat Creek and the Wildcat Creek Regional Trail; and to the north by the West Contra Costa Sanitary Landfill. The Wildcat Creek Regional Trail is part of the larger San Francisco Bay Trail, a planned 500-mile walking and cycling path around the entire San Francisco Bay.

WCW Headquarters. The WCW Headquarters are located at 2910 Hilltop Drive, near the Robert Miller Drive intersection, in the City of Richmond. It is bordered to the south by residential development and Hilltop Park; to the north and west by single-family and multi-family

[3] PBS&J. 2011. Richmond General Plan Draft Environmental Impact Report. February. Available online at: www.ci.richmond.ca.us/DocumentCenter/View/29113/General-Plan-2030---DEIR (accessed December 8, 2020).

residential development; and to the east by commercial development, including the Hilltop Shopping Mall.

Lakeside Pump Station. The Lakeside Pump Station is located at 3223 Blume Drive along the entrance road to Hilltop Lake Park in the City of Richmond. This site is surrounded primarily by the existing park use. Multi-family residential and commercial development are located beyond the park boundaries.

Atlas Pump Station. The Atlas Pump Station is located at 1600 Atlas Road in the City of Richmond. This site is bordered to the west, south and east by residential development. The UPS North customer center and Montalvin Elementary School are located further to the north.

Tara Hills Pump Station. The Tara Hills Pump Station is located at 2250 Tara Hills Drive in unincorporated Contra Costa County. This facility is located within an existing park, adjacent to the baseball field. The site is bounded by the Union Pacific Railroad (UPRR) tracks to the south, Garrity Creek to the east, the San Francisco Bay Trail and San Pablo Bay to the north, and the Point Pinole Regional Shoreline to the west.

10. Other Public Agencies Whose Approval is Required (e.g., permits, financial approval, or participation agreements):

- City of Richmond
- Bay Area Air Quality Management District

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resource Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

On February 2, 2021, the WCW provided formal notification to those California Native American tribes that are traditionally and culturally affiliated with the geographic area within which the proposed project is located pursuant to the consultation requirements of AB 52. Letters were sent to all tribal representatives identified by the Native American Heritage Commission. To date, the WCW has received one request for consultation and tribal consultation is still ongoing.

2.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist in Chapter 3.0.

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

2.1 DETERMINATION

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "Potentially Significant Impact" or "Potentially Significant Unless Mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Andrew Clough
Signature

March 11, 2021
Date

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3.0 CEQA ENVIRONMENTAL CHECKLIST

3.1 AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☐	☒
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

a. Would the project have a substantial effect on a scenic vista? ***(Less-Than-Significant Impact)***

A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Aesthetic components of a scenic vista generally include (1) scenic quality, (2) sensitivity level, and (3) view access. No scenic vistas are identified in either the City of Richmond General Plan or the City of San Pablo General Plan to or from the project area. However, both of these General Plans contain policies to protect the surrounding hills and the San Francisco and San Pablo bays, which are considered the prominent scenic areas in the project area.

WQRRP Improvements. The WQRRP is located approximately 0.25 miles east of the San Francisco Bay and is located adjacent to the Wildcat Creek Trail and marshlands associated with the Bay. Due to its low elevation and surrounding vegetation, views of the Bay from the WQRRP project site itself are somewhat limited. Views of the Bay from public roadways around the WQRRP project site are generally obscured by intervening development and vegetation. The vistas at the WQRRP site consist largely of urban uses, such as industrial buildings, roadways, and the existing WQRRP infrastructure. The Wildcat Creek Trail is located to the west of the WQRRP site and affords visitors with scenic views of the marshlands and the Bay.

Project construction activities would include subsurface disturbance and excavation; vehicle and truck trips; use of heavy equipment (e.g., loaders, cranes, excavators, backhoes); and building new facilities. Construction activities associated with the WQRRP improvements could be visible from adjacent industrial uses, recreational users along the Wildcat Creek Trail and for motorists on

adjacent roadways. However, these activities would only be visible temporarily during the construction period.

The WQRRP project site is developed with asphalt and paved surfaces and buildings and wastewater treatment facilities and structures. Implementation of the proposed project would result in the upgrade/replacement of existing facilities and the construction of new facilities. The majority of these facilities would be located within existing structures and would not change existing views. Two new digesters, approximately 68 feet in diameter and 30 feet tall, would be installed to replace the existing digesters. These digesters would be constructed on the WQRRP property and would be consistent with the existing facilities onsite (e.g., equal to or shorter than the existing digesters). Therefore, the proposed project would not have a substantial adverse effect on a scenic vista.

Solar Facilities. All of the proposed solar facilities are located in areas, which are primarily characterized by urban development, including local roads, residential housing, commercial sites, and parks. Each project site would be visible from surrounding public roadways and the adjacent parks (Hilltop Lake Park and Montara Bay Park). With the exception of the Tara Hills Pump Station, the proposed solar sites have limited views of the Bay due to surrounding development, existing vegetation, topography, and distance from the Bay shoreline.

At the WCW Headquarters, solar panels would be mounted on a free-standing canopy structure over the parking lot south of the existing building. Views of the solar facility from public vantage points would largely be blocked by the existing WCW Headquarters facilities. Other solar facilities would consist of ground-mounted solar arrays located on undeveloped land adjacent to existing WCW facilities. Due to the low heights of the majority of the project features, (solar panels would be approximately 8 feet tall), development of proposed solar facilities would not impact scenic views. Therefore, implementation of the proposed project would not result in a substantial adverse effect on a scenic vista and this impact would be less than significant.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ***(No Impact)***

None of the project sites are located within the vicinity of a State Scenic Highway.[4] No historic buildings or rock outcroppings are located on or near the vicinity of the project area. Furthermore, implementation of the project would not result in the removal of or damage to scenic resources. Therefore, no impacts to scenic resources within a State scenic highway would occur.

[4] California Department of Transportation (Caltrans). 2018. California State Scenic Highway System Map. Available online at: www.arcgis.com/apps/webappviewer/index.html?id=2e921695c43643b1aaf7000dfcc19983 (accessed December 10, 2020).

c. In non-urbanized areas, would the project 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 a publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? ***(Less-Than-Significant Impact)***

WQRRP Improvements. The WQRRP site is largely developed with asphalt and paved surfaces and wastewater treatment structures and facilities. Project construction activities for the WQRRP improvements include subsurface disturbance and excavation; vehicle and truck trips; use of heavy equipment (e.g., loaders, cranes, excavators, backhoes); and building new facilities. Construction activities associated with the WQRRP improvements could be visible from adjacent industrial uses, motorists on nearby roadways, and recreational users along the Wildcat Marsh Trail, which runs along the WQRRP boundary. However, these activities would only be visible temporarily during the construction period.

Implementation of the WQRRP improvements would result in the replacement of existing facilities on site. The new facilities would include modern grit separation systems, a dual turbo blower, rotary drum thickeners, digesters, biogas-powered co-generation system, centrifuges, thermal dryer system and a solar facility. These facilities would be constructed on the WQRRP and all above ground facilities would be consistent in mass and size with the existing facilities onsite. Therefore, the WQRRP improvements would not degrade the existing visual character or quality of the site and its surroundings and this impact would be less than significant.

Solar Facilities. The existing visual character in the vicinity of the proposed solar facilities sites consists primarily of urban development and the immediate project area is generally visually dominated by existing roadways and adjacent development. Both the Lakeside Pump Station and the Tara Hills Pump Station sites are located within or adjacent to park lands. All of the project site locations are visible from surrounding public sites, including local roadways, and public facilities, including Hilltop Lake Park and Montara Bay Park.

The proposed project would install solar arrays with associated infrastructure at several existing WCW facilities. At the WCW Headquarters, solar panels would be mounted on a free-standing canopy structure over the parking lot south of the existing building. The proposed canopy structure would be located behind the existing WCW buildings and largely screened from any public views. The proposed canopy and EV charging stations would be consistent with existing development at the WCW Headquarters site.

At the other sites, the areas proposed for installation of the solar facilities currently appear largely as undeveloped grassland/ruderal vegetation. Although installation of proposed solar facilities in these locations would alter the existing visual character of the sites, the new visual character would not significantly contrast with the urban landscape in which these project sites are located. The reduction in the aesthetic quality of views would be limited because the solar arrays would be limited in height and placed in consistent, orderly blocks. Although the height of the solar arrays is relatively low (no more than eight feet in height), they may be visible from nearby land uses, and travelers on local roadways. However, installation of the proposed solar facilities would be visually

compatible with adjacent urban development and consistent with the WCW's existing use of these sites for WCW infrastructure (e.g., pump stations)

The proposed project would not permanently degrade either the visual character of the project site or its surroundings. Therefore, implementation of the proposed project would have a less than significant impact associated with degradation of the existing visual character or quality of the project site and its surroundings.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ***(Less-Than-Significant Impact)***

Streetlights, vehicle head and taillights, and lighting associated with the existing WQRRP and existing development are the existing sources of light and glare in the project area. As part of the proposed improvements at the WQRRP, the WCW proposes to upgrade existing lighting to more efficient light-emitting diode LED) lighting. New lighting would be installed to provide security lighting for new facilities within the WQRRP and at proposed solar facilities. All of the project sites are located within a largely developed area, with existing sources of nighttime light. On-site lighting levels would not be of a magnitude that would produce substantial amounts of nighttime lighting in relation to the light produced by surrounding land uses. In addition, lights would be aimed downward and shielded to limit light spillover to adjacent uses.

The proposed project would not create a substantial new source of daytime glare. Glare is a phenomenon that exists when there is a very high degree of contrast between bright and dark areas in a field of view that makes it difficult for the human eye to adjust to differences in brightness. The proposed PV panels could reflect sunlight and cause glare. However, photovoltaic collector panels are designed to absorb as much of the sun's energy as possible to generate electricity, and the panes that protect the collectors' surfaces are usually made of a specially formulated glass that permits 90 percent of the light to reach the collectors and to reflect only 10 percent of the light that falls on them. Consequently, solar collector panels are not as reflective as normal glass surfaces. Efficient operation of these panels involves maximizing sunlight absorption, leading to a minimization of glare. Therefore, the project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. This impact would be less than significant.

3.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

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

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? ***(No Impact)***

The proposed WQRRP improvements would be constructed at the existing WQRRP site and the solar facilities would be constructed on WCW-owned land, most of which have been previously disturbed. Most of the project sites are classified as "Urban and Built-Up Land" by the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP).[5] Urban and Built Up Land is occupied by structures with a building density of at least 1 unit to 1.5 acres, or

[5] California Department of Conservation. 2016. California Important Farmland Finder. Website: maps.conservation.ca.gov/DLRP/CIFF/ (accessed November 17, 2020).

approximately 6 structures to a 10 acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, sanitary landfills, sewage treatment and water control structures.

Two sites, the Lakeside Pump Station at Hilltop Lake Park and the Tara Hills Pump Station, are classified as "Other Land" by the FMMP.[6] Other land includes land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

No Farmland is mapped on or near the project sites. Therefore, the project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use and no impact would occur.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(No Impact)***

The project sites are not zoned for agricultural use and are not under a Williamson Act contract.[7] Therefore, implementation of the project would not conflict with existing zoning for agricultural use, or a Williamson Act contract and no impact would occur.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? ***(No Impact)***

The proposed project is not located on forest land or timberland, and would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. Therefore, implementation of the project would not result in any impacts to forestland.

d. Would the project result in the loss of forest land or conversion of forestland to non-forest use? ***(No Impact)***

Refer to Section 3.2.c. No impact would occur.

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6 California Department of Conservation. 2016, op. cit.

7 Contra Costa County. 2016. 2016 Agricultural Preserves Map. Available online at: www.contracosta.ca.gov/DocumentCenter/View/882/Map-of-Properties-Under-Contract?bidId= (accessed November 17, 2020).

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use? ***(No Impact)***

Refer to Sections 3.2.a and 3.2.c. The proposed project would not involve any other changes to the existing environment, which due to their location or nature, could result in conversion of Farmland to a non-agricultural use, or conversion of forest land to a non-forest use and therefore no impact would occur.

3.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

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

The project area is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which regulates air quality in the Bay Area. Air quality conditions in the Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen substantially. In Contra Costa County, and the rest of the air basin, exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Within the BAAQMD, ambient air quality standards (AAQs) for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10}, $PM_{2.5}$), and lead (Pb) have been set by both the State of California and the federal government. The State has also set standards for sulfate and visibility. The BAAQMD is under State non-attainment status for ozone and particulate matter standards. The BAAQMD is classified as non-attainment for the federal ozone 8-hour standard and non-attainment for the federal $PM_{2.5}$ 24-hour standard.

This analysis follows the methods outlined in the BAAQMD CEQA Air Quality Guidelines.[8]

a. Would the project conflict with or obstruct implementation of the applicable air quality plan? ***(Less-Than-Significant Impact)***

The applicable air quality plan is the BAAQMD's 2017 Clean Air Plan (Clean Air Plan),[9] which was adopted on April 19, 2017. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines control strategies to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air

[8] Bay Area Air Quality Management District. 2017. *CEQA Air Quality Guidelines*. May.
[9] Bay Area Air Quality Management District. 2017. *Clean Air Plan*. April 19.

pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce greenhouse gas (GHG) emissions to protect the climate. Consistency with the Clean Air Plan can be determined if the project: (1) supports the goals of the Clean Air Plan; (2) includes applicable control measures from the Clean Air Plan; and (3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan.

Clean Air Plan Goals. The primary goals of the Bay Area Clean Air Plan are to: attain air quality standards; reduce population exposure and protect public health in the Bay Area; and reduce GHG emissions and protect climate.

The BAAQMD has established significance thresholds for project construction and operational impacts at a level at which the cumulative impact of exceeding these thresholds would have an adverse impact on the region's attainment of air quality standards. The health and hazards thresholds were established to help protect public health. As discussed below, with implementation of Mitigation Measure AIR-1, the proposed project would result in less-than-significant construction- and operation-period emissions. Therefore, the project would not conflict with the Clean Air Plan goals.

Clean Air Plan Control Measures. The control strategies of the Clean Air Plan include measures in the following categories: Stationary Source Measures, Transportation Measures, Energy Measures, Building Measures, Agriculture Measures, Natural and Working Lands Measures, Waste Management Measures, Water Measures, and Super-GHG Pollutants Measures.

Stationary Source Control Measures. The stationary source measures, which are designed to reduce emissions from stationary sources such as metal melting facilities, cement kilns, refineries, and glass furnaces, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD Permit and Inspection programs. Since the project would not include any stationary sources, the Stationary Source Control Measures of the Clean Air Plan are not applicable to the project.

Transportation Control Measures. The BAAQMD identifies transportation measures as part of the Clean Air Plan to decrease emissions of criteria pollutants, toxic air contaminants (TACs), and GHGs by reducing demand for motor vehicle travel, promoting efficient vehicles and transit service, decarbonizing transportation fuels, and electrifying motor vehicles and equipment. The proposed project would require monthly inspection and maintenance of new equipment once installed. On a typical day, no additional trips are anticipated due to the proposed project. In addition, the proposed project would include EV charging stations at the WCW Headquarters, which would support the ability of project employees to use alternative modes of transportation. As such, the proposed project would not hinder BAAQMD initiatives to reduce vehicle trips and vehicle miles traveled (VMT).

Energy Control Measures. The Clean Air Plan also includes Energy Control Measures, which are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of the electricity used by switching to less GHG-intensive fuel sources for electricity generation. The proposed project would initiate the replacement and modernization of aging

infrastructure at the WQRRP, would include the installation of PV generation facilities at multiple WCW locations, and would implement various infrastructure improvements at the WQRPP. Additionally, parking canopy PV cells and two EV charging stations would be installed at the WCW Headquarters. Implementation of the project would generate approximately 1,112 kilowatts (kW) combined of renewable energy for use at the project sites. Therefore, the proposed project would not conflict with the Energy Control Measures of the Clean Air Plan.

Building Control Measures. The BAAQMD has the authority to regulate emissions from certain sources in buildings such as boilers and water heaters, but has limited authority to regulate the buildings themselves. Therefore, the strategies in the control measures for this sector focus on working with local governments that do have authority over local building codes, to facilitate adoption of best GHG control practices and policies. As described above, the proposed project would initiate the replacement and modernization of aging infrastructure at the WQRRP, would include the installation of solar PV generation facilities at multiple WCW locations, and would implement various infrastructure improvements at the WQRPP. Therefore, the proposed project would not conflict with the Building Control Measures of the Clean Air Plan.

Agriculture Control Measures. The agriculture measures are designed to primarily reduce emissions of methane. Since the project does not include any agricultural activities, the Agriculture Control Measures of the Clean Air Plan are not applicable to the project.

Natural and Working Lands Control Measures. The natural and working lands measures focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to adopt ordinances that promote urban-tree plantings. Since the project does not include the disturbance of any rangelands or wetlands, the Natural and Working Lands Control Measures of the Clean Air Plan are not applicable to the project.

Waste Management Control Measures. The waste management measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. The project would comply with local requirements for waste management (e.g., recycling and composting services). Therefore, the project would be consistent with the Waste Management Control Measures of the Clean Air Plan.

Water Control Measures. The water measures focus on reducing emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works (POTWs), and promoting the use of biogas recovery systems. As described above, the proposed project would initiate the replacement and modernization of aging infrastructure at the WQRRP, would include the installation of solar PV generation facilities at multiple WCW locations, and would implement various infrastructure improvements at the WQRPP. Therefore, the proposed project would not conflict with the Water Control Measures.

Super-GHG Control Measures. The Super-GHG measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual projects, the Super-GHG Control Measures are not applicable to the project.

Clean Air Plan Implementation. As discussed above, the proposed project would generally implement the applicable measures outlined in the Clean Air Plan, including Transportation Control Measures. Therefore, the project would not disrupt or hinder implementation of a control measure from the Clean Air Plan.

In addition, as discussed below, construction of the project would not result in the generation of criteria air pollutants that would exceed BAAQMD thresholds of significance. Operational emissions associated with the project would be minimal and would not exceed BAAQMD established significance thresholds. Therefore, the project would not conflict with or obstruct implementation of applicable air quality plans. This impact would be less than significant.

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard? ***(Less-Than-Significant with Mitigation Incorporated)***

Both State and federal governments have established health-based AAQs for six criteria pollutants: CO, O_3, NO_2, SO_2, Pb, and PM. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. According to BAAQMD's CEQA Guidelines, the project must not:

- Generate average daily construction emissions of reactive organic gases (ROG), nitrogen oxides (NO_x), or $PM_{2.5}$ greater than 54 pounds per day or PM_{10} exhaust emissions greater than 82 pounds per day;
- Contribute to CO concentrations exceeding the State AAQs; or
- Generate operation emissions of ROG, NO_x, or $PM_{2.5}$ of greater than 10 tons per year or 54 pounds per day or PM_{10} emissions greater than 15 tons per year or 82 pounds per day.

Construction emissions associated with the proposed project are analyzed below. As discussed, the proposed project would not generate significant operation-period emissions. In addition, with implementation of Mitigation Measure AIR-1, described below, the project would not generate construction-period emissions in excess of established thresholds. Therefore, the project would not be cumulatively considerable.

Construction Impacts. During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly-emitted particulate matter ($PM_{2.5}$ and PM_{10}), and TACs such as diesel exhaust particulate matter.

Site preparation and project construction would involve grading, building and infrastructure construction, ground paving, installation of solar panel systems, equipment, and conduit installation, and other activities. Additionally, upgrading existing infrastructure would require the demolition and removal of approximately 30,000 cubic feet (1,112 cubic yards) of demolition debris, in order to install the new infrastructure.

Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction sites. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The BAAQMD has established standard measures for reducing fugitive dust emissions (PM_{10} and $PM_{2.5}$). With the implementation of these Basic Construction Mitigation Measures, fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, volatile organic compounds (VOCs) and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the project using the California Emissions Estimator Model (CalEEMod) version 2016.3.2, consistent with BAAQMD recommendations. Construction of the proposed project is anticipated to begin in April 2022 and would occur for approximately 24 months, which was included in CalEEMod. In addition, the CalEEMod analysis conservatively assumed that construction of the proposed project would generate approximately 40 daily worker vehicle trips during each construction phase. Additional construction equipment, including drilling rigs and concrete mixers, were included based on the project's construction equipment list. The CalEEMod analysis also assumes that approximately 100 tons of demolition materials would be removed to account for the 30,000 cubic feet of demolition debris. This analysis assumes the use of Tier 2 construction equipment. Construction-related emissions are presented in Table 3.A. CalEEMod output sheets are included in Appendix A.

Table 3.A: Project Construction Emissions in Pounds Per Day

Project Construction	ROG	NO_x	Exhaust PM_{10}	Fugitive Dust PM_{10}	Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$
Average Daily Emissions	1.3	19.3	0.6	1.1	0.4	0.6
BAAQMD Thresholds	54.0	54.0	82.0	BMP	54.0	BMP
Exceed Threshold?	No	No	No	No	No	No

Source: LSA (January 2021).
BMP = best management practices

As shown in Table 3.A, construction emissions associated with the project would be less than significant for ROG, NO_x, $PM_{2.5}$, and PM_{10} exhaust emissions. The BAAQMD requires the implementation of the BAAQMD's Basic Construction Mitigation Measures (best management practices) to reduce construction fugitive dust impacts to a less-than-significant level as follows:

Mitigation Measure AIR-1: **BAAQMD Basic Construction Mitigation Measures.** In order to meet the BAAQMD fugitive dust threshold, the following BAAQMD Basic Construction Mitigation Measures shall be implemented:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day with reclaimed water, if available.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt tracked-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Structural pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of

Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact at the WCW 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.

Construction emissions associated with the project would be less than significant with implementation of Mitigation Measure AIR-1. Therefore, construction of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or State AAQs.

Operational Emissions – Regional Emissions Analysis. Long-term air emission impacts are associated with stationary sources and mobile sources. Stationary source emissions result from the consumption of natural gas and electricity. Mobile source emissions result from vehicle trips and result in air pollutant emissions affecting the entire air basin. As discussed above, the proposed project would involve the replacement and modernization of aging infrastructure at the WQRRP and installation of PV generation facilities and EV charging stations. Operation of the newly implemented infrastructure is not expected to generate increased demand for on-site staff at any of the project locations. Additionally, the PV arrays would be automated and require minimal ongoing maintenance. Therefore, it is anticipated that monthly inspection and maintenance of the equipment would occur. On a typical day, no additional trips are anticipated due to the proposed project. Thus, the project would not result in a significant increase in the generation of vehicle trips that would increase air pollutant emissions. The project's energy requirements would be partially offset through the multi-site solar PV panels, which generate their own power. In addition, the replacement and modernization of aging infrastructure would increase energy efficiency. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase of PM_{10} or any criteria pollutant for which the project region is non-attainment under an applicable federal or State AAQs. This impact would be less than significant.

Localized CO Impacts. Emissions and ambient concentrations of CO have decreased dramatically in the Bay Area with the introduction of the catalytic converter in 1975. No exceedances of the State or federal CO standards have been recorded at Bay Area monitoring stations since 1991. The BAAQMD 2017 CEQA Guidelines include recommended methodologies for quantifying concentrations of localized CO levels for proposed transportation projects. A screening level analysis using guidance from the BAAQMD CEQA Guidelines was performed to determine the

impacts of the project. The screening methodology provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the BAAQMD 2017 CEQA Guidelines, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans.
- Project maintenance traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

Once completed and operational, the proposed project improvements would not generate new vehicle trips. Implementation of the proposed project would not conflict with the Contra Costa Transportation Authority's 2017 Countywide Transportation Plan for designated roads or highways, a regional transportation plan, or other agency plans. The project site is not located in an area where vertical or horizontal mixing of air is substantially limited. The project would not increase traffic volumes at intersections to more than 44,000 vehicles per hour and intersection level of service associated with the project would not decline with the project. Therefore, the proposed project would not result in localized CO concentrations that exceed State or federal standards and this impact would be less than significant.

c. Would the project expose sensitive receptors to substantial pollutant concentrations? ***(Less-Than-Significant Impact)***

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks.

According to the BAAQMD, a project would result in a significant impact if it would: individually expose sensitive receptors to TACs resulting in an increased cancer risk greater than 10.0 in one million, increased non-cancer risk of greater than 1.0 on the hazard index (chronic or acute), or an annual average ambient $PM_{2.5}$ increase greater than 0.3 micrograms per cubic meter ($\mu g/m^3$). A significant cumulative impact would occur if the project in combination with other projects located within a 1,000-foot radius of the project site would expose sensitive receptors to TACs resulting in an increased cancer risk greater than 100.0 in one million, an increased non-cancer risk of greater than 10.0 on the hazard index (chronic), or an ambient $PM_{2.5}$ increase greater than 0.8 $\mu g/m^3$ on an annual average basis. Impacts from substantial pollutant concentrations are discussed below and would be less than significant.

The closest sensitive receptors to any of the project sites include the single-family residential uses located approximately 50 feet south of the WCW Headquarters located at 2910 Hilltop Drive in the City of Richmond. The closest sensitive receptors to the WQRRP facility, where the majority of construction activities would take place, are located approximately 2,300 feet southeast of the project site. As described in Section 3.3.b above, construction of the proposed project may expose surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). In addition, the overall project construction duration is 24 months; however, construction at any one of the multiple locations would be much less. Therefore, any exposure would be extremely limited. In addition, construction contractors would be required to implement Mitigation Measure AIR-1. With implementation of Mitigation Measure AIR-1, project construction emissions would be below the BAAQMD significance thresholds and, once the project is constructed, the project would not be a source of substantial emissions. Therefore, sensitive receptors are not expected to be exposed to substantial pollutant concentrations during project construction or operation, and potential impacts would be less than significant.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? ***(Less-Than-Significant Impact)***

During project construction, some odors may be present due to diesel exhaust. However, these odors would be temporary and limited to the construction period of 24 months. The proposed project would not include any activities or operations that would generate nuisance odors and once operational, the project would not be a source of odors. Therefore, the proposed project would not create nuisance odors affecting a substantial number of people, and this impact would be less than significant.

3.4 BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

To identify biological resources on the project sites, LSA conducted a search of the California Natural Diversity Database[10] for occurrence records of special-status species within 2 miles of the project sites. The results of the database review are compiled into a list of special-status plants and animals that could occur in the project vicinity.

Surveys of the project sites were conducted on December 1 and 2, 2020. The five sites were covered on foot, observations were recorded in a field notebook, and a digital camera was used to document the habitats that were present. Binoculars (10 x 42) were used to aid in the identification and observation of wildlife and to survey habitats in surrounding areas.

The five project sites are all located in western Contra Costa County (Figures 1 and 2), primarily in areas adjacent to urban development and disturbed undeveloped areas supporting patches of ruderal and native vegetation. The habitat types at each of the project sites are described below.

[10] California Department of Fish and Wildlife (CDFW). 2020. California Natural Diversity Database (CNDDB) - Commercial Version, December 2020. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, California.

WQRRP. The WQRRP project site includes portions of the existing WQRRP water-processing plant, and two dry sludge ponds. The surrounding area is occupied by a mosaic of industrial development, roads, and ruderal habitats (Figure 2a). An extensive area of tidal salt marsh dominated by pickleweed (*Salicornia* sp.), is located approximately 280 feet west of the project site and the San Pablo Creek flood control channel, with fringing marsh, is about 250 feet to the north; gravel and/or paved roads, sludge ponds, chain-link fences, and other development occupy the intervening areas.

The WQRRP includes buildings, paved areas, pump stations, and water processing facilities (Figure 3). Vegetation in this area is limited to non-native ornamental plants, such as red gum (*Eucalyptus camaldulensis*) and ice plant (*Carpobrotus* sp.).

The sludge ponds are located just to the south of the main water processing plant. During the field survey, both ponds were largely dry with cracked sludge/mud bottoms; one small area of wet mud with a thin film of surface water was present in the eastern pond. The pond bottoms were barren of vegetation; however, a small patch of tomato (*Lycopersicon esculentum*) was present along the north levee of the eastern pond. Adjacent upland areas on the pond levees support ruderal, largely non-native vegetation species, such as black mustard (*Brassica nigra*), lambs-quarters (*Chenopodium album*), fennel (*Foeniculum vulgare*), bristly ox-tongue (*Helminthotheca echioides*), nightshade (*Solanum* sp.), and non-native grasses such as wild oat (*Avena* sp.). Existing solar structures are present on the levees south and east of the WQRRP site.

Wildlife observed in and adjacent to the WQRRP project site included least sandpipers (*Calidris minutilla*) foraging in the wet area of the sludge pond, black phoebe (*Sayornis nigricans*), American pipit (*Anthus rubescens*), white crowned sparrow (*Zonotrichia leucophrys*), savannah sparrow (*Passerculus sandwichensis*), song sparrow (*Melospiza melodia*), Lincoln's sparrow (*M. lincolnii*), and yellow-rumped warbler (*Setophaga coronata*). The burrows of Botta's pocket gopher (*Thomomys bottae*) were present in the levees bordering the sludge ponds.

WCW Headquarters. The WCW Headquarters site is situated within a landscape dominated by urban development (Figure 2b). The proposed project site consists of an existing paved parking area and walkways and landscaped areas with turf grass (Figure 4). Adjacent landscaping includes a small stands of planted coast redwoods (*Sequoia sempervirens*) and a purple leaf plum (*Prunus cerasifera*). The only wildlife observed on the project site were several American crows (*Corvus brachyrhynchos*).

Lakeside Pump Station. The Lakeside Pump Station site is located between a trail in Hilltop Lake Park and a cemented ditch at the toe of a hill slope northeast of the project site (Figure 2c). The adjacent slope supports mowed annual grassland with scattered native shrubs such as coyote brush and toyon (*Heteromeles arbutifolia*) and weedy non-native species such as artichoke (*Cynara cardunculus*). The site slopes gently to the northwest and is vegetated with annual grasses (mowed at the time of the field survey) and weedy plants such as fennel, bristly ox-tongue, and wild oat.

Wildlife observed on the site or in adjacent areas included mourning dove (*Zenaida macroura*), northern flicker (*Colaptes auratus*), black phoebe, ruby-crowned kinglet (*Regulus calendula*),

northern mockingbird (*Mimus polyglottos*), white-crowned sparrow, golden-crowned (*Zonotrichia atricapilla*), and yellow-rumped warbler. The burrows of Botta's pocket gopher were also evident in the project site.

Atlas Pump Station. The Atlas Pump Station site is located in an undeveloped area within a landscape of residential and industrial development interspersed with undeveloped land (Figure 2d). The site is situated between Atlas Drive and an existing pump station (Figure 7).The project site is dominated by mowed grassland and ruderal growth including fennel, bristly ox-tongue, English plantain (*Plantago lanceolata*), and a purple needle grass (*Stipa pulchra*), a native species. Scattered seedlings of coyote brush (*Baccharis pilularis*) were also present. Several blackwood acacia (*Acacia melanoxylon*) trees, a non-native species, are present off-site between the project site and Atlas Drive. The only wildlife noted on and adjacent to the project site included black phoebe, Say's phoebe (*Sayornis saya*), and the burrows of Botta's pocket gopher.

Tara Hills Pump Station. The Tara Hills Pump Station site is located just southeast of the San Pablo Bay shoreline and fringing tidal salt marsh between two active railway corroders (Figure 2e). The site is within an undeveloped area along the Bay that has been disturbed by off-road vehicle use and recent fire. The location of the proposed solar facility is in an undeveloped area just west of a WCW pump station that, as noted above, has recently burned. Despite the recent burn, the site supports coyote brush, toyon, poison oak (*Toxicodendron diversilobum*), and French broom (*Genista monspessulana*), a none-native invasive shrub. In addition, other non-native weedy species such as black mustard, fennel, Himalayan blackberry (*Rubus armeniacus*), wild radish (*Raphanus sativus*), and wild oat occur on the site and in adjacent areas. The project site is located approximately 122 feet southeast of northern coastal salt marsh habitat along the San Pablo Bay shoreline; however, the intervening area includes a levee with an active double track railroad corridor running along the top.

Wildlife observed on or adjacent to the project site include Pacific treefrog (*Hyliola regilla*), Anna's hummingbird (*Calypte anna*), black phoebe, ruby-crowned kinglet, northern mockingbird (*Mimus polyglottos*), house finch (*Haemorhous mexicanus*), white-crowned sparrow, and yellow-rumped warbler. Botta's pocket gopher burrows and mule deer (*Odocoileus hemionus*) tracks were also observed on the project site.

a. Would the project 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 California Department of Fish and Game or U.S. Fish and Wildlife Service? ***(Less Than Significant with Mitigation Incorporated)***

Based on the results of the database search and conditions observed during the field survey, thirteen special-status species were evaluated as potentially occurring on or in the vicinity of the five project sites (Table 3.B). The CNDDB listed additional special-status marine species known from adjacent Bay waters, but these species were eliminated from consideration as the proposed project will not affect San Pablo Bay.

Table 3.B: Special-Status Species Evaluated for the Project

Species: Common Name/Scientific Name	Status* (Federal/State/Other)	Habitat	Discussion
Santa Cruz tarplant (*Holocarpha macradenia*)	FT/SE/1B	Coastal prairie and scrub and valley and foothill grassland, often on clay or sandy soils. Annual herb; blooms June to October.	This species has largely been extirpated from Contra Costa County, extant populations, none of which occurs within two miles of the project sites, have been introduced[11]. Not observed during the field survey (this species would have been identifiable from vegetative characteristic if it were present). Due to lack of observations, extirpated status in the County, and on-site disturbance this plant would not be expected to occur on any of the five sites.
Loma Prieta hoita (*Hoita strobilina*)	--/--/1B	Usually on serpentinite mesic soils in chaparral, and cismontane and riparian woodlands Perennial herb; blooms May-July, sometimes August-October.	No suitable habitat on any of the five project sites; this species would not be expected occur.
Long-styled sand-spurrey (*Spergularia macrotheca* var. *longistyla*)	--/--/1B	Alkaline soils in meadows and seeps, marshes, and swamps. Perennial herb; blooms February-May, sometime June.	Alkaline meadows and wetlands are not present on or adjacent to any of the five project sites and this plant would not be expected to occur.
California black rail (*Laterallus jamaicensis coturniculus*)	--/ST, FP/--	Tidal marsh, also freshwater marsh.	The WQRRP and Tara Hills sites are located near suitable salt marsh habitat along the San Pablo Bay, but these sites are approximately 280 feet and 122 feet respectively from the marsh with unsuitable intervening habitat. Based on the lack of suitable habitat this species would not be expected occur on the project sites. The three other project sites lack suitable habitat for this species.

[11] California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website: www.rareplants.cnps.org (accessed December 9, 2020).

Table 3.B: Special-Status Species Evaluated for the Project

Species: Common Name/Scientific Name	Status* (Federal/State/Other)	Habitat	Discussion
California Ridgeway's rail (*Rallus obsoletus obsoletus*)	FE/SE, FP/--	Tidal salt marsh.	See discussion for California black rail above. California Ridgeway's rail would not be expected occur on any of the five project sites.
Short-eared owl (*Asio flammeus*)	--/--/SSC	Open habitats including mesic grasslands and marshes. Nests on the ground.	Could forage in open marsh habitats adjacent to the WQRRP and Tara Hills Pump Station site, but would not nest on these sites due to the lack of ground cover and proximity to human activity.
Northern harrier (*Circus hudsonius*)	--/--/SSC	Open habitats including mesic grasslands and marshes. Nests on the ground.	Could forage in open marsh habitats adjacent to the WQRRP and Tara Hills Pump Station site, but would not nest on these sites due to the lack of ground cover and proximity to human activity.
San Pablo song sparrow (*Melospiza melodia samuelis*)	--/--/SSC	Tidal salt marsh and adjacent dense upland vegetation.	Suitable nesting habitat for this songbird is not present on any of the project sites; occasional transients could occur WQRRP and Tara Hills site, but this species would not be expected to nest.
San Francisco common yellowthroat (*Geothlypis trichas sinuosa*)	--/--/SSC	Riparian habitats dominated by willows and marshes.	Suitable nesting habitat for this songbird is not present on any of the project sites; occasional transients could occur, but this species would not be expected to nest.
Pallid bat (*Antrozous pallidus*)	--/--/SSC	Forages over a variety of open habitats supporting population of large insects and other arthropods, roosts, in mines, caves, rock outcrops, abandoned buildings and tree hollows.	No suitable roosting habitat is present on or near the project sites, this bat could occasionally occur as a transient while foraging at night.

Table 3.B: Special-Status Species Evaluated for the Project

Species: Common Name/Scientific Name	Status* (Federal/State/Other)	Habitat	Discussion
Salt marsh harvest mouse (*Reithrodontomys raviventris*)	FE/SE, FP/--	Tidal salt marsh; can occasionally occur in adjacent upland habitat, particularly during very high tides.	The WQRRP and Tara Hills sites are located near suitable salt marsh habitat along the San Pablo Bay, but these sites are approximately 280 feet and 122 feet respectively from the marsh with intervening habitat. However, during high very tides mice could be forced seek shelter in weedy upland habitat habitats at the marsh edge at the WQRRP and Tara Hills sites. The three other project sites lack suitable habitat for this species and are not near the salt marsh habitat along the Bay
San Pablo vole (*Microtus californicus sanpabloensis*)	--/--/SSC	Tidal salt marsh; can also occur in adjacent upland habitat, particularly during very high tides.	See salt marsh harvest mouse discussion above.
Salt-marsh wandering shrew (*Sorex vagrans halicoetes*)	--/--/SSC	Tidal salt marsh; can occasionally occur in adjacent upland habitat, particularly during very high tides.	See salt marsh harvest mouse discussion above.

Status*: Federal = Federal Threatened (FT), Federal Candidate Endangered/Threatened (FC); State = State Endangered (SE), Fully Protected (FP). Other = California Native Plant Society California Rare Plant Rank (1B) rare or endangered in California and elsewhere; Species of Special Concern (SSC) (animals).

Of the 13 special-status wildlife species evaluated for the project, three species could occur within or adjacent to the project site due to the presence of suitable habitat and the known range of the species: salt marsh harvest mouse (*Reithrodontomys raviventris*), San Pablo vole (*Microtus californicus sanpabloensis*), and salt-marsh wandering shrew (*Sorex vagrans halicoetes*).

The salt marsh harvest mouse is a federal- and State-listed endangered species; it is also a fully protected species under the California Fish and Game Code. This small mammal is restricted to salt marsh habitats around the San Francisco Estuary and is known to occur in the salt marsh west of the WQRRP and could be present in the marsh near the Tara Hills Pump Station site. In addition, the salt marsh wandering shrew and the San Pablo vole, both Species of Special Concern, have similar habitat requirements to salt marsh harvest mice and occur in marshes along the Richmond shoreline.

As noted above, the WQRRP project site is about 280 feet from the edge of the salt marsh, and the intervening area is occupied by dry sludge ponds, a gravel road, and ruderal vegetation along the pond levees. However, this species and other special-status small mammals could occur in the ruderal vegetation on the pond levees, especially during high tides when forced out of the marsh by rising water. The abrupt edge of the adjacent marsh west of the sludge ponds, due to the historic placement of fill in this area, is also a factor that could increase the potential for occurrence of salt marsh harvest mice in the ruderal vegetation along the sludge pond levees during very high tides.

During project activities, potential impacts to these species, such as crushing of salt marsh harvest mice, salt marsh wandering shrew, and/or the San Pablo vole by project equipment, could occur. As noted above, this mammal is a federal- and State-listed endangered species and due to its fully protected status, no take of this species is allowed by the State. Implementation of the following general and species-specific conservation measures would reduce potential impacts to these species to a less-than-significant level. These measures are based on standard practices required by the USFWS.

Mitigation Measure BIO-1: **Biological Monitor.** During initial vegetation removal and installation of exclusion fencing (see Mitigation Measure BIO-4) at the WQRRP and/or Tara Hills Pump Station site, a USFWS-approved biologist[12] shall be present on site to monitor for salt marsh harvest mice. The biological monitor shall have the authority to stop work if deemed necessary for any reason to protect the salt marsh harvest mouse. Once the salt marsh harvest mouse exclusion fencing has been installed and all work activity is confined to the cleared work site, the biological monitor shall train a representative to conduct daily monitoring duties, including exclusion fence inspection. In summary, the biological monitor shall have the following responsibilities:

- Review the appearance, habitats, and life history of the salt marsh harvest mouse and other special-status small mammals with construction crews.
- Inspect work sites for salt marsh harvest mice and/or other special-status small mammals prior to vegetation removal and approve salt marsh harvest mouse exclusion fencing during installation.

[12] The USFWS-approved biological monitor shall have demonstrated experience in monitoring sensitive resource issues on construction projects. Specifically, the monitor shall have at least a bachelor's degree in the biological or allied sciences or the equivalent, at least one field season of prior monitoring experience under the supervision of a qualified biological monitor, and knowledge of the natural history of the salt marsh harvest mouse and sensitive biological resources in the project area. Resumes of candidate biological monitors shall be submitted to the USFWS for approval prior to the monitor being deployed in the field.

- Train an on-site representative to conduct daily exclusion fence inspections throughout the construction period after completion of vegetation removal and fence installation.

Mitigation Measure BIO-2: **Vegetation Removal.** Any areas dominated by ruderal vegetation on the sludge pond levees or at the Tara Hills Pump Station site that must be accessed by construction personnel or equipment shall be cleared of vegetation to eliminate cover for salt marsh harvest mice and/or other special-status small mammals. Vegetation removal shall start at the edge closest to the existing approach way and proceed outward towards the edge of the marsh. Work shall be confined to daylight hours.

All clearing of vegetation shall be done under the direct supervision of a USFWS-approved biologist. If more than one crew of vegetation clearers is working over 100 feet apart at a given time, then a USFWS-approved biologist shall be with each crew.

Use of weed whackers for herbaceous vegetation may be allowed if the USFWS-approved monitor walks in front of the operator of the weed whacker, clearing the area of salt marsh harvest mice and/or other special-status small mammals. Use of hand operated chainsaws is allowed for larger woody vegetation (e.g., coyote brush), but only if the USFWS-approved biologist precedes the operator clearing the area of salt marsh harvest mice.

Vegetation clearance shall be conducted to assure that there is no available cover to serve as an attractant to salt marsh harvest mice and/or other special-status small mammals. The ground surface shall be made sufficiently clear of vegetation to allow the USFWS-approved biological monitor and construction crews to determine with certainty that salt marsh harvest mice are absent. Preservation of root crowns is encouraged to facilitate later revegetation of the treated work sites, so reducing vegetation to a stubble is preferable to full clearance to the ground.

As directed by the USFWS-approved biological monitor, cut native vegetation shall be stored onsite and re-spread as mulch after project completion. Cut non-native vegetation listed as moderately to highly invasive by the California Invasive Plant Council[13] (www.cal-ipc.org/ip/inventory; Cal IPC 2006) will be bagged and removed offsite at a suitable disposal site.

[13] California Invasive Plant Council. 2006. The Cal-IPC Inventory. Available online at: www.cal-ipc.org/ip/inventory. (accessed December 15, 2020)

Mitigation Measure BIO- 3: **Salt Marsh Harvest Mouse Discovery.** If a salt marsh harvest mouse or other special-status small mammal is observed within the vegetation removal areas or elsewhere within the work site, the biological monitor shall stop work in the immediate area until the salt marsh harvest mouse leaves the work area on its own volition. If the salt marsh harvest mouse or other special-status small mammal does not leave the work area, work in the immediate area shall not be reinitiated until the USFWS is consulted regarding appropriate avoidance measures, and permission is granted by the USFWS to commence work. No salt marsh harvest mice may be handled or captured at any time during site preparation or other project activities. The biological monitor shall be available on an on-call basis to come out the site in the event that the trained representative finds a salt marsh harvest mouse in the work area after the vegetation has been cleared and the fence has been installed.

Mitigation Measure BIO-4: **Salt Marsh Harvest Mouse Exclusion Fencing.** Immediately following vegetation removal and before construction activities begin, exclusion fencing for salt marsh harvest mice and other special-status small mammals shall be installed between areas of salt marsh harvest mouse habitat and the work areas at the WQRRP and/or Tara Hills Pump Station to prevent entry of small mammals into cleared areas. The USFWS-approved biological monitor shall have the ability to make field adjustments to the location of the fencing based on site-specific habitat conditions.

The fence shall be a minimum of 2 feet in height and constructed with 8-millimeter plastic (Visqueen) or other suitable sheeting material that is too smooth to be climbed by salt marsh harvest mice, supported by wooden or steel rebar stakes. The toe of the fence shall be buried approximately 4 inches in the ground to prevent salt marsh harvest mice or other special-status small mammals from crawling or burrowing underneath it. To provide strength, durability and wind resistance, the plastic sheeting shall be sandwiched between two stakes at each stake location, with the stakes screwed or wired together firmly. The USFWS-approved biological monitor or trained representative shall inspect the fence daily to ensure it maintains a minimum of 2 feet in height, has no holes or rips, and that the base is still buried.

Maintenance of the fencing shall be conducted as needed throughout the work period. Any necessary repairs to the fencing shall be completed within 24 hours of the initial observance of damage. Work shall not continue within 300 feet of the damaged

fencing until the fence is repaired and the site is surveyed by the USFWS-approved biological monitor to ensure that salt marsh harvest mice have not entered the work area.

Mitigation Measure BIO-5: **Training for Construction Personnel.** All construction personnel working at the WQRRP and Tara Hills Pump Station sites shall participate in an endangered species training program to be given by the USFWS-approved biological monitor. The training shall provide information about the salt marsh harvest mouse and other special-status species known from adjacent marsh areas, measures being implemented to avoid impacts to these species, and procedures to follow should a salt marsh harvest mouse or other special-status species be encountered during routine activities. Training materials shall be provided in Spanish and English.

The USFWS-approved biologist shall provide training to field management and construction personnel on the importance of protecting environmental resources. Communication efforts and training shall take place during preconstruction meetings so that construction personnel are aware of their responsibilities and the importance of compliance.

Construction personnel shall be educated on the types of sensitive resources located in the project area and the measures required to avoid impacts to these resources. Materials covered in the training program shall include environmental rules and regulations for the project and requirements for limiting activities to the construction right-of-way and avoiding demarcated sensitive resource areas.

Training meetings shall educate construction supervisors and managers on: the need for resource avoidance and protection; construction drawing format and interpretation; staking methods to protect resources; the construction process; roles and responsibilities; project management structure and contacts; conservation measures; and emergency procedures.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ***(No Impact)***

All of the five project sites are located in previously disturbed and/or developed upland areas or dry sludge ponds, supporting ornamental and/or ruderal vegetation; no sensitive natural communities are present within the project sites. All work for the proposed project would occur within upland habitat or dry sludge ponds. Therefore, the proposed project would have not have a

substantial adverse effect on any riparian habitat or other sensitive natural community. No impact would occur.

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? ***(No Impact)***

The five project sites are all located in upland habitats that do no support soils, wetland vegetation, or hydrology indicative of wetlands as defined under Section 404 Clean Water Act (CWA). Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA, such as those at WQRRP, are not waters of the United States. Therefore, the proposed project would not have a substantial adverse effect on State or federally protected wetlands. No impact would occur.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ***(Less Than Significant with Mitigation Incorporated)***

The proposed project would not substantially interfere with wildlife movement or corridors. Animals that currently move through the site would temporarily have to move around the work area during construction, but long-term movement patterns through the area would remain unaffected. In addition, most of the species that likely occur in the area are generalists that are adept at moving through urban landscapes. The project would not permanently affect the ability of these species to move through the site vicinity.

During the field survey, no nursery sites such as heron rookeries or raptor nests were observed in any of the large trees located near the project sites. Buildings within the WQRRP are well maintained and in active use and do not provide suitable habitat for bat maternity roots.

Vegetation on or adjacent to the project sites could provide nesting habitat for some species of birds (e.g., northern mockingbird and house finch) protected under the federal Migratory Bird Treaty Act and the California Fish and Game Code. If the project requires removal and/or trimming of trees during the nesting bird season (February 15 to August 31), impacts to the active nests of protected bird species could occur. Implementation of the following mitigation measure would reduce the potential project impacts to protected nesting birds to a less-than-significant level.

Mitigation Measure BIO-6: Nesting Bird Measures. If project activities occur during the nesting season (February 15 to August 31), a qualified biologist shall conduct a preconstruction nesting bird survey prior to vegetation removal and/or vegetation trimming. The survey area shall include all suitable nesting habitats within the work area. Due to the urban settings and/or general on-going human activity of the project sites, any nesting raptors or other native birds in the area would likely be habituated to human activity such as pedestrian, vehicle, and train traffic. If an active raptor nest is

discovered during the preconstruction survey, the qualified biologist shall determine a suitable exclusion buffer based on the nesting species and context of the nest location.

The preconstruction survey shall be conducted no more than 14 days prior to the start of work. If the survey determines the presence of nesting birds, the qualified biologist shall determine an appropriately sized exclusion zone around the nest in which no work would be allowed until the young have successfully fledged (or the nest has been abandoned). Exclusion buffers shall be clearly delineated (i.e., orange construction fencing) around each active nest site. Active nest sites of protected bird species shall be monitored periodically to determine time of fledging. The qualified biologist shall determine when construction activities may commence within the buffer.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(Less-Than-Significant Impact)***

Two of the project sites, the WQRRP and the Tara Hills Pump Station, are located near the San Pablo Bay shoreline, which is within the San Francisco Bay Conservation and Development Commission (BCDC) jurisdiction as defined in the San Francisco Bay Plan.[14] BCDC jurisdiction extends 100 feet into upland areas from the mean high tide line; however, both the WQRRP and the Tara Hills Pump Station sites are more than 100 feet (about 280 feet and 122 feet respectively) from the mean high tide line. No project activities are proposed within or immediately adjacent to areas under BCDC jurisdiction. Therefore, the proposed project would not conflict with the San Francisco Bay Plan.

The City of Richmond does not have any local policies or ordinances protecting biological resources, with the exception of the City's tree ordinance (Chapter 10.08 of the City of Richmond Municipal Code). The City of San Pablo also has a tree protection ordinance (Section 17.48.120 of the City of San Pablo Municipal Code) as does Contra Costa County. Impacts to any of the trees caused by direct removal or pruning would likely require a permit. Compliance with local ordinance would ensure that impacts associated with tree removal would be less than significant.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? ***(No Impact)***

The project sites are not located within any approved local, regional, or state conservation plan. Therefore, the project would not conflict with any approved local, regional, or State habitat conservation plan. No impact would occur.

[14] San Francisco Bay Conservation and Development Commission (2020). *San Francisco Bay Plan*. San Francisco Bay Conservation and Development Commission, San Francisco.

3.5 CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? ***(Less Than Significant with Mitigation Incorporated)***

For a cultural resource to be considered a historical resource (i.e., eligible for listing in the California Register of Historical Resources), it generally must be 50 years or older. Under CEQA, historical resources can include precontact (i.e., Native American) archaeological deposits, historic-period archaeological deposits, historic buildings, and historic districts. To identify cultural resources at the project site, the following tasks were completed: (1) a records search at the Northwest Information Center (NWIC) of the California Historical Resources Information System; (2) a review of historical maps and aerial photographs to assess the potential for buried precontact and historic-period archaeological deposits; and (3) a field survey of the project site by a qualified archaeologist. The WCW also undertook consultation outreach with California tribal organizations pursuant to the requirements of AB 52 (refer to Section 3.18, Tribal Cultural Resources).

Records Search. The NWIC records search was conducted on December 1, 2020. One previously recorded resource was identified within the project areas. This resource is the WCW WQRRP (P-7-4680) located at 2377 Garden Tract Road. Two cultural resources were recorded outside but within 0.25 mile of the five project areas. These resources are a prehistoric site and an historic site. The prehistoric site (P-7-2569) is the Garrity Creek Shell site, a scatter of prehistoric habitation debris within 0.25-mile of the Tara Hills Pump Station. The historic site (P-7-3017/CA-CCO-814/H) is the Old Atlas Road (aka. Kay Road), an historic wagon road within 0.25-mile of the Atlas Pump Station. A total of 14 studies have been conducted within the various project sites and another 17 studies have been conducted within 0.25-mile of these sites.

Field Survey. A field survey of the project site was conducted on December 15, 2020. Exposed soils were inspected for precontact (e.g., stone tools, debitage, groundstone, and shell beads), historic-period materials (e.g., metal, glass, ceramics), and soil discolorations that might indicate the presence of archaeological deposits. Accessible areas were traversed by walking intuitive linear transects separated by 5 to 7 meters. Inundated areas covered with standing water and built areas were not surveyed. No cultural resources were found in the project area during the survey. The results of this research and survey indicate that intact cultural resources are highly unlikely to exist within the project area.

Summary of Results. The NWIC records search and field survey identified one previously recorded resource, the WQRRP (P-7-4680). Based on a previous cultural resource study prepared for the WQRRP site,[15] the facility was initially constructed in 1955-1956 with substantial upgrades made to the facility in the 1960s through 1980s, and also in 2009. The plant includes the 15-acre main plant complex and 32-acres of sludge-drying lagoons. The main plant area contains an operations/lab building, a control building, a chlorine building, a shop building, equipment buildings, and various wastewater treatment facility equipment including clarifiers, digesters, aeration basins, and sedimentation basins. The findings of the previous analysis indicate that the plant has no association with significant people or events of importance, and that the design, construction, and engineering of the facility are utilitarian and not unique. Furthermore, the plant expansions in the 1960s-1980s that were conducted to add water treatment capacity substantially altered the facility as a whole.[16] For these reasons, none of the historic-era buildings or structures at the WQRRP [P-7-4680] qualify for listing in the National Register or the California Register either individually, or collectively as a district.

As described above, the cluster of built environmental features at the WQRRP do not appear eligible for listing in either the National Register of Historic Place or California Register of Historical Resources due to a lack of historical integrity, nor do they otherwise constitute a historical resource for the purposes of CEQA. Project activities would primarily disturb areas that have been previously disturbed and the geomorphology of the site make it unlikely that intact subsurface archaeological deposits are present. Therefore, there is a minimal potential for project construction activities to encounter and disturb intact archaeological cultural resources.

Despite the negative results of the field survey, it cannot be entirely be ruled out that archaeological cultural resources could be encountered during project construction at the project sites. Should archaeological deposits be encountered during project ground disturbance, a substantial adverse change in the significance of a historical resource would occur from its demolition, destruction, relocation, or alteration such that the significance of the resource would be materially impaired (CEQA Guidelines Section 15064.5(b)(1)). To mitigate this potential impact, the WCW would be required to implement Mitigation Measure CULT-1. With implementation of Mitigation Measure CULT-1, potential impacts to historical resources would be reduced to less than significant.

Mitigation Measure CULT-1: Accidental Discovery of Archaeological Historical Resources. Should an archaeological deposit be encountered during project subsurface construction activities, all ground-disturbing activities within 25 feet shall be redirected and a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology contacted to assess the situation, determine if the deposit qualifies as a historical resource, consult with agencies as appropriate, and make recommendations for the

[15] Koenig, Heidi. 2014. Cultural Resources Survey Report, West County Wastewater District Water Pollution Control Plant, Richmond, Contra Costa County. Prepared for the West County Wastewater District.

[16] Ibid.

treatment of the discovery. If the deposit is found to be significant (i.e., eligible for listing in the California Register of Historical Resources), the WCW shall be responsible for funding and implementing appropriate mitigation measures. Mitigation measures may include recording the archaeological deposit, data recovery and analysis, and public outreach regarding the scientific and cultural importance of the discovery. Upon completion of the selected mitigations, a report documenting methods, findings, and recommendations shall be prepared by the qualified archaeologist and submitted to the WCW for review, and the final report shall be submitted to the Northwest Information Center at Sonoma State University. Significant archaeological materials shall be submitted to an appropriate local curation facility and used for future research and public interpretive displays, as appropriate.

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? ***(Less Than Significant with Mitigation Incorporated)***

According to the CEQA Guidelines, "When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource" (CEQA Guidelines Section 15064.5(c)(1)). Those archaeological sites that do not qualify as historical resources shall be assessed to determine if these qualify as "unique archaeological resources" (California PRC Section 21083.2).

Archaeological deposits identified during project construction shall be treated by the WCW—in consultation with a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology—in accordance with Mitigation Measure CULT-1. With implementation of Mitigation Measure CULT-1, identified above, impacts to archaeological resources would be less than significant.

c. Would the project disturb any humans remains, including those interred outside of formal cemeteries? ***(Less-Than-Significant Impact)***

Based on previous archaeological investigation and analysis, there is a low potential for the disturbance of archaeological cultural resources or human remains. However, if human remains are encountered at the project areas, State Health and Safety Code Section 7050.5 and State CEQA Guidelines Section 15064.5(e)(1) state that no further disturbance shall occur to the area of the find until the County Coroner has made a determination of origin and disposition of the human bone pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately and shall make a determination within two working days of being notified. If the remains are determined to be Native American, the County Coroner shall notify the NAHC by phone within 24 hours, and the NAHC shall then immediately determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment of the remains within 48 hours of being granted access to the site. The MLD's recommendations may include scientific removal and nondestructive

analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

Compliance with Section 7050.5 of the California Health and Safety Code and Public Resources Code Section 5097.98 regarding the treatment of human remains would ensure that potential impacts to human remains would be less than significant.

3.6 ENERGY

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

California is one of the lowest per capita energy users in the United States, ranked 48th in the nation, due to its energy efficiency programs and mild climate.[17] The project site is located within Contra Costa County, California. The California Energy Commission (CEC) provides electricity and natural gas consumption data for the State of California and by County. Based on the CEC data, in 2019, California consumed approximately 279,402 gigawatt-hours (GWh) or 279,402,000,000 kWh.[18] Of this total, Contra Costa County consumed 9,639 GWh or 9,639,400,000 kWh.[19] In addition, in 2019, California consumed approximately 13,158 million therms or 13,158,000,000 therms, while Contra Costa County consumed approximately 1,205 million therms or approximately 1,205,000,000 therms.[20]

Gasoline is the most used transportation fuel in California with 15.5 billion gallons sold in 2018. Gasoline fuel is used by light-duty cars, pickup trucks, and sport utility vehicles. Diesel is the second most-used fuel in California with 1.8 billion gallons sold in 2018. Diesel fuel is used primarily by heavy-duty trucks, delivery vehicles, buses, trains, ships, boats and barges, farm equipment, and heavy-duty construction and military vehicles.[21] Both gasoline and diesel are primarily petroleum-based, and their consumption releases greenhouse gas (GHG) emissions, including carbon dioxide (CO_2) and nitrous oxide (N_2O). The transportation sector is the single largest source of GHG emissions in California, accounting for 41 percent of all inventoried

17 United States Energy Information Administration (EIA). 2018a. "California -Profile Overview." Webiste: www.eia.gov/state/?sid=CA (accessed February 23, 2021).

18 California Energy Commission. 2018. Energy Consumption Data Management Service. Electricity Consumption by County. Available online at: www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed January 2021).

19 Ibid.

20 California Energy Commission. 2018. Energy Consumption Data Management Service. Gas Consumption by County. Available online at: www.ecdms.energy.ca.gov/gasbycounty.aspx (accessed January 2021).

21 California Energy Commission (CEC). 2021. Diesel Fuel Data, Facts, and Statistics. Available online at: www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/diesel-fuel-data-facts-and-statistics (accessed February 23, 2021).

emissions in 2018.[22] To reduce Statewide vehicle emissions, California requires all motorists use California Reformulated Gasoline, which is sourced almost exclusively from in-State refineries.

In 2002, the Legislature passed Senate Bill 1389, which required the CEC to develop an integrated energy plan every two years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission (ZE) vehicles and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

The CEC recently adopted the 2019 Integrated Energy Policy Report.[23] The 2019 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The 2019 Integrated Energy Policy Report covers a broad range of topics, including implementation of Senate Bill 350 - Clean Energy and Pollution Reduction Act, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, preliminary transportation energy demand calculations for proposed projects, renewable gas (in response to Senate Bill 1383), updates on California electricity reliability, natural gas outlook, and climate adaptation and resiliency. Contra Costa County relies on the State integrated energy plan and does not have its own local plan to address renewable energy or energy efficiency.

a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? ***(Less-Than-Significant Impact)***

The following section describes the proposed project's construction and operation related energy consumption. As discussed below, the proposed project would not result in substantial energy consumption or wasteful energy consumption that would have a significant effect on the environment and this impact would be less than significant.

Construction-Period Energy Use. Project construction would require energy resources primarily in the form of fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and

[22] California Air Resources Board (CARB). 2020. California Greenhouse Gas Emission Inventory Program. California Greenhouse Gas Emissions for 2000 to 2018, Trends of Emissions and Other Indicators. 2019 Edition. Webpage last reviewed by CARB in 2020. Website: ww2.arb.ca.gov/our-work/programs/ghg-inventory-program (accessed February 23, 2021).

[23] California Energy Commission. 2020. 2019 Integrated Energy Policy Report. California Energy Commission. Publication Number: CEC-100-2019-001-CMF. January.

generators. The anticipated construction schedule assumes that the proposed project would be built over 24 months. The proposed project would require demolition, site preparation, grading, WQRRP infrastructure and solar panel installations, surface paving activities during construction, and architectural coatings (painting).

Construction of the proposed project would require energy for the manufacture and transportation of construction materials, preparation of the site for grading and building activities, and installation of solar panels and infrastructure. All or most of this energy would be derived from non-renewable resources. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. Energy (i.e. fuel) usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. However, construction activities are not anticipated to result in an inefficient use of energy as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the proposed project. In addition, the project would utilize construction contractors who demonstrate compliance with applicable California Air Resources Board (CARB) regulations restricting the idling of heavy-duty diesel vehicles and fuel efficiency. Compliance with State regulations would reduce the inefficient, wasteful, or unnecessary consumption of energy. Construction of the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources and construction-related impacts would be less than significant.

Operational Energy Use. Operation of the newly implemented infrastructure is not expected to result in an increase in on-site staff at any of the project locations. The PV arrays would be automated, requiring minimal ongoing maintenance. On a typical day, no additional trips are anticipated due to the proposed project. Implementation of the project would result in the generation of approximately 1,112 kW of renewable energy. As such, operation of the proposed project would result in an increase in the consumption of electricity derived from renewable resources as compared to existing non-renewable resources. The gains through energy efficiency would reduce energy consumption and greenhouse gas production at the proposed project sites. Therefore, operation of the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources and operational impacts would be less than significant.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? ***(Less-Than-Significant Impact)***

As indicated above, energy usage in the project area during construction would be relatively small in comparison to the State's available energy sources and energy impacts would be negligible at the regional level. Once operational, the project's energy requirements would be partially offset through the generation of power through the multi-site solar photovoltaic panels that will be installed as part of the project. Furthermore, the replacement and modernization of aging infrastructure would increase energy efficiency. Because the project would provide for the installation of renewable energy and would not result in an impact on regional energy supplies, the proposed project would not conflict with or obstruct California's energy conservation plans as described in the CEC's 2019 Integrated Energy Policy Report and impacts would be less than significant.

3.7 GEOLOGY AND SOILS

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

a. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. ***(No Impact)***

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture generally can be assumed to be along an active or potentially active major fault trace.

The State of California enacted the Alquist-Priolo Fault Zoning Act in 1972, requiring the State Geologist to delineate Earthquake Fault Zones (EFZs) along known active faults that have high potential for fault rupture. None of the project sites are located within a designated EFZ.[24]

[24] California Geological Survey (CGS). 2018. California Earthquake Hazards Zone Application. Website: maps.conservation.ca.gov/cgs/EQZApp/app/ (accessed November 20, 2020).

Therefore, the proposed project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault.

ii. Strong seismic ground shaking? (Less Than Significant with Mitigation Incorporated)

The project site and the entire San Francisco Bay Area is in a seismically active region subject to strong seismic ground shaking. Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake, and is normally the major cause of damage in seismic events. The extent of ground-shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The magnitude of a seismic event is a measure of the energy released by an earthquake; it is assessed by seismographs that measure the amplitude of seismic waves. The intensity of an earthquake is a subjective measure of the perceptible effects of a seismic event at a given point. The Modified Mercalli Intensity (MMI) scale is the most commonly used scale to measure the subjective effects of earthquake intensity. It uses values ranging from I to XII.[25] The closest fault to the project sites is the Hayward Fault, located approximately 1.7 miles to the east of the WQRRP, and 0.6 mile, 0.8 mile, 1.1 miles and 1.7 miles to the west of the WCW Headquarters, Atlas Pump Station, Lakeside Pump Station, and Tara Hills Pump Station, respectively.

Mapping has been compiled by the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) for the likely shaking intensities in the Bay Area that would have a 10 percent chance of occurring in any 50-year period. A large earthquake (magnitude 6.7 or greater) on one of the major active faults in the region would generate violent (MMI 9) ground shaking at all of the project sites.[26]

No habitable structures would be constructed as part of the project. Although seismic ground shaking may occur in the project area, the facilities associated with the WQRRP and the proposed solar facilities would be designed and constructed consistent with the most current version of the California Building Code, which includes specifications and design criteria to minimize damage from anticipated ground shaking. In addition, implementation of Mitigation Measure GEO-1 would reduce impacts by requiring a site-specific geotechnical investigation be prepared to provide recommendations to reduce potential impacts associated with ground shaking. It is acknowledged that seismic hazards cannot be completely eliminated, even with site-specific geotechnical investigation/design and advanced building practices. However, the seismic design standards of the CBC have been developed to mitigate seismic hazards and to prevent catastrophic building failure in the most severe earthquakes currently anticipated. Compliance with the CBC, and other regulatory provisions, in conjunction with implementation of the specifications and design criteria

[25] United States Geological Survey. 2018. The Modified Mercalli Intensity Scale. Available: www.usgs.gov/natural-hazards/earthquake-hazards/science/modified-mercalli-intensity-scale?qt-science_center_objects=0#qt-science_center_objects, (accessed November 20, 2020).

[26] Metropolitan Transportation Commission (MTC)/Association of Bay Area Governments (ABAG). 2018. Probabilistic Earthquake Shaking Hazard Map, Available: mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8, (accessed November 20, 2020).

identified in the site-specific geotechnical evaluation required by Mitigation Measure GEO-1 would reduce potential impacts associated with ground shaking to a less than significant level.

Mitigation Measure GEO-1: **Site-Specific Geotechnical Evaluation.** Prior to construction, the WCW shall perform a site-specific, design-level geotechnical evaluation to identify potential secondary ground failure hazards (i.e., seismically-induced settlement, liquefaction) associated with the expected level of ground shaking. The geotechnical analysis shall be prepared by a California registered professional engineer and shall provide recommendations to mitigate seismic hazards. Recommendations resulting from the findings of the geotechnical study shall be incorporated into the design and construction of proposed facilities.

iii. Seismic-related ground failure, including liquefaction? ***(Less Than Significant with Mitigation Incorporated)***

Liquefaction is the transformation of saturated, loose, fine-grained sediment to a fluid-like state because of earthquake shaking or other rapid loading. Soils most susceptible to liquefaction are loose to medium dense, saturated sands, silty sands, sandy silts, non-plastic silts and gravels with poor drainage, or those capped by or containing seams of impermeable sediment.

CGS has mapped Seismic Hazard Zones that delineate areas susceptible to liquefaction and/or landslides that require proposed new developments in these areas to conduct additional investigation to determine the extent and magnitude of potential ground failure. According to mapping by CGS,[27] the project sites are located in an area that has not been evaluated for liquefaction or landslides. Mapping performed by MTC/ABAG indicates that the WQRRP project site is located in an area of high to very high liquefaction susceptibility; however, the Atlas Pump Station, WCW Headquarters, Lakeside Pump Station, and Tara Hills Pump Station are located in an area of very low liquefaction susceptibility. [28] Therefore, the impact of seismic-related ground failure, including liquefaction, associated with construction of the proposed solar facilities would be less than significant. Implementation of Mitigation Measure GEO-1, which would require preparation of a site-specific geotechnical evaluation, would reduce potential impacts associated with liquefaction at the WQRRP site to a less than significant level.

iv. Landslides? (Less-Than-Significant Impact)

According to CGS,[29] the project sites are located in an area that has not been evaluated for liquefaction or landslides. The WQRRP, the Atlas Pump Station, and the Tara Hills Pump Station project sites are considered “flat land” and the WCW Headquarters are located in an area

[27] California Geological Survey. 2018, op. cit.

[28] Metropolitan Transportation Commission (MTC)/Association of Bay Area Governments (ABAG). 2006. Earthquake Liquefaction Susceptibility Map. Available online at: mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8 (accessed April 16, 2020).

[29] California Geological Survey. 2018, op. cit.

designated as "few landslides," according to MTC/ABAG.[30] Therefore, proposed improvements at these project sites are not likely to adversely impact persons or structures due to landslides.

The Lakeside Pump Station is located in an area designated as "mostly landslides," according to MTC/ABAG.[31] No habitable structures would be constructed as part of the proposed project nor would construction of the proposed project increase the potential for landslide hazards on adjacent slopes. Therefore, impacts associated with landslides would be less than significant.

b. Would the project result in substantial soil erosion or the loss of topsoil? ***(Less-Than-Significant Impact)***

The potential for soil erosion exists during the period of earthwork activities and between the time when earthwork is completed and new vegetation is established or hardscape is installed. Initial construction activities, such as grading, excavation, and removal of vegetation cover associated with construction activities, have the potential to result in erosion, runoff, and sedimentation. Additionally, during a storm event, soil erosion could occur at an accelerated rate. The increased erosion potential could result in short-term water quality impacts as identified in Section 3.10, Hydrology and Water Quality. Under the Construction General Permit, a Stormwater Pollution and Prevention Plan (SWPPP) must be prepared prior to any ground disturbance activities. The SWPPP would provide the details of the erosion control measures to be applied on the project site during the construction period, including Best Management Practices (BMPs) for erosion control that are recognized by the Regional Water Quality Control Board (RWQCB). Compliance with State and local regulations regarding stormwater during construction, including preparation and implementation of a SWPPP would ensure that the proposed project would result in less-than-significant impacts related to erosion during construction.

Implementation of the WQRRP improvements and proposed solar facilities would result in an increase in impervious surface area of approximately 1.2 acres. This nominal increase in impervious surface would not substantially increase volume of runoff during a storm that would increase the potential for soil erosion onsite. Therefore, implementation of the project would result in a less than significant impact related to soil erosion and the loss of topsoil.

c. Would the project 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? ***(Less Than Significant with Mitigation Incorporated)***

Please refer to Section 3.7.a. The proposed project would be designed and constructed in accordance with standard engineering practices and the CBC. The project sites are not anticipated to become unstable as a result of the proposed project, or potentially result in on- or off-site landslides, liquefaction, or lateral spreading. Further, implementation of Mitigation Measure GEO-

30 Bay Area Governments (ABAG). 1997. Landslide Hazard (Rainfall Induced) Map. Available online at: www.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8 (accessed November 20, 2020).

31 Ibid.

1, which would require preparation of a site-specific geotechnical evaluation and implementation of proposed geotechnical recommendations, would ensure that the proposed project would not result in a geologic hazard from landslide, lateral spreading, subsidence, liquefaction or collapse. This impact would be less than significant.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? ***(Less Than Significant with Mitigation Incorporated)***

Expansion and contraction of volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. Expansive soils are common throughout California and can cause damage to foundations and slabs unless properly treated during construction. According to the Natural Resources Conservation Service web soil survey,[32] the WQRRP site contains three soil types: Ra (Novato silty clay), So (Sycamore silty clay loam, 0 to 2 percent slopes) and Sp (Sycamore silty clay loam, clay substratum). The shrink-swell potential for these soil types is moderate.[33]

Soil types underlying the proposed solar facility sites include CnE (Cut and fill land-Los Osos complex, 9 to 30 percent slopes), TaD (Tierra loam, 9 to 15 percent slopes), TaE (Tierra loam, 15 to 30 percent slopes), Ob (Omni silty clay) and LhE (Los Osos clay loam, 15 to 30 percent slopes). [34] Tierra Loam has a low shrink-swell potential while Cut and fill land, Los Osos clay loam and Omni silty clay have a high shrink-well potential.

The proposed project would be designed and constructed using standard construction methods and in compliance with the CBC. Adherence to the CBC requirements and implementation of site-specific recommendations included in the geotechnical investigation, as required in Mitigation Measure GEO-1, would ensure that geotechnical design of the proposed project would reduce potential impacts related to expansive soils. Therefore, expansive soils would not pose a risk to life or property, and this impact would be less than significant.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? ***(No Impact)***

Septic tanks and alternative wastewater disposal systems would not be installed on the project site. Therefore, implementation of the project would not result in impacts to soils associated with the use of such wastewater treatment systems. No impact would occur.

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32 United States Department of Agriculture Soil Conservation Service. 2019. Web Soil Survey. Available online at: websoilsurvey.sc.egov.usda.gov/App/HomePage.htm (accessed December 12, 2020).

33 United States Department of Agriculture Soil Conservation Service. 1977. Soil Survey of Contra Costa County. Available online at: www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA013/0/contracosta.pdf (accessed December 12, 2020).

34 United States Department of Agriculture Soil Conservation Service. 2019, op. cit.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ***(Less Than Significant with Mitigation Incorporated)***

The proposed project would not require deep excavation or trenching that would likely encounter paleontological resources. However, in the event that fossil remains are encountered, or paleontologically sensitive bedrock (Monterey Formation or Briones Sandstone) is exposed, impacts to paleontological resources could occur. Implementation of Mitigation Measure GEO-2 would reduce potential impacts to paleontological resources to less than significant.

Mitigation Measure GEO-2: **Unanticipated Discovery of Paleontological Resources.** If fossil remains or paleontologically sensitive bedrock is exposed during project construction, all ground-disturbing activities within 25 feet shall be redirected and a qualified paleontologist shall be contacted to review the find. The project team (the WCW and the paleontologist) shall develop and implement a plan for impact avoidance. Should avoidance be infeasible due to engineering requirements, the project team shall develop and implement a plan to offset the loss of paleontological data through the implementation of a data recovery project, including paleontological recovery. If determined to be a unique paleontological resource, the potentially significant impacts caused by construction may be mitigated through monitoring during construction activity (beyond the area of the initial find), and, if warranted by potential finds, recovery of fossils; preservation, stabilization, and identification of collected resources; curation of resources into a museum repository; and preparation of a final report documenting the monitoring methods and results, to be prepared by the qualified paleontologist and submitted to an appropriate repository such as the University of California (Berkeley) Museum of Paleontology (UCMP).

3.8 GREENHOUSE GAS EMISSIONS

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

Greenhouse gases (GHGs) are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs);
- Sulfur Hexafluoride (SF_6); and
- Nitrogen Trifluoride (NF_3).

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, believed to be causing global warming. While manmade GHGs include naturally-occurring GHGs such as CO_2, methane, and N_2O, some gases, like HFCs, PFCs, SF_6, and NF_3 are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared

radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

For the purposes of this analysis, the stationary source threshold developed by the BAAQMD (10,000 metric tons of CO_2e per year) is considered to determine the significance of GHG emissions.

a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? ***(Less-Than-Significant Impact)***

The following section describes the proposed project's construction and operational related GHG emissions and contribution to global climate change. As discussed below, the proposed project would not generate substantial GHG emissions that would have a significant effect on the environment and this impact would be less than significant.

Construction Emissions. Construction activities, such as demolition, site preparation, site grading, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew would produce combustion emissions from various sources. During construction of the proposed project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, lead agencies are encouraged to quantify and disclose GHG emissions that would occur during construction. Using CalEEMod, it is estimated that construction of the proposed project would generate approximately 987 metric tons of CO_2e. Implementation of Mitigation Measure AIR-1, as discussed in Section 3.3.b, Air Quality, would further reduce construction GHG emissions by limiting construction idling emissions. Therefore, construction emissions would be less than significant.

Operational Emissions. Long-term air emission impacts are typically associated with mobile, area, waste, and water sources and indirect emissions from sources associated with energy consumption. Mobile-source GHG emissions include project-generated vehicle trips to and from a project. Area-source emissions are typically associated with activities such as landscaping and maintenance on a project site. Energy source emissions are generated at off-site utility providers as a result of increased electricity demand generated by a project. Waste source emissions generated by projects include energy generated by land filling and other methods of disposal related to transporting and managing project generated waste. In addition, water source emissions are typically generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

As discussed above, the proposed project would involve the replacement and modernization of aging infrastructure at the WQRRP, installation of PV generation facilities, and installation of EV charging stations. Operation of the newly implemented infrastructure is not expected to generate increased demand for on-site staff at any of the project locations. Additionally, the PV arrays would be automated, requiring minimal ongoing maintenance. On a typical day, no additional trips are anticipated due to the proposed project. Thus, the project would not result in a significant increase in the generation of vehicle trips that would increase air pollutant emissions. The project's GHG emissions would be partially offset through the multi-site solar PV panels, which would generate clean energy for the project. In addition, the replacement and modernization of aging infrastructure would increase energy efficiency. Therefore, the project would not generate GHG emissions that would have a significant impact on the environment. This impact would be less than significant.

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? ***(Less-Than-Significant Impact)***

The proposed project has multiple sites, some of which are located in the City of Richmond, City of San Pablo, and other are located in unincorporated Contra Costa County. Applicable greenhouse gas reduction plans for each jurisdiction are discussed below.

The City of Richmond Climate Action Plan (CAP),[35] adopted in October 2016, addresses environmental, social and economic issues related to climate change. The CAP builds on the goals and policies in the City's General Plan and the Health in All Policies Strategy (HiAP) to further the City's efforts to build health equity through the reduction of local GHG emissions, and to ensure that the community is well prepared for the impacts of climate change. The CAP also provides an inventory of the City's emissions, establishes an emissions reduction target, and identifies feasible City and community actions that cost-effectively reduce GHG emissions and improve community health across all sectors. The CAP provides objectives and strategies related to Energy Efficient Buildings and Facilities, Increase Use and Generation of Renewable Energy, Sustainable Transportation and Land Use, Zero Waste, Water Conservation, Green Infrastructure, Urban Forestry and Local Agriculture, Green Business and Industry, and Resiliency to Climate Change. Most of the CAP strategies relate to land use development projects; however, the following strategies would be applicable to the proposed project: Strategy RE1, which promotes increase in local solar energy generation; and Strategy RE3, which promotes the conversion of natural gas to clean electricity. The proposed project is consistent with these measures as the proposed project would include new energy efficient infrastructure and would increase renewable energy supply. The CAP strategies support the City's General Plan policies; therefore, the proposed project would also not conflict with the goals and policies outlined in the City's 2030 General Plan. Therefore, the proposed project would be consistent with applicable CAP strategies.

The City of San Pablo CAP,[36] adopted in 2012, outlines a course of action for the City of San Pablo to reduce GHG emissions to 15 percent below 2005 levels by 2020 and 30 percent below 2005 levels by 2035, as recommended by Assembly Bill 32 (AB 32). The CAP sets forth objectives to

[35] Richmond, City of. 2016. *City of Richmond Climate Action Plan*. October.
[36] San Pablo, City of. 2015. *City of San Pablo Climate Action Plan*.

address emissions related to Energy Use, Transportation and Land Use, Solid Waste, and Water and Wastewater. The CAP also outlines municipal strategies to address the City's operational GHG emissions. Most of the CAP objectives relate to land use development projects and municipal operations; however, the following objectives would be applicable to the proposed project: Objective E3, which sets a goal to increase renewable energy use by 15 percent; Objective W1, which sets a goal to increase water efficiency throughout the community by 50 percent; Objective B1, which promotes integrating energy efficiency and other green building practices into new City facilities; Objective B3, which establishes energy and water management policies and practices for City facilities; and Objective B4, which considers clean energy alternatives for City facilities/operations. The proposed project is consistent with these objectives as the proposed project would include new energy efficient infrastructure and would increase renewable energy supply. Therefore, the proposed project would be consistent with applicable CAP objectives.

The Contra Costa County CAP,[37] adopted December 2015, identifies how the County will achieve the AB 32 GHG emissions reduction target of 15 percent below baseline levels by the year 2020, in addition to supporting other public health, energy efficiency, water conservation, and air quality goals identified in the County's General Plan and other policy documents. The CAP also lays the groundwork for achieving long-term state GHG reduction goals for 2035. The CAP identifies GHG reduction strategies related to Energy Efficiency, Renewable Energy, Land Use and Transportation, Solid Waste, Water Conservation, and Government Operations. Most of the CAP objectives relate to land use development projects and government operations; however, the following objectives would be applicable to the proposed project: Measure EE2, which provides opportunities for nonresidential buildings to become more energy efficient; Measure RE2, which promotes installation of alternative energy facilities on public land; Measure LUT2, which expands the use of alternative fuels in vehicle travel; and Measure GO2, which promotes energy-saving tools and practices in government operations. The proposed project is consistent with these measures as the proposed project would include the replacement and modernization of aging infrastructure at the WQRRP, installation of PV generation facilities, and installation of EV charging stations. Therefore, the proposed project would be consistent with applicable CAP measures.

As described above, the proposed project would be consistent with the strategies included in the City of Richmond's CAP, the City of San Pablo's CAP and the Contra Costa County CAP. Therefore, the proposed project would not conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This impact would be less than significant.

[37] Contra Costa County. 2015. *Contra Costa County Climate Action Plan*. December 15.

3.9 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ***(Less-Than-Significant Impact)***

Hazardous materials are chemicals that could potentially cause harm during an accidental release and are defined as being toxic, corrosive, flammable, reactive, an irritant, or strong sensitizer. Hazardous substances include all chemicals regulated under the United States Department of Transportation[38] "hazardous materials" regulations and the Environmental Protection Agency (EPA) [39] "hazardous waste" regulations. Hazardous wastes require special handling and disposal because of their potential to damage public health and the environment.

Exposure to hazardous materials during the construction of the project could result from the improper handling or use of hazardous substances or an inadvertent release resulting from an

[38] United States Department of Transportation. 2017. Hazardous Materials Regulations. Available online at: www.phmsa.dot.gov/standards-rulemaking/hazmat/hazardous-materials-regulations (accessed December 13, 2020).

[39] Environmental Protection Agency. 2020. Hazardous Waste. Available online at: www.epa.gov/hw (accessed December 13, 2020).

unforeseen event (e.g., fire, flood, or earthquake). The severity of any such exposure is dependent upon the type, amount, and characteristic of the hazardous material involved; the timing, location, and nature of the event; and the sensitivity of the individual or environment affected.

Project construction would likely require the use of limited quantities of hazardous materials, such as fuels, oils, lubricants, and solvents. The small quantities of hazardous materials that would be transported, used, or disposed of would be well below reportable quantities. The improper use, storage handling, transport, or disposal of hazardous materials during construction could result in accidental release exposing construction workers, the public and the environment, including soil and/or ground or surface water to adverse effects. Construction activities would be conducted with standard construction practices and in accordance with all applicable Cal-OSHA and other safety regulations to minimize the risk to the public. Compliance with federal, State, and local hazardous materials laws and regulations would minimize the risk to the public presented by these potential hazards during construction of the project. Transportation of any hazardous materials generated by excavation is regulated by the federal Department of Transportation and the California Department of Transportation (Caltrans). As such, transportation of hazardous materials off-site must be handled by licensed hazardous waste haulers.

Operation and maintenance of WQRRP improvements would also involve the transport, use, storage, and disposal of small quantities of hazardous materials (e.g., cleaners, fuels, lubricants, hydraulic fluids) similar to existing operations. Any business with hazardous materials storage, use, handling or disposal is required to comply with federal, State, and local requirements for managing hazardous materials and wastes. Businesses that use hazardous materials are required to submit a Hazardous Materials Business Plan to the local Certified Unified Program Agency (CUPS), which performs inspections to ensure compliance with hazardous materials labeling, training and storage regulations.

After project construction, no routine transport or disposal of hazardous materials would be associated with the proposed solar facilities. The WCW would be required to comply with existing government regulations in the use and disposal of any hazardous materials necessary for maintenance of the proposed solar facilities, and such materials would not be used in sufficient strength or quantity to create a substantial risk to human or environmental health.

Compliance with existing safety regulations and widely-accepted industry standards would minimize the hazard to the public and the environment. Construction and operation of the project would be required to comply with the Uniform Fire Code and local building codes for the storage of hazardous materials and construction of structures containing hazardous materials. Therefore, potential impacts associated with the transport, use, storage, handling and disposal of hazardous materials during operation of the project would be less than significant.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? ***(Less-Than-Significant Impact)***

As described in Section 3.9.a above, operation of the WQRRP would require the use of hazardous materials, as currently occurs under existing operations. Use of these materials would be

conducted in compliance with federal, State, and local requirements. Operation and maintenance of proposed solar facilities would not require routine use of hazardous materials; therefore, no hazards or hazardous materials impacts related to long term operation of the project are anticipated.

Hazardous materials most likely to be used during construction include typical construction materials such as gasoline, diesel, motor oil, lubricants, solvents, and adhesives. Such materials would be kept at construction staging areas, and would be secured when not in use. In the unlikely event of a spill, fuels would be controlled and disposed of in accordance with applicable regulations. Drips and small spills would be the most likely potential hazardous materials releases to occur; however, any release that occurs in close proximity to a stream or drainage channel could have a significant impact on the environment, if not properly controlled. However, the WCW would be required to prepare and implement a SWPPP for the proposed project in accordance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (NPDES General Construction Permit)(Order No. 2009-0009-DWQ, NPDES No. CAS000002) (SWRCB 2009) permitting requirements, which would reduce the potential for hazardous materials releases to occur during construction, and would reduce the potential for spills to impact sensitive habitat or human health, to a less-than-significant level. SWPPPs are required for construction sites over one acre that do not qualify for a waiver. Therefore, development of the proposed project would not create a significant hazard to the public or environment. This impact would be less than significant.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ***(Less-Than-Significant Impact)***

The closest schools to the WQRRP site are Verde Elementary School, located approximately 0.9 mile to the east; Washington Elementary School, located approximately 0.75 mile to the east; and Lake Elementary School, located approximately 1.3 miles northeast. Therefore, the proposed WQRRP improvements would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.

Four schools are located in proximity to the WCW Headquarters: Summit Tamalpais (approximately 0.3 mile east), Canterbury School (approximately 0.3 mile southeast), Aspire Richmond Technology Academy (approximately 0.5 mile northeast) and the Aspire Richmond California College Preparatory Academy (approximately 0.25 mile east). Seaview Elementary School is located approximately 0.2 mile east of the Tara Hills Pump Station and Montalvin Manor Elementary School is located approximately 0.2 mile northeast of the Atlas Pump Station. As described above, the proposed project would install solar photovoltaic power generation systems at existing WCW facilities and would not result in the routine use, transport or disposal of substantial quantities of hazardous materials. Therefore, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school and this impact would be less than significant.

d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? ***(Less-Than-Significant Impact)***

None of the project sites are included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and therefore would not create a hazard to the public or environment. According to the California State Water Resources Control Board (SWRCB) Geotracker website,[40] one Leaking Underground Storage Tank (LUST) site is located just north of the WQRRP at 2525 Garden Tract Road. This site is designated as "Completed—Case Closed."

Two State-listed hazardous materials sites are located within 1,000 feet of the Atlas Pump Station.[41] One site is a LUST site associated with UPS facility just north of the project site. This site is designated as "Completed—Case Closed." The other site is owned by UPS and is a permitted underground storage tank (UST) located north of the Atlas Pump Station.

Three hazardous materials sites are located within 1,000 feet of the WCW Headquarters, including two LUST sites, which have been designated as "Completed—Case Closed" and a permitted UST at the existing gas station at 2900 Hilltop Mall Road. One cleanup site is located just north of the Tara Hills Pump Station. This site has also been designated "Completed – Case Closed." No hazardous materials sites are located within 1,000 feet of the Lakeside Pump Station.[42]

No significant hazard to the public or environment would be associated with any of these listed sites, which are mostly closed. A closed site indicates that regulatory requirements for response actions, such as site assessment and remediation, have either been completed or were not necessary and therefore potential migration of residual contaminants in groundwater beneath the project sites (if any) does not likely pose a risk to human health and the environment. The other sites consist of permitted USTs, which undergo routine monitoring. This impact would be less than significant.

e. Would the project be 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, would the project result in a safety hazard or excessive noise for people residing or working in the project area? ***(No Impact)***

The project area is not located within an airport land use plan, or within two miles of a public airport or public use airport. The closest airport to the proposed area is the Oakland International Airport, located approximately 17 miles southeast of the project area. Therefore, the project would not expose people residing or working in the project area to excessive noise levels and no impact would occur.

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40 State Water Resources Control Board. 2020. Geotracker website application. Available online at: geotracker.waterboards.ca.gov (accessed December 13, 2020).

41 Ibid.

42 Ibid.

Therefore, the project would not result in a safety hazard for people residing or working in the project area. No impact would occur.

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ***(Less-Than-Significant Impact)***

The Contra Costa County Office of Emergency Services, a division of the Sheriff's Department, is responsible for planning, outreach, and training as it relates to Disaster Management and Emergency Preparedness. The San Pablo Comprehensive Emergency Management Plan was adopted in 2012 and outlines the City's response to different types of disaster situations, including seismic hazards, extreme weather conditions, and flooding.[43] In addition, the City of Richmond Fire Department's Office of Emergency Services leads the City in comprehensive emergency management Emergency Operations Plan.[44] The Emergency Operations Plan provides policies and procedures for the evacuation, dispersal, or relocation of people from hazardous areas during natural disasters to less threatened areas. The plan also describes the organization and responsibilities for conducting movement operations. Because the proposed project would not alter or block adjacent roadways at any of the project sites, implementation of the proposed project would not be expected to impair the function of nearby emergency evacuation routes. Therefore, the proposed project would have a less-than-significant impact on implementation of an adopted emergency response plan or emergency evacuation plan.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? ***(Less-Than-Significant Impact)***

The project sites are located within a developed urban area and according to the California Department of Fire and Forestry Protection (CalFire), the project sites are not located in a Very High Fire Hazard Severity Zone.[45] Therefore, the proposed project would not expose people or structures to a significant loss, injury or death involving wildland fires and this impact would be less than significant.

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43 San Pablo, City of. 2012. Comprehensive Emergency Management Plan. Available online at: www.sanpabloca.gov/DocumentCenter/View/2521/Comprehensive-Emergency-Mgmt-Plan-APPROVED-10-3-2012?bidId= (accessed January 25, 2021).

44 Richmond, City of. Responsibilities of the Office of Emergency Services webpage: www.ci.richmond.ca.us/2009/Responsibilities (accessed December 13, 2020).

45 CalFire. 2009. Contra Costa County Very High Fire Hazard Severity Zones in LRA. January 7. Available online at: osfm.fire.ca.gov/media/6660/fhszl_map7.pdf (accessed November 19, 2020).

3.10 HYDROLOGY AND WATER QUALITY

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

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? ***(Less-Than-Significant Impact)***

The project sites are located within the San Pablo Basin Hydrologic Planning Area, and discharge to both the San Pablo Bay and San Francisco Bay Central. The project area is located within the West County Major Watershed Area. Watersheds within the region are defined by creeks, streams, and other surface water drainages that originate in the upland areas of the East Bay Hills and flow downslope towards San Francisco Bay. Several creeks, including Wildcat Creek, San Pablo Creek, Rheem Creek, and Garrity Creek are located in the proximity to the project sites. San Pablo Creek borders the WQRRP site to the north and Wildcat Creek borders the WQRRP site to the south.

Construction. Pollutants of concern during construction include sediment, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction activities, excavated soil would be exposed, and there would be an increased potential for soil erosion and sedimentation compared to existing conditions. In addition,

chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), and concrete-related waste may be spilled or leaked during construction. Any of these pollutants have the potential to be transported via storm water runoff into receiving waters.

Because the project would disturb greater than 1 acre of soil, the project is subject to the requirements of the State Water Resources Control Board's NPDES General Permit for Storm Water Discharge Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, as amended by Orders No. 2010-0014-DWQ and 2012-0006-DWQ, NPDES No. CAS000002) (Construction General Permit). Under the Construction General Permit, the Construction Contractor would be required to prepare a SWPPP and implement construction BMPs detailed in the SWPPP during construction activities. Construction BMPs would include, but not be limited to, erosion and sediment control, designed to minimize erosion and retain sediment on site, and good housekeeping practices to prevent spills, leaks, and discharge of construction debris and waste into receiving waters. Compliance with the requirements of the Construction General Permit would ensure that the proposed project would result in less-than-significant impacts to water quality during construction.

Operation. Development of the proposed project would not result in a significant increase in the amount of impervious surface area within the project area. The WQRRP improvements would increase impervious surface area by approximately 1.2 acres. Once constructed, proposed improvements would operate under the existing NPDES Industrial Storm Water Permit. Proposed solar facilities would include minimal installation of new hardscape on the project sites associated with the concrete pedestals. The access roads would consist of permeable gravel and the remainder of the project sites would consist of permeable surfaces. Adherence to the NPDES Industrial Permit would ensure that long-term operation of the project would not violate any water quality standards or waste discharge requirements; therefore, this impact would be less than significant.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? ***(Less-Than-Significant Impact)***

The City of Richmond is located above the Santa Clara Valley Groundwater Basin, East Bay Plain Subbasin (Basin Number 2-9.04). The 77,800-acre East Bay Plain Subbasin is composed of unconsolidated sediments of Quaternary age (i.e., less than 1.6 million years old). The thickness of the deposits varies, from depths of one to a few hundred feet thick, depending on the proximity of the subbasin to the San Francisco Bay, with the sediments tending to increase with proximity to the bayshore. Groundwater in Richmond is very close to the surface in the low elevation or Bay plain areas.[46] The East Bay Plain Subbasin is identified as having the following beneficial uses in the

[46] PBS&J. 2011, op. cit.

2017 Basin Plan: municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.[47]

Temporary excavations for the WQRRP improvements may extend to depths of 20 feet below ground surface. Temporary excavations for the proposed solar facilities may extend to depths of 5 below ground surface at the deepest points. Groundwater dewatering may be required if groundwater is encountered during construction activities. Dewatering, if necessary, would be conducted in compliance with the permit conditions of the San Francisco Bay Regional Water Quality Control Board (RWQCB) Groundwater General Permit (Order No. R2-2012-0060, NPDES No. CAG912004). It is anticipated that if groundwater dewatering is required, the volume of groundwater that would be removed would be minor and would not substantially deplete existing groundwater supplies. In addition, construction activities would compact soil, which can decrease infiltration during construction. However, construction activities would be temporary, and the reduction in infiltration would not be substantial. Therefore, construction of the project would result in a less than significant impact associated with depleting groundwater supplies or substantially interfering with groundwater recharge, and no mitigation is required.

In most areas of the City of Richmond the groundwater infiltration rate is slow or very slow. In addition, the WQRRP project area is currently developed and largely covered by impervious surfaces. The proposed project would result in a nominal increase of impervious surface area. Groundwater would not be extracted during operation. Because the project would not result in the development of large areas of impervious surfaces that would prevent water from infiltrating into the groundwater nor would it result in direct additions or withdrawals to existing groundwater, operation of the project would result in a less than significant impact associated with depleting groundwater supplies or substantially interfering with groundwater recharge.

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

i. Result in substantial erosion or siltation on- or off-site; ***(Less-Than-Significant Impact)***

During construction activities, soil would be exposed and disturbed, and drainage patterns would be temporarily altered during grading and other construction activities, resulting in an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. As discussed above in Section 3.10.a above, the Construction General Permit requires preparation of a SWPPP and implementation of construction BMPs to reduce impacts to water quality during construction, including those impacts associated with soil erosion and siltation. Therefore, adherence to the requirements of the Construction General Permit would ensure that construction of the project would result in a less than significant impact related to this topic.

[47] State Water Resources Control Board. 2017. Water Quality Control Plan for the San Francisco Bay Basin. May. Available online at: www.waterboards.ca.gov/sanfranciscobay/basin_planning.html (accessed December 14, 2020).

Implementation of proposed improvements would not result in a significant increase in impervious surface area or an associated increase in the volume and rate of runoff during a storm. After installation of improvements, soils would be compacted and recovered to be consistent with current topography. Therefore, no significant change to the existing drainage pattern would occur resulting in on-site or off-site effects from erosion and siltation. This impact would be less than significant.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; ***(Less-Than-Significant Impact)***

Construction activities would temporarily alter on-site drainage patterns and compact soil, which can increase the volume and velocity of storm water runoff. However, construction activities would be temporary, and the increase in runoff would not be substantial. As discussed in Section 3.10.a above, the Construction General Permit requires the preparation of a SWPPP to identify construction BMPs to be implemented as part of the project to reduce impacts to water quality during construction, including those impacts associated with flooding. Therefore, adherence to the Construction General Permit would ensure that construction activities would result in a less than significant impact.

Implementation of proposed improvements would not result in a significant increase in impervious surface area or an associated increase in the volume and rate of runoff during a storm. No significant change to the existing drainage pattern would occur resulting in on-site or off-site flooding. This impact would be less than significant.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or ***(Less-Than-Significant Impact)***

Implementation of proposed improvements would not result in a significant increase in impervious surface area or an associated increase in the volume and rate of runoff during a storm. Therefore, the proposed project would not create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems. This impact would be less than significant.

iv. Impede or redirect flood flows? ***(Less-Than-Significant Impact)***

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map No. 06013C0209G (September 30, 2015), the majority of the WQRRP project site is located within a 100-year flood hazard zone (i.e., an area in which there is a one percent chance per annum of a one hundred-year storm event), with a base flood elevation of 10 feet.[48] None of the proposed solar sites is located within a designated flood hazard area.

[48] Federal Emergency Management Agency. FEMA Flood Map Service Center. Website: msc.fema.gov/portal/home (accessed December 14, 2020).

Proposed improvements at the WQRRP would rehabilitate and/or replace existing infrastructure and construct limited new facilities within existing WQRRP facilities and adjacent to existing WQRRP buildings. Proposed facilities would be similar to and consistent with existing WQRRP facilities and would not impede or redirect flood flows. This impact would be less than significant.

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation? ***(Less-Than-Significant Impact)***

As described above, the majority of the WQRRP site is located within a 100-year flood hazard zone as mapped by FEMA. Proposed improvements at the WQRRP would rehabilitate and/or replace existing infrastructure and construct limited new facilities within the existing WQRRP project site to enhance the efficiency and reliability of the existing system. The project site is currently subject to inundation and implementation of the proposed project would not exacerbate the potential for release of pollutants due to inundation related to a 100-year flood, but would improve the reliability of the existing system.

According to the Public Safety and Noise Element of the City General Plan, the City could experience potential flooding from dam failure at the San Pablo Dam. The project area is located approximately 6.5 miles west-northwest of the San Pablo Dam and is within the dam inundation zone. However, the East Bay Municipal Utility District (EBMUD) completed the San Pablo Dam Seismic Upgrade Project in 2010, thereby reducing the risk of dam failure.[49]

The WQRRP project site is located within a mapped tsunami area for Contra Costa County; none of the proposed solar sites are located within a mapped tsunami area.[50] The project area is located in proximity to San Francisco Bay; however, no seismically induced seiche waves have been documented in the San Francisco Bay throughout history.[51] As described above, implementation of the proposed project would not exacerbate the potential for release of pollutants due to inundation related to tsunami, but would improve the reliability of the existing system. Therefore, this impact would be less than significant.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? ***(Less-Than-Significant Impact)***

As discussed above, due to the size of the proposed project, construction and operation of the project would be subject to State and regional requirements related to stormwater runoff. Required compliance with State and local regulations regarding stormwater and dewatering during construction and operation would ensure that the proposed project would not conflict or

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49 PBS&J. 2011, op. cit.

50 California, State of. 2009. California Emergency Management Agency. Tsunami Inundation Map for Emergency Planning Richmond Quadrangle/San Quentin Quadrangle. July 31. Available online at: www.conservation.ca.gov/cgs/Documents/Publications/Tsunami-Maps/Tsunami_Inundation_RichmondSanQuentin_Quads_ContraCosta.pdf (accessed December 14, 2020).

51 Association of Bay Area Governments and Metropolitan Transportation Commission. 2013. *Plan Bay Area.* July 18.

obstruct implementation of a water quality control plan or sustainable groundwater management plan. As a result, this impact would be less than significant.

3.11 LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

a. Would the project physically divide an established community? ***(No Impact)***

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas. Implementation of the project would construct and replace facilities at the WQRRP and install solar facilities at existing WCW sites. Therefore, implementation of the project would not physically divide an established community. No impact would occur.

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? ***(Less-Than-Significant Impact)***

As described below, the proposed project would not conflict with the following applicable land use plans and regulations that govern the site: the City of Richmond General Plan and Zoning Ordinance, the City of San Pablo General Plan and Zoning Ordinance, and the Contra Costa County General Plan and Zoning Ordinance.

City of Richmond General Plan and Zoning. Portions of the WQRRP, as well as the WCW Headquarters, the Lakeside Pump Station, and the Atlas Pump Station are located within the City of Richmond; therefore, the City of Richmond General Plan and the City of Richmond Municipal Code are the primary land use plans containing policies and regulations applicable to these project sites. The southern portion of the WQRRP and the WCW Headquarters are designated as Public, Cultural and Institutional on the City of Richmond General Plan Land Use Map. The Public, Cultural and Institutional designation includes public, semi-public and educational uses such as civic facilities, community centers, libraries, museums, national park facilities, hospitals and schools. The Lakeside Pump Station is designated as Parks and Recreation. The Parks and Recreation designation includes publicly owned local and regional parks as well as privately owned recreational facilities such as golf courses. The Atlas Pump Station is designated as Medium Density Residential. The Medium Density Residential designation Includes single and multi-family housing types such as one to three-story garden apartments, historic bungalows and cottages on small lots, townhouses and stacked flats.

The southern portion of the WQRRP and the WCW Headquarters are zoned Public, Cultural, and Institutional (PCI). The Lakeside Pump Station site is zoned Parks and Recreation (PR). The specific

purposes of the PCI and PR zones is to provide land for development of public, cultural and institutional uses that provide services to the community, provide land for parks and recreation facilities, and ensure design compatibility between public uses and adjacent residential neighborhoods. The WQRRP and proposed solar facilities are allowed uses in both of these zones. The Atlas Pump Station site is zoned Multi-family Residential (RM1), which allows solar installations as accessory structures within this zone. Therefore, the proposed project would be consistent with the City of Richmond General Plan and Zoning Ordinance.

Contra Costa County General Plan and Zoning Ordinance. The northern portion of the WQRRP and the Tara Hills Pump Station are located within unincorporated Contra Costa County; therefore, the Contra Costa County General Plan and the Contra Costa County Zoning Code are the primary land use plans containing policies and regulations applicable to these project sites.

The WQRRP is designated as Public/Semi-Public (PS) in the Contra Costa County General Plan. The Public/Semi-Public designation includes properties owned by public governmental agencies such as libraries, fire stations, schools, etc. This designation is also applied to public transportation corridors, as well as, privately-owned transportation and utility corridors such as railroads, PG&E lines, and pipelines. The Tara Hills Pump Station site is designated as Parks and Recreation (PR). The Parks and Recreation designation includes publicly-owned park facilities, as well as golf courses, whether publicly- or privately-owned. Appropriate uses in the designation are passive and active recreation-oriented activities, and ancillary commercial uses such as snack bars, and restaurants.

Both the WQRRP and the Tara Hills Pump Station sites are zoned Planned Unit (P-1). The Planned Unit district is intended to allow diversification in the relationship of various uses, buildings, structures, lot sizes and open space while insuring substantial compliance with the general plan and the intent of the county code in requiring adequate standards necessary to satisfy the requirements of the public health, safety and general welfare. The WQRRP is located within the North Richmond Planned Unit Development Area and is designated as Public/Semi-Public within that planned development unit. The Tara Hills Pump Station is located within the Montalvin Planned Unit Development Area and is designated as Parks and Recreation within that planned development unit. Proposed improvements at the WQRRP and installation of a solar facility at the Tara Hills Pump Station would be consistent with allowed uses in these zones. Therefore, the proposed project would be consistent with the Contra Costa County General Plan and Zoning Ordinance.

Conclusion. The WQRRP and the proposed solar facilities are allowable land uses according to the general plan land use and zoning designations for the project sites. Further, proposed improvements would be located entirely within WCW-owned land adjacent to, or within existing WCW facilities or on land over which WCW has an existing easement for their facilities. Therefore, the proposed project would not change existing land use within the project area, would not result in the conversion of adjacent land uses, or conflict with any applicable land use plan, policy or regulation with jurisdiction over the project.Consistent with the goals and policies of relevant planning documents, the project has been designed to minimize impacts to natural and cultural resources, to the extent feasible. Project conformance and/or potential conflicts with these ordinances are described in the relevant resource sections of this Initial Study/Mitigated Negative

Declaration (IS/MND). Where potentially significant environmental impacts have been identified in this IS/MND, they have been mitigated to less than significant with implementation of appropriate mitigation measures. Therefore, the project would be consistent with applicable land use plans, policies and regulations, and this impact would be less than significant.

3.12 MINERAL RESOURCES

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

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? ***(No Impact)***

Minerals are any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances including, but not limited to, coal, peat and oil bearing rock, but excluding geothermal resources, natural gas and petroleum.

The Office of Surface Mining, under the direction of the State Mining and Geology Board, has classified some lands within the City as Mineral Resource Zone-2 (MRZ-2), which indicates the existence of a deposit that meets certain criteria for value and marketability. The State has also designated these areas as regionally significant "sectors."[52] These areas are located along San Pablo Bay at the north end of the San Pablo-Potrero Hills Ridge, on Point Molate, and at Point Potrero.

Mineral production in the City of Richmond has been largely limited to sand, gravel and rock products. Mining for sandstone and crushed rock was until recently limited to one quarry on Canal Boulevard near the Port of Richmond and another at Point Molate. The Canal Boulevard quarry has been closed and remediated.[53] The Point Molate quarry is focused on recycling and handling operations rather than extraction. No quarry operations are anticipated in the future. The project area includes the existing WQRRP and other WCW-owned properties. No known mineral resources are located on or in the vicinity of the project sites. Therefore, the proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. No impact would occur.

[52] PBS&J. 2011. Richmond General Plan Draft Environmental Impact Report. February.

[53] Richmond, City of. 2012, op. cit.

b. Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? ***(No Impact)***

As described above, no known mineral resources are located on or in the vicinity of the project sites. Therefore, the proposed project would not result in the loss of availability of a locally-important mineral resource recovery site. No impact would occur.

3.13 NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a 10-fold increase in acoustic energy, while 20 dB is 100 times more intense and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness; and similarly, each 10 dB decrease in sound level is perceived as half as loud. Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for 24-hour sound measurements that better represent human sensitivity to sound at night.

As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq}, the community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on dBA. CNEL is the time varying noise over a 24-hour period, with a 5 dBA weighting factor applied to the hourly L_{eq} for noises occurring from 7:00 p.m. to 10:00 p.m. (defined as relaxation hours) and 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours). L_{dn} is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours. CNEL and L_{dn} are within one dBA of each other and are normally

exchangeable. The noise adjustments are added to the noise events occurring during the more sensitive hours.

A project would have a significant noise effect if it would substantially increase the ambient noise levels for adjoining areas or conflict with adopted environmental plans and goals of applicable regulatory agencies. The proposed project has multiple sites, some of which are located in the City of Richmond, City of San Pablo, and other are located in unincorporated Contra Costa County.

The City of Richmond addresses noise in the Noise Element of the General Plan and in the Municipal Code. The Noise Element of the General Plan provides the City's goals and policies related to noise, including the land use compatibility guidelines for community exterior noise environments. The Municipal Code (noise ordinance) outlines the City's standards for and limitations on noise sources within the City. The noise ordinance stipulates that, where construction activities on a construction project which is adjacent to any noise sensitive use are anticipated to last for a year or more, temporary noise barriers shall be constructed that break the line of sight between the noise-sensitive land use and the construction project. The noise ordinance prohibits the use of pile drivers or other impulsive noise sources on Sundays and holidays, except for emergencies or as approved in advance by the Building Official. Furthermore, where technically and economically feasible, project operations as well as temporary construction activities should be conducted in such a manner so as to not exceed 60 dBA maximum sound level (L_{max}) for more than 30 minutes in any hour as measured at the nearest single-family residential property line, or exceed 65 dBA L_{max} for more than 30 minutes in any hour as measured at the nearest multi-family residential property line.

The City of San Pablo addresses noise in the Safety and Noise Element of the General Plan and in the Municipal Code. The Safety and Noise Element stipulates that noise from construction activity is prohibited between 10:00 p.m. and 7:00 a.m. unless there is an emergency or there is written permission of the building inspector. The Safety and Noise Element policies also require construction contractors to use best available technology (such as noise attenuation fences, mufflers, and engine shrouds) to reduce the amount of noise generated. The City's Municipal Code also prohibits the use of heavy equipment between the hours of 10:00 p.m. and 7:00 a.m.

The Contra Costa General Plan Noise Element includes a policy for construction activities which states that construction activities shall be concentrated during hours of the day that are not noise-sensitive for adjacent land uses and should be commissioned to occur during normal work hours of the day to provide relative quiet during the more sensitive evening and early morning periods. The Contra Costa County Ordinance Code does not have a specific noise ordinance, but it addresses impacts that are due to construction noise under the Grading Ordinance Section 716-8.1008, stating that operations shall be controlled to prevent nuisances to public and private ownerships because of dust, drainage, removal of natural support of land and structures, encroachment, noise, and/or vibration.

Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The closest sensitive receptors to the WQRRP facility, where new infrastructure and multiple solar panel arrays would be installed, are located approximately 2,300 feet southeast of the project site.

The closest sensitive receptors to the other proposed solar facilities would range from 50 to 440 feet away, with the closest receptor being the single-family residential uses located approximately 50 feet south of the WCW Headquarters at 2910 Hilltop Drive in the City of Richmond. Existing noise levels in the project vicinity are dominated by traffic noise. Many of the neighboring land uses are adjacent to Richmond Parkway.

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? ***(Less Than Significant Impact with Mitigation Incorporated)***

Potential noise impacts associated with implementation of the proposed project are described below.

Short-Term Construction Noise Impacts. Short-term noise related to demolition and construction activities would temporarily increase noise levels in the vicinity of the project site. Noise impacts from construction crew commutes and the transport of construction equipment and materials to the project site would incrementally increase noise levels on access roads leading to the site. However, the construction equipment pass-by noise would be similar to existing truck activity in the project vicinity. Therefore, traffic associated with worker commute and equipment transport to the project site would be less than significant.

Construction activities would be performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. The demolition phase of construction is expected to generate the highest noise levels, because the concrete saw would be the loudest piece of equipment used. Along with the concrete saw, an excavator would also be used during the demolition phase. The maximum noise typically associated with the use of these two pieces of construction equipment is estimated to be between 85 and 90 dBA L_{max} at a distance of 50 feet from the operating construction equipment for the demolition phase. Each doubling of the sound sources with equal strength increases the noise level by 3 dBA. Assuming that each piece of construction equipment operates as an individual noise source, the worst-case composite noise level during this phase of construction would be 91 dBA L_{max} at a distance of 50 feet from all of the pieces of operating equipment. Based on a usage factor of 20 percent for the concrete saw and 40 percent for the excavator, the worst case combined noise level during construction would be 85 dBA L_{eq} at a distance of 50 feet from the active construction area.

During the demolition and construction phases of the project, as mentioned above, exterior noise levels resulting from demolition could be as high as 87 dBA L_{eq} at a distance of 50 feet from all of the pieces of operating equipment. However, due to distance attenuation, these maximum construction noise levels would be expected to be reduced to 52 dBA L_{eq} at the nearest noise sensitive land use to the WQRRP, and would range from 66 to 87 dBA L_{eq} at the nearest noise sensitive land uses to the proposed solar facilities even if multiple pieces of heavy construction equipment operated simultaneously at the nearest project border.

These noise levels at some of the proposed solar facilities could result in exceedances of the City of Richmond, City of San Pablo, and Contra Costa County noise ordinance performance thresholds.

As noted previously, the City of Richmond requires that where technically and economically feasible, construction activity shall be conducted in such a manner so as to not exceed 60 dBA L_{max} for more than 30 minutes in any hour as measured at the nearest single-family residential property line, or exceed 65 dBA L_{max} for more than 30 minutes in any hour as measured at the nearest multi-family residential property line. Mitigation Measure NOI-1 would be required to limit construction activities to daytime hours and would reduce potential construction period noise impacts for sensitive receptors to less-than-significant levels.

Mitigation Measure NOI-1: **Construction Noise Minimization Measures.** When project construction occurs within 900 feet of a residential receptor, the project contractor shall implement the following measures during construction of the proposed project:

- Equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.
- Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active project site.
- Locate equipment staging in areas that would create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the active project site during all construction activities.
- Where construction activities occur adjacent to any noise sensitive use and are anticipated to last for a year or more, temporary noise barriers shall be constructed that break the line of sight between the noise-sensitive land use and the construction site.
- To minimize construction noise impacts on nearby residents, the project shall limit construction hours between 7:00 a.m. and 6:00 p.m. on non-holiday and weekdays. Pile driving and similar loud activities shall be limited to 8:00 a.m. to 5:00 p.m. on non-holidays or weekdays. Any work outside of these hours by the construction contractors shall require a special permit from the City or County Engineer. There should be compelling reasons for permitting construction outside of these designated hours.
- Designate a "disturbance coordinator" at the WCW who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too

early, bad muffler) and would determine and implement reasonable measures warranted to correct the problem.

With implementation of Mitigation Measure NOI-1, the proposed project would comply with the City of Richmond, City of San Pablo, and Contra Costa County noise permanent standards of the Noise Ordinance and would ensure that potential construction noise impacts would be less than significant. Therefore, construction noise impacts would be less than significant with mitigation incorporated.

Long-Term Operational Noise Impacts. A significant impact would occur if the project would exceed established standards, including resulting in a substantial permanent increase in ambient exterior noise levels above levels existing without the project. In acoustics, every doubling of an equal sound energy would result in a 3 dBA increase in combined noise level (an increase of 3 dBA represents the lowest noise increase that is perceptible by humans outside of a laboratory environment). Implementation of the proposed project would generate an incremental increase in traffic noise on local roadways leading to the project site, as discussed below.

Following construction, operation of the proposed project would not add any additional vehicle trips per day, except for occasional trips for maintenance purposes, which would not result in a perceptible increase in traffic noise levels along any roadway segments in the project vicinity. Therefore, traffic-related operational noise generated by the project would be considered less than significant.

The proposed project also would not increase the operational noise. The project would implement the following components at the WQRRP: Influent pumps upgrade, grit removal system upgrade, carbon redirection in the primary clarifiers, high efficiency turbo blowers installation, redundant rotary drum thickener installation, anaerobic digester installation, biogas-powered co-generation system installation, centrifuge installation, installation of a thermal dryer for the digested sludge, and increase capacity of the influent equalization basins. Solar photovoltaic facilities would also be constructed at several of the existing facilities, including the WQRRP, WCW Headquarters, Atlas Pump Station, Lakeside Pump Station, and the Tara Hills Pump Station. The proposed project is not intended to expand the capacity of the current systems to serve additional population growth or development within the WCW service area. Rather, the proposed project would enhance energy efficiency and improve the reliability of the existing system. With the implementation of the proposed project, operational noise at the WQRRP would continue to be from the background operating noise of the plant, and would be similar to the existing operational noise.

The closest off-site sensitive receivers to the WQRRP facility site would be the single family residential land uses located approximately 2,300 feet southeast of the project site. At this distance, due to distance divergence, noise levels from the operation of new mechanical equipment would be reduced to below the existing ambient background noise levels, which are influenced by traffic noise on Richmond Parkway as well as local streets.

The other proposed solar facilities locations would not have any operational noise as a result of the project, as the solar photovoltaic facilities would be mounted on fixed-tilt mounting systems.

Therefore, as project-related mechanical equipment stationary noise sources would not exceed existing ambient noise levels at receiving sensitive land uses, this impact would be considered less than significant. Operational noise impacts would be less than significant, and no mitigation would be required.

*b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels? (**Less Than Significant Impact)***

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem where the motion may be discernible, but there is less adverse reaction without the effects associated with the shaking of a building. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as motion of building surfaces, the rattling of items on shelves or hanging on walls, or a low-frequency rumbling noise, otherwise referred to as ground-borne noise. Typically, sources that have the potential to generate ground-borne noise are likely to produce airborne noise impacts that mask the radiated ground-borne noise. The rumbling noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 dB or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment) and occasional traffic on rough roads. Problems with ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 feet of the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 feet. When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. For most projects, it is assumed that the roadway surface will be smooth enough that ground-borne vibration from street traffic will not exceed the impact criteria; however, construction of the Project could result in ground-borne vibration that could be perceptible and annoying.

Ground-borne vibration has the potential to disturb people as well as damage buildings. Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). RMS is best for characterizing human response to building vibration, and PPV is used to characterize the potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

$$L_v = 20 \log_{10} [V/V_{ref}]$$

where L_v is the velocity in decibels (VdB), "V" is the RMS velocity amplitude, and "V_{ref}" is the reference velocity amplitude, or $1x10^{-6}$ inches per second used in the United States.

Construction Vibration. Outdoor site preparation and grading for the proposed project are expected to require the use of loaded trucks, which would generate ground-borne vibration of up

to 86 VdB (0.076 PPV [in/sec]) when measured at a distance of 25 feet according to the Transit Noise and Vibration Impact Assessment Manual.[54] All other equipment used in the construction of the proposed project would generate much lower vibration levels.

The greatest vibration levels are anticipated to occur during the site preparation and grading phase. All other phases are expected to result in lower vibration levels. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary), because vibration impacts normally occur within the buildings.

The closest residential structure to any of the facilities is located approximately 85 feet south of the project boundary for the WCW Headquarters. The closest other structure to any of the solar facilities is the building at Montara Bay Park, located approximately 120 feet east of the project boundary for the Tara Hills facility. These structures would experience vibration levels of 70 VdB (0.012 PPV [in/sec]) and 66 VdB (0.007 PPV [in/sec]), respectively. Vibration levels generated from project construction activities would not result in community annoyance because vibration levels would not exceed the FTA's community annoyance threshold of 78 VdB for daytime residences and 84 VdB for nonsensitive buildings such as park/recreational buildings. Also, these vibration levels would not result in building damage because vibration levels would not exceed the FTA damage threshold of 94 (0.2 PPV [in/sec]) and because the residential and park buildings were observed to be constructed of nonengineered timber and masonry. Therefore, vibration impacts from construction activities would be less than significant.

Operational Vibration. Implementation of the project would not result in the generation of excessive groundborne vibration or groundborne noise levels. In addition, any vibration levels generated from project-related traffic on the local roadways used to access the site would be unusual because the rubber tires and suspension systems of on-road vehicles provide vibration isolation. Therefore, vibration impacts from project-related operations would be less than significant.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? ***(No Impact)***

The project area is not located within an airport land use plan, or within two miles of a public airport or public use airport. The closest airport to the proposed area is the Oakland International Airport, located approximately 17 miles southeast of the project area. Therefore, the project would not expose people residing or working in the project area to excessive noise levels and no impact would occur.

[54] Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment Manual. September

3.14 POPULATION AND HOUSING

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

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? ***(No Impact)***

The proposed project would implement improvements at the existing WQRRP and install solar photovoltaic power generation systems at several WCW-owned properties to improve energy efficiency at the existing plant and to provide renewable energy for use at the project sites. The WQRRP is bordered to the east by Richmond Parkway and light industrial uses; to the west by the Wildcat Creek Regional Trail and Bay marshlands; to the south by Wildcat Creek and the Wildcat Creek Regional Trail; and to the north by the West Contra Costa Sanitary Landfill. Land uses in the vicinity of the solar installation sites include commercial and residential development, park lands and open space.

Development of the proposed project would improve the reliability and efficiency of the current collection system. The proposed project would not expand the capacity of the current system or provide additional major infrastructure so as to encourage population growth or new development. The proposed project would not include any new housing, commercial or industrial space that would directly induce population growth. Therefore, the project would not directly or indirectly induce substantial population growth and no impact would occur.

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? ***(No Impact)***

The project would be constructed at the existing WQRRP and within existing WCW properties. No housing or people would be displaced as a result of implementation of the project. No impact would occur.

3.15 PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☐	☒
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☐	☒

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

i. Fire protection? ***(No Impact)***

Fire protection is provided to the City by the Richmond Fire Department (RFD). RFD has 97 personnel including seven fire stations and covers an area of approximately 56 square miles. [55] The City of Richmond also has mutual aid agreements for exchange of fire, rescue, and emergency medical services with the Contra Costa County Fire Protection District, City of Pinole Fire Department, and City of Rodeo-Hercules Fire Department.

The Contra Costa County Fire Protection District (CCCFPD) provides fire and emergency services to residents of the City of San Pablo, including firefighting and rescue, fire prevention and training, and emergency medical care. The CCCFPD) currently operates one fire station (Station #70) within the City of San Pablo, at 13928 San Pablo Avenue. The San Pablo Fire Station is actively manned 24 hours a day, 7 days a week. Two engine companies (with a three-man team to each fire-engine) are assigned to the San Pablo Fire Station.[56]

[55] Richmond, City of. 2016. *Department Facts.* Available online at: www.ci.richmond.ca.us/1483/Department-Facts (accessed March 30, 2016).

[56] Dyett and Bhatia. 2010. San Pablo General Plan 2030, Volume 3: Draft Environmental Impact Report, Public Review Draft. SCH No. 2008082069. November.

The closest fire station to the WQRRP is the San Pablo Fire Station, located at13928 San Pablo Avenue. RFD Station 68, located at 2904 Hilltop Drive, is adjacent to the WCW Headquarters and is the closet fire station to the solar installation project sites.

The proposed project would improve facilities at the existing WQRRP and install solar photovoltaic power generation systems to reduce energy consumption and to provide renewable energy sources for the WCW. The proposed project would not result in a substantial increase in usage of existing WCW facilities, and would not include housing units or other structures that would increase the population in the area or that would generate a higher demand for fire protection services. Therefore, the demand for fire protection services for the project would be the same as under existing conditions and no impact would occur.

ii. Police protection? ***(No Impact)***

Police protection is provided to the City by the Richmond Police Department (RPD). According to Map 12.6, Police and Fire Services in the City General Plan, proposed solar facilities are located within Beat 8 in the northern sector.[57] The main police station is located at 1701 Regatta Boulevard.

The San Pablo Police Department provides crime prevention and law enforcement services within the City of San Pablo. Operating from a central station located at 13880 San Pablo Avenue, the San Pablo Police Department maintains a combination of 53 professional sworn officers and 22 non-sworn positions.[58] The closest police station to the WQRRP is the San Pablo Police Station located on San Pablo Avenue.

The proposed project would improve facilities at the existing WQRRP and install solar photovoltaic power generation systems to reduce energy consumption and to provide renewable energy sources for the WCW. The proposed project would not result in a substantial increase in usage of existing WCW facilities, and would not include housing units or other structures that would increase the population in the area or that would generate a higher demand for police protection services. Therefore, the demand for police protection services for the project would be the same as under existing conditions and no impact would occur.

iii. Schools? ***(No Impact)***

The West Contra Costa Unified School District (WCCUSD) serves approximately 235,000 residents in the five cities of El Cerrito, Richmond, San Pablo, Pinole, and Hercules and the unincorporated areas of Bayview-Montalvin Manor, East Richmond Heights, El Sobrante, Kensington, North Richmond and Tara Hills.[59] WCCUSD operates 38 elementary schools, six middle schools, 11 high schools, and two adult schools. The closest school to the WQRRP is the Verde Elementary School, located at 2000 Giaramita Street. Four schools are located in proximity to the WCW Headquarters: Summit Tamalpais at 3020 Hilltop Mall Road, Canterbury School at 3120 Shane Drive, Aspire

57 Richmond, City of. 2012, op. cit.
58 Dyett and Bhatia. 2010, op. cit.
59 PBS&J. 2011, op. cit.

Richmond Technology Academy at 3170 Hilltop Mall Road and the Aspire Richmond California College Preparatory Academy at 3040 Hilltop Mall Road. Seaview Elementary School is located just east of the Tara Hills Pump Station and Montalvin Manor Elementary School is located northeast of the Atlas Pump Station.

The proposed project would improve facilities at the existing WQRRP and install solar photovoltaic power generation systems to reduce energy consumption and to provide renewable energy sources for the WCW. The proposed project would not result in a substantial increase in usage of existing WCW facilities, and would not include housing units or other structures that would increase the population in the area or that would generate a higher demand for schools. Therefore, the demand for schools for the project would be the same as under existing conditions and no impact would occur.

iv. Parks? ***(Less-Than-Significant Impact)***

As described further in Section 3.16, Recreation, the WQRRP is located in proximity to the Wildcat Creek Regional Trail, and the Lakeside Pump Station and the Tara Hills Pump Station are located within or adjacent to existing parks. The proposed project would not significantly increase the usage of these recreation facilities or any surrounding open space preserves, nor would it increase the demand for new park facilities within the vicinity of the project site, as no housing or employment-generating uses are proposed. Construction activities for these project components may temporarily disrupt recreation use of these facilities; however, construction would be temporary and park facilities would remain open throughout the construction period. Therefore, this impact would be less than significant.

v. Other public facilities? ***(No Impact)***

Other public facilities would include facilities such as libraries, post offices, meeting rooms, or hospitals. The proposed project would not result in an increase in population or facilities that would require other public facilities, or result in the need for physically altered facilities. Therefore, the proposed project would have no impact on other public facilities.

3.16 RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? ***(Less-Than-Significant)***

The City of Richmond has over 6,500 acres of parks and open space including local, regional, and national resources. Of this, 777 acres are City-owned parks and open space, 5,700 acres are regional parks and open space, and 32 acres are joint-use parks. The City of San Pablo owns and administers seven parks, varying in size and amenities from the 0.1-acre 14th Street Park (a neighborhood park) to the 11.6-acre Davis Park (one of the City of San Pablo's community parks). Approximately 22.0 acres of parkland are located within the City of San Pablo.[60]

As described in Section 3.11, Land Use and Planning, the WQRRP is bordered to the south and west by the Wildcat Creek Regional Trail and to the north by the San Pablo Creek Trail. Proposed project components at the WQRRP would be constructed entirely within the boundaries of the WQRPP. Construction activities may temporarily result in noise that could affect trail users; however, construction activities would be temporary and the trail would remain open through the construction period.

In addition, the Lakeside Pump Station is located within Hilltop Lake Park and the Tara Hills Pump Station is located within an existing park and adjacent to the Pinole Regional Shoreline. Proposed solar facilities would be constructed entirely within the boundaries of the WCW-owned land and would not permanently impact use of these park facilities. Construction activities may temporarily disrupt recreation use during the construction period; however, construction activities would be temporary and park facilities would remain open throughout the construction period.

Implementation of the proposed project would not increase the use of these existing recreational facilities. Additionally, no housing would be constructed as part of the project. Therefore, implementation of the proposed project would not have an adverse effect on existing park facilities and would not generate a demand for additional recreational facilities. Impacts to existing recreational facilities would be temporary and less than significant.

60 Dyett and Bhatia. 2010, op. cit.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment? ***(No Impact)***

The proposed project does not include construction or expansion of recreational facilities. Therefore, no impact would occur.

3.17 TRANSPORTATION

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

a. Would the project conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? ***(Less-Than-Significant Impact)***

The Contra Costa County Transportation Analysis Guidelines suggest that a detailed analysis of potential traffic impacts be prepared for projects generating more than 100 peak-hour trips. Below this threshold, project generated traffic would utilize a low amount of intersection capacity and would be less likely to alter the vehicle level of service according to the policies identified in the Contra Costa County Transportation Analysis Guidelines.

The proposed project would include replacement and modernization of equipment and infrastructure in addition to installation of solar energy generation facilities for the purpose of reducing energy consumption and improving operational efficiency. Peak trip generation potential during the construction period is evaluated below.

Short-Term Construction Impacts. As discussed in Section 1.0, Project Information, construction would begin in April 2022 and be completed by within two years. Construction activities would generally be limited to the hours between 7:00 a.m. and 6:00 p.m. on non-holiday and weekdays or as allowed by the City Municipal Code. Pile driving and similar loud activities shall be limited to 8:00 a.m. to 5:00 p.m. on non-holidays or weekdays. Construction personnel may arrive on site and depart approximately one hour prior to or after regular construction times.

Construction would require demolition of existing facilities and removal of associated debris, site preparation, grading, and construction of new facilities. It is anticipated that excavated soil would be used to balance the site and establish grades for the proposed project. Laydown and staging areas would be located within the boundaries of WCW properties.

The on-site construction workforce would consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. The number of construction employees will vary by site and activity. It is conservatively assumed that up to approximately 40

workers would be on-site during construction activities. Even if no carpooling occurs, these 40 workers would generate fewer than 100 trips during either morning or afternoon peak commute hour.

The trip generation is expected to be less than 100 peak hour trips, which is less than the established thresholds. Therefore, the project would not conflict with a program plan, ordinance or policy addressing the circulation system and the impact would be less than significant.

Operational Impacts. Upon completion of construction, it is anticipated that monthly inspection and maintenance of the equipment would occur. On a typical day, no additional trips are anticipated due to the proposed project.

b. Would the project conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)? ***(Less-Than-Significant Impact)***

Effective December 28, 2018, the CEQA Guidelines were updated and require the evaluation of VMT as the criteria for analyzing transportation impacts for land use projects. As noted in CEQA Guidelines Section 15064.3(c), the provisions of CEQA Guidelines Section 15064.3 shall apply prospectively as described in CEQA Guidelines Section 15007. A lead agency could have elected to be governed by the provisions of CEQA Guidelines Section 15064.3 immediately; however, beginning on July 1, 2020, the provisions of this section was stated to apply Statewide. The City of Richmond, as lead agency, has not yet adopted specific thresholds related to VMT metrics. *State CEQA Guidelines* Section 15064.7(c) states the following:

> When adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency is supported by substantial evidence.

While the City has not adopted specific VMT thresholds, the Contra Costa County Transportation Analysis Guidelines (June 2020) (County Guidelines) provide some precedent for analysis within the region. The County Guidelines establish screening criteria for land use projects that would not exceed an applicable threshold of significance. One of the screening criteria is for public facilities. The County Guidelines establish that public facilities (including public utilities) should be expected to cause a less-than-significant impact under CEQA and require no further VMT analysis.

As discussed above, the proposed project is anticipated to generate a low volume of traffic (i.e., fewer than 100 peak hour trips) during construction and not anticipated to result in additional operational trips once completed. Stated another way, upon completion of the project, the project will not generate any additional VMT. Because the project would produce no additional VMT upon completion of the project and the project meets screening criteria identified in the County Guidelines, the proposed project would neither conflict with nor be inconsistent with CEQA Guidelines Section 15064.3, and the impact would be less than significant.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? ***(Less-Than-Significant Impact)***

The proposed project would not change the existing roadway design within the project area. During construction, construction vehicles would be staged within the off-roadway construction site. Additional heavy vehicles may travel along major arterials and freeways during construction. Any lane closures or traffic control measures would be consistent with those published in the California Temporary Traffic Control Handbook. Implementing measures contained within the California Temporary Traffic Control Handbook would facilitate safe passage of both construction vehicles and private vehicles. As a result, the proposed project would not substantially increase hazards for vehicles due to a design feature or incompatible uses. This impact would be less than significant.

d. Would the project result in inadequate emergency access? ***(Less-Than-Significant Impact)***

Effects of the proposed project on emergency access would be limited to construction and would be temporary in nature. If lane closures are necessary during heavy equipment ingress or egress, only one lane will be closed and emergency access would still be possible along all roadways and full access would be restored upon completion of equipment movement. Therefore, the proposed project would not result in inadequate emergency access. This impact would be less than significant.

3.18 TRIBAL CULTURAL RESOURCES

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

a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)? Or

ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. ***(Less Than Significant with Mitigation Incorproated)***

Assembly Bill 52 (AB 52), which became law on January 1, 2015, provides for consultation with California Native American tribes during the CEQA environmental review process, and equates significant impacts to "tribal cultural resources" with significant environmental impacts. Public Resources Code (PRC) Section 21074 states that "tribal cultural resources" are:

- Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe and are one of the following:

- Included or determined to be eligible for inclusion in the California Register of Historical Resources.
- Included in a local register of historical resources as defined in subdivision (k) of PRC Section 5020.1.
- 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.

A "historical resource" (PRC Section 21084.1), a "unique archaeological resource" (PRC Section 21083.2(g)), or a "nonunique archaeological resource" (PRC Section 21083.2 (h)) may also be a tribal cultural resource if it is included or determined to be eligible for inclusion in the California Register.

The consultation provisions of the law require that a public agency consult with local Native American tribes that have requested placement on that agency's notification list for CEQA projects. Within 14 days of determining that a project application is complete, or a decision by a public agency to undertake a project, the lead agency must notify tribes of the opportunity to consult on the project, should a tribe have previously requested to be on the agency's notification list. California Native American tribes must be recognized by the NAHC as traditionally and culturally affiliated with the project site and must have previously requested that the lead agency notify them of projects. Tribes have 30 days following notification of a project to request consultation with the lead agency.

The purpose of consultation is to inform the lead agency in its identification and determination of the significance of tribal cultural resources. If a project is determined to result in a significant impact on an identified tribal cultural resource, the consultation process must occur and conclude prior to adoption of a Negative Declaration or Mitigated Negative Declaration, or certification of an Environmental Impact Report (PRC Sections 21080.3.1, 21080.3.2, 21082.3). To date, the WCW has received one request for consultation and tribal consultation is still ongoing.

As discussed in Section 3.5, Cultural Resources, the NWIC records search and the archaeological survey completed for the project did not identify evidence of Native American archaeological deposits or ancestral remains. The proposed project would not impact known tribal cultural resources that are listed or eligible for listing in the California Register of Historical Resources or a local register of historical resources, nor has the WCW identified a tribal cultural resource at the project sites. As noted in Section 3.5, Cultural Resources, implementation of Mitigation Measure CULT-1 would ensure that potential impacts related to previously undiscovered historic or archaeological resources and human remains, including tribal cultural resources, would be less than significant.

3.19 UTILITIES AND SERVICE SYSTEMS

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

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? ***(Less-Than-Significant Impact)***

A variety of local and regional purveyors in this area provide and maintain utility and service system facilities associated with electricity, water, stormwater, wastewater, solid waste, communications and natural gas. Several of these utilities run parallel to the water pipeline route in the form of sewer pipes, storm drains, power lines, gas mains, and telephone lines.

Water Supply. The East Bay Municipal Utilities District (EBMUD) provides water service in the Cities of Richmond and San Pablo, as well the unincorporated areas of Contra Costa County in the project area. The EBMUD's water system serves approximately 1.3 million people in a 331-square-mile area extending from Crockett to the north, south to Hayward (encompassing the major cities of Oakland and Berkeley), east from San Francisco Bay to Walnut Creek and through the San Ramon Valley.[61]

The EBMUD's Water Supply Management Plan 2040 (WSMP 2040) estimates water supply needs for the EBMUD to the year 2040 and proposes a program of policy and project initiatives to meet dry-year water needs through 2040.The WSMP 2040 takes into account demand increases and identifies and recommends solutions to meet dry-year water needs through 2040 for the EBMUD service area. EBMUD's primary source of water has been the Mokelumne River from which

[61] PBS&J. 2011, op. cit.

EBMUD has water rights that allow for delivery of up to a maximum of 325 mgd.[62] A secondary source of water is runoff from local watersheds at EBMUD terminal reservoirs in the East Bay area; much of this runoff is stored in these terminal reservoirs for system use. Average local supply put to beneficial use is 15-25 MGD during normal hydrologic years and is near zero during drought conditions.[63] EBMUD is also using water recycling as one way to help reduce the need for additional potable water supplies and the severity of water rationing during droughts.

The project would not result in the construction of new water supply facilities or expansion of such facilities. During construction, water would be required primarily for dust suppression. Water use would cease when construction is complete. Sufficient water supplies are available to provide for the project's minimal water needs during the construction phase of the project.

Upon completion, the WQRRP would operate more efficiently, requiring less energy. Water use for WQRRP operation would be the same as under existing conditions. A solar PV project uses no water, gas, or fuels for the power generation process. Periodic routine maintenance comprises inspections, service, and cleaning, which would not require significant water use. Therefore, the proposed project would not require the construction of new or expanded water infrastructure.

Wastewater. The WQRRP provides wastewater treatment for the City of San Pablo, all of the northern subdivisions of Richmond, portions of the City of Pinole, the communities of El Sobrante, East Richmond Heights, Tara Hills, Rollingwood, and Bayview and portions of unincorporated Contra Costa County. WCW would continuously operate the WQRRP through the duration of construction. Proposed improvements would enhance the energy efficiency of the existing facilities and improve the storage capacity at the WQRRP during storm events. Proposed improvement would enable the treatment facilities to more reliably accommodate existing treatment demand and would not involve an expansion of capacity to accommodate new growth. Therefore, the project would not disrupt capacity to existing users or result in an increase in capacity to serve additional customers. The proposed solar facilities would not generate additional wastewater and would not result in a change in the wastewater treatment needed.

Implementation of the project would not require or result in the relocation or construction of new or expanded wastewater treatment facilities. Implementation of the mitigation measures contained in this IS/MND would ensure that the project would not have an adverse physical effect on the environment. Therefore, this impact would be less than significant.

Stormwater. The implementation of drainage facilities in the project area falls under the jurisdiction of the City of Richmond (under contract to Veolia), City of San Pablo and Contra Costa County. In addition, the Contra Costa County Flood Control and Water Conservation District has adopted plans, which serve the cities, as well as Contra Costa County.

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62 East Bay Municipal Utility District (EBMUD). 2012. Water Supply Management Program 2040. Available online at: www.ebmud.com/water/about-your-water/water-supply/water-supply-management-program-2040/ (accessed December 12, 2020).

63 Ibid.

Improvements at the WQRRP would largely be constructed within existing paved areas and installation of the proposed solar facilities would create minimal impervious surfaces associated with some concrete for the electrical pedestals; however, the majority of these sites would remain pervious. Therefore, changes to stormwater runoff would be minimal. Implementation of the proposed project would not significantly affect the amount of on-site runoff and; therefore, would not require the expansion of stormwater facilities. No additional stormwater drainage facilities would be required. This impact would be less than significant.

Gas, Electricity and Telecommunications. Pacific Gas & Electric (PG&E) provides natural gas and electricity in the project area. Pacific Bell is the primary provider of residential and commercial telephone service in the City of San Pablo. Pacific Bell also provides or hosts a variety of telecommunication services such as Digital Subscriber Lines (DSL), Internet Service Providers (ISP), web hosting, virtual private networking, and wireless/cellular paging services. AT&T and Comcast are also ISP in the City. These networks are privately owned and maintained.[64]

The proposed project would implement improvements at the WQRRP to improve the energy efficiency at the WQRRP and install solar photovoltaic power generation systems to provide renewable energy for use through the WCW system. Therefore, implementation of the proposed project would reduce the electricity demand at the project sites. No change to existing natural gas or telecommunications usage at any of the project site are anticipated, as operation of proposed facilities would be similar to current operation. Therefore, the proposed project would not require or result in the relocation or construction of new or expanded gas, electricity or telecommunications facilities and no impact would occur.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? ***(Less-Than-Significant Impact)***

The project would not result in an increase in the amount of water that is currently distributed to the site. New or expanded water supply entitlements would not be required to serve the project. The project would require potable or reclaimed water for dust suppression during project construction. However, the amount of water required would be relatively small and would only be needed during the construction period. Once complete, operation of the WQRRP would be the same as occurs under existing conditions. Operation and maintenance of proposed solar facilities would be conducted only periodically, and limited water would be required. Therefore, a less than significant impact related to water supplies would occur as a result of implementation of the project.

[64] Dyett and Bhatia. 2010, op. cit.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? ***(Less-Than-Significant Impact)***

Refer to Section 3.19.a above. Implementation of the project would not result in a change in the wastewater treatment needed. Impacts related to wastewater treatment would be less than significant.

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? ***(Less-Than-Significant Impact)***

Project construction would generate wastes including construction materials, trench spoils, and general refuse, and these wastes would need to be disposed of in local or regional facilities. Waste generated from construction could include: non-hazardous metal waste, non-hazardous non-metal waste (concrete rubble, organic waste [vegetation], boxes and crates, refuse from construction workers), trenching spoils (rubble, soils, broken asphalt), and hazardous wastes. As outlined in the project description, it is anticipated that excavated soil would be used to balance the site and establish grades for the proposed project. Minimal metal debris would be recycled off-site. It is not anticipated that construction waste would exceed the capacity of local landfills or the transfer station.

The former West Contra Costa Sanitary Landfill is located just north of the WQRRP. This landfill site was closed in 2006 and a portion of the site is planned to be used for additional material sorting and recovery operations, including green waste and food waste composting and construction and demolition debris sorting and recycling. The closest landfill to the project site is the Acme Landfill in Martinez (approximately 15 miles east), which has limited remaining capacity and is anticipated to close in June 2021. Other landfills in the area include: Keller Canyon Landfill (approximately 24 miles east) and the Potrero Hills Landfill (approximately 25 miles northeast). As of November 2004, the Keller Canyon Landfill had remaining capacity of 63.4 million cubic yards, with a total capacity of 75 million cubic yards.[65] As of January 2006, the Potrero Hills Landfill had remaining capacity of 13.8 million cubic yards, with a total capacity of 83.1 million cubic yards.[66] The quantity of solid waste materials associated with construction would be limited to the construction period, and would not pose a significant impact upon existing landfills. No additional solid waste would be generated by long-term operations of the proposed project. Impacts related to solid waste disposal are considered less than significant.

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65 CalRecycle. 2019. Facility/Site Summary Details: Keller Canyon Landfill (07-AA-032). Website: www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/4407?siteID=228 (accessed December 11, 2020).

66 Ibid.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? ***(Less-Than-Significant Impact)***

The California Integrated Waste Management Act (AB 939) changed the focus of solid waste management from landfill to diversion strategies such as source reduction, recycling, and composting. The purpose of the diversion strategies is to reduce dependence on landfills for solid waste disposal. AB 939 established mandatory diversion goals of 25 percent by 1995 and 50 percent by 2000, and to maintain the 50 percent diversion rate thereafter. The Cities of Richmond and San Pablo and Contra Costa County are part of the West Contra Costa Integrated Waste Management Authority (WCCIWMA or RecycleMore), which was created after AB 939 was passed. West Contra Costa County met the 50 percent diversion rate of wastes from landfills during construction and demolition activities in 2006 and continues to work to maintain this level of diversion, in compliance with AB 939.[67] In 2008, the California Integrated Waste Management Board (now part of the Department of Conservation's Division of Recycling) updated the system for determining diversion goals for each city. At present, per capita landfill disposal limits are determined each year and RecycleMore works with the West County jurisdictions to meet these goals.

As described in Section 3.19.d, implementation of the project would generate solid waste associated with construction activities. To the extent possible, solid waste would be recycled either on-site or transported to a local disposal center for recycling. Solid waste generation would be limited to the construction period; no solid waste would be generated from long-term operation of the proposed project. The proposed project would comply with federal, State, and local statutes and regulations related to solid waste. This impact would be less than significant.

[67] RecycleMore. 2020. RecycleMore FAQ. Website: www.recyclemore.com/content/recyclemore-faq (accessed December 11, 2020).

3.20 WILDFIRE

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

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan? ***(No Impact)***

The project site is not located within any State responsibility areas (SRA) for fire service,[68] and is not within a very high fire hazard severity zone.[69] In addition, as noted in Section 3.9.f, the proposed project would not impair the implementation of, or physically interfere with, an adopted emergency response plan and no impact would occur.

b. Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? ***(No Impact)***

Refer to Section 3.20.a. Additionally, as noted in Section 1.0, Project Information, the project site is generally level, and is bound by existing development on all sides. Therefore, the proposed project would not exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire and no impact would occur.

68 CalFire. 2007. Contra Costa County Fire Hazard Severity Zones in SRA (map). November 7. Available at: osfm.fire.ca.gov/media/6662/fhszs_map7.pdf (accessed November 19, 2020).

69 CalFire. 2009, op. cit.

c. Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? ***(No Impact)***

Refer to Section 3.20.a. The proposed project is not located within an SRA for fire service and is not within a very high fire hazard severity zone. Therefore, the proposed project would not require the installation or maintenance of associated infrastructure and no impact would occur.

d. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes? ***(No Impact)***

Refer to Section 3.20.a and 3.20.b. The project site is not located within an SRA for fire service or a very high fire hazard severity zone. Therefore, the proposed project would not expose people or structures to significant risks as a result of post-fire slope instability or drainage and runoff changes and no impact would occur.

3.21 MANDATORY FINDINGS OF SIGNIFICANCE

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

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? ***(Less Than Significant with Mitigation Incorporated)***

Implementation of the mitigation measures recommended in this IS/MND would ensure that the construction and operation of the proposed project would not substantially degrade the quality of the environment; reduce the habitat, population, or range of a plant or animal species; or eliminate important examples of California history or prehistory. As described in Section 3.4, Biological Resources the proposed project would not result in impacts to biological resources, with the exception of potential impacts to nesting birds and salt marsh harvest mice. Mitigation measures are recommended to minimize impacts to nesting birds and salt marsh harvest mice to a less than significant level. As discussed in Section 3.5, Cultural Resources, in the event that unanticipated archeological/historical resources and/or human remains are identified in the project area during construction, mitigation measures would be implemented to reduce potential impacts to a less-than-significant level.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? ***(Less-Than-Significant Impact)***

The CEQA Guidelines require a discussion of significant environmental impacts that would result from project-related actions in combination with "closely related past, present, and probably future projects: located in the immediate vicinity (CEQA Guidelines Section 15130[b][1][A]). Cumulative environmental impacts are those impacts that by themselves are not significant, but when considered with impacts occurring from other projects in the vicinity would result in a cumulative impact. Related projects considered to have the potential of creating cumulative impacts in association with the proposed project consist of projects that are reasonably foreseeable and that would be constructed or operated during the life of the proposed project.

The proposed WQRRP project, which would comprises the majority of construction activities, would be located in a highly developed urban area that is largely built out. According to the City of Richmond development activity list,[70] no other projects have been approved or are currently under review in the project vicinity and could be under construction concurrently with the proposed project. As described in this IS/MND, impacts associated with the proposed project would be largely temporary, construction-related and would be reduced to less than significant with implementation of the mitigation measures contained herein. Therefore, the proposed project would not make a considerable contribution towards a cumulative impact related to construction impacts. The proposed project would provide renewable energy for use at the project sites and would not result in individual operation period impacts or make a considerable contribution to permanent operation-period impacts of other projects in the vicinity or the region.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ***(Less Than Significant with Mitigation Incorporated)***

As described in this IS/MND, any potential environmental impacts from the project would be reduced to less than significant with the implementation of the recommended mitigation measures. With implementation of measures both incorporated into the project design and recommended as mitigations to reduce the impacts associated with air quality, biological resources, cultural resources, geology and soils, and noise the project would not result in substantial adverse effects on human beings.

[70] Richmond, City of. 2021. Under Review Planning Projects List & Staff Directory. Available online at: www.ci.richmond.ca.us/DocumentCenter/View/30802/Projects-List-by-Neighborhood?bidId= (accessed January 19, 2021).

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5.0 REFERENCES

Association of Bay Area Governments and Metropolitan Transportation Commission. 2013. *Plan Bay Area.* July 18.

Bay Area Air Quality Management District. 2017. *CEQA Air Quality Guidelines*. May.

Bay Area Air Quality Management District. 2017. *Clean Air Plan*. April 19.

Bay Area Governments (ABAG). 1997. Landslide Hazard (Rainfall Induced) Map. Available online at: www.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8 (accessed November 20, 2020).

CalFire. 2007. Contra Costa County Fire Hazard Severity Zones in SRA (map). November 7. Available online at: osfm.fire.ca.gov/media/6662/fhszs_map7.pdf (accessed November 19, 2020).

CalFire. 2009. Contra Costa County Very High Fire Hazard Severity Zones in LRA. January 7. Available online at: osfm.fire.ca.gov/media/6660/fhszl_map7.pdf (accessed November 19, 2020).

California Air Resources Board (CARB). 2020. California Greenhouse Gas Emission Inventory Program. California Greenhouse Gas Emissions for 2000 to 2018, Trends of Emissions and Other Indicators. 2019 Edition. Webpage last reviewed by CARB in 2020. Website: ww2.arb.ca.gov/our-work/programs/ghg-inventory-program (accessed February 23, 2021).

California Department of Conservation. 2016. California Important Farmland Finder. Website: maps.conservation.ca.gov/DLRP/CIFF/ (accessed November 17, 2020).

California Department of Fish and Wildlife (CDFW). 2020. California Natural Diversity Database (CNDDB) - Commercial Version, December 2020. California Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, California.

California Department of Transportation (Caltrans). 2018. California State Scenic Highway System Map. Available online at: www.arcgis.com/apps/webappviewer/index.html?id=2e921695c43643b1aaf7000dfcc19983 (accessed December 10, 2020).

California Energy Commission (CEC). 2021. Diesel Fuel Data, Facts, and Statistics. Available online at: www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/diesel-fuel-data-facts-and-statistics (accessed February 23, 2021).

California Energy Commission. 2018. Energy Consumption Data Management Service. Electricity Consumption by County. Available online at: www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed January 2021).

California Energy Commission. 2018. Energy Consumption Data Management Service. Gas Consumption by County. Available online at: www.ecdms.energy.ca.gov/gasbycounty.aspx (accessed January 2021).

California Energy Commission. 2020. 2019 Integrated Energy Policy Report. California Energy Commission. Publication Number: CEC-100-2019-001-CMF. January.

California Geological Survey (CGS). 2018. California Earthquake Hazards Zone Application. Website: maps.conservation.ca.gov/cgs/EQZApp/app/ (accessed November 20, 2020).

California Invasive Plant Council. 2006. The Cal-IPC Inventory. Available online at: www.cal-ipc.org/ip/inventory (accessed December 15, 2020)

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website: www.rareplants.cnps.org (accessed December 9, 2020).

California, State of. 2009. California Emergency Management Agency. Tsunami Inundation Map for Emergency Planning Richmond Quadrangle/San Quentin Quadrangle. July 31. Available online at: www.conservation.ca.gov/cgs/Documents/Publications/Tsunami-Maps/Tsunami_Inundation_RichmondSanQuentin_Quads_ContraCosta.pdf (accessed December 14, 2020).

CalRecycle. 2019. Facility/Site Summary Details: Keller Canyon Landfill (07-AA-032). Website: www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/4407?siteID=228 (accessed December 11, 2020).

Contra Costa County. 2015. *Contra Costa County Climate Action Plan*. December 15.

Contra Costa County. 2016. 2016 Agricultural Preserves Map. Available online at: www.contracosta.ca.gov/DocumentCenter/View/882/Map-of-Properties-Under-Contract?bidId= (accessed November 17, 2020).

Dyett and Bhatia. 2010. San Pablo General Plan 2030, Volume 3: Draft Environmental Impact Report, Public Review Draft. SCH No. 2008082069. November.

East Bay Municipal Utility District (EBMUD). 2012. Water Supply Management Program 2040. Available online at: www.ebmud.com/water/about-your-water/water-supply/water-supply-management-program-2040/ (accessed December 12, 2020).

Environmental Protection Agency. 2020. Hazardous Waste. Available online at: www.epa.gov/hw (accessed December 13, 2020).

Federal Emergency Management Agency. FEMA Flood Map Service Center. Website: msc.fema.gov/portal/home (accessed December 14, 2020).

Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment Manual. September.

Koenig, Heidi. 2014. Cultural Resources Survey Report, West County Wastewater District Water Pollution Control Plant, Richmond, Contra Costa County. Prepared for the West County Wastewater District.

Metropolitan Transportation Commission (MTC)/Association of Bay Area Governments (ABAG). 2006. Earthquake Liquefaction Susceptibility Map. Available online at: mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8 (accessed April 16, 2020).

Metropolitan Transportation Commission (MTC)/Association of Bay Area Governments (ABAG). 2018. Probabilistic Earthquake Shaking Hazard Map, Available online at: mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8 (accessed November 20, 2020).

PBS&J. 2011. Richmond General Plan Draft Environmental Impact Report. February. Available online at: www.ci.richmond.ca.us/DocumentCenter/View/29113/General-Plan-2030---DEIR (accessed December 8, 2020).

PBS&J. 2011. Richmond General Plan Draft Environmental Impact Report. February.

RecycleMore. 2020. RecycleMore FAQ. Website: www.recyclemore.com/content/recyclemore-faq (accessed December 11, 2020).

Richmond, City of. 2016. *City of Richmond Climate Action Plan*. October.

Richmond, City of. 2016. *Department Facts.* Available online at: www.ci.richmond.ca.us/1483/Department-Facts (accessed March 30, 2016).

Richmond, City of. 2021. Under Review Planning Projects List & Staff Directory. Available online at: www.ci.richmond.ca.us/DocumentCenter/View/30802/Projects-List-by-Neighborhood?bidId= (accessed January 19, 2021).

Richmond, City of. Responsibilities of the Office of Emergency Services. Avaliable online at: www.ci.richmond.ca.us/2009/Responsibilities (accessed December 13, 2020).

San Francisco Bay Conservation and Development Commission. 2020. *San Francisco Bay Plan*. San Francisco Bay Conservation and Development Commission, San Francisco.

San Pablo, City of. 2012. Comprehensive Emergency Management Plan. Available online at: www.sanpabloca.gov/DocumentCenter/View/2521/Comprehensive-Emergency-Mgmt-Plan-APPROVED-10-3-2012?bidId= (accessed January 25, 2021).

San Pablo, City of. 2015. *City of San Pablo Climate Action Plan*.

State Water Resources Control Board. 2017. Water Quality Control Plan for the San Francisco Bay Basin. May. Available online at: www.waterboards.ca.gov/sanfranciscobay/basin_planning.html (accessed December 14, 2020).

State Water Resources Control Board. 2020. Geotracker website application. Available online at: geotracker.waterboards.ca.gov/ (accessed December 13, 2020).

United States Department of Agriculture Soil Conservation Service. 2019. Web Soil Survey. Available online at: websoilsurvey.sc.egov.usda.gov/App/HomePage.htm (accessed December 12, 2020).

United States Department of Agriculture Soil Conservation Service. 1977. Soil Survey of Contra Costa County. Available online at: www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA013/0/contracosta.pdf (accessed December 12, 2020).

United States Department of Agriculture Soil Conservation Service, 2019. op. cit.

United States Department of Transportation. 2017. Hazardous Materials Regulations. Available online at: www.phmsa.dot.gov/standards-rulemaking/hazmat/hazardous-materials-regulations (accessed December 13, 2020).

United States Energy Information Administration (EIA). 2018a. “California -Profile Overview.” Last modified: January 16, 2020. www.eia.gov/state/?sid=CA (accessed February 23, 2021).

United States Geological Survey. 2018. The Modified Mercalli Intensity Scale. Available online at: www.usgs.gov/natural-hazards/earthquake-hazards/science/modified-mercalli-intensity-scale?qt-science_center_objects=0#qt-science_center_objects (accessed November 20, 2020).

West County Wastewater District. 2014. District Master Plan - Executive Summary. December.

West County Wastewater District. About Us. Website: www.wcwd.org/about-us/ (accessed November 16, 2020).

APPENDIX A

AIR QUALITY MODELING RESULTS

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West County Wastewater District Energy Project

Contra Costa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	4.40	1000sqft	0.10	4,400.00	0
Other Asphalt Surfaces	2.00	Acre	2.00	87,120.00	0
Other Non-Asphalt Surfaces	152.22	1000sqft	3.49	152,215.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - WQRRP new infrastructure 4,400 sf. PV array: Atlas Pump Sta 4,000 sf, WCW HQ 2,015 sf, Lakeside Pump Sta. 7,200 sf, Tara Hills Pump Sta. 24,000 sf, WQRRP 115,000 sf. Conservative estimate of 2-ac of paved surfaces.

Construction Phase - Anticipated construction duration of 48 months.

Off-road Equipment -

Off-road Equipment - Concrete and Motar Mixer added per provided construction equipment list.

Off-road Equipment -

Off-road Equipment - Drilling Rigs added per provided construction equipment list.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Conservative approach of approx. 40 construction workers on-site each day. Building construction trips left default.

Demolition - Conservative estimate of demolition material being removed (100 tons).

Grading -

Vehicle Trips -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating -

Construction Off-road Equipment Mitigation - All off-road equipment over 50 HP will utilize EPA Tier 2 engines. Water exposed area at least three times daily.

Energy Mitigation - Conservative estimate of 20% reduction from implementation of PV array across all WCW project sites.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	230.00	400.00
tblConstructionPhase	NumDays	10.00	40.00
tblLandUse	LandUseSquareFeet	152,220.00	152,215.00
tblOffRoadEquipment	LoadFactor	0.50	0.50

tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblTripsAndVMT	WorkerTripNumber	18.00	40.00
tblTripsAndVMT	WorkerTripNumber	18.00	40.00
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblTripsAndVMT	WorkerTripNumber	20.00	40.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2290	2.2267	1.6050	3.3600e-003	0.4804	0.1056	0.5859	0.2466	0.0980	0.3446	0.0000	297.3421	297.3421	0.0658	0.0000	298.9866
2022	0.2835	2.6113	2.5744	5.9300e-003	0.1394	0.1088	0.2481	0.0379	0.1024	0.1403	0.0000	526.0360	526.0360	0.0805	0.0000	528.0489
2023	0.1558	0.7072	0.8198	1.8000e-003	0.0417	0.0297	0.0714	0.0113	0.0279	0.0392	0.0000	159.3216	159.3216	0.0267	0.0000	159.9898
Maximum	**0.2835**	**2.6113**	**2.5744**	**5.9300e-003**	**0.4804**	**0.1088**	**0.5859**	**0.2466**	**0.1024**	**0.3446**	**0.0000**	**526.0360**	**526.0360**	**0.0805**	**0.0000**	**528.0489**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1181	2.3759	1.7785	3.3600e-003	0.2193	0.0705	0.2899	0.1048	0.0705	0.1753	0.0000	297.3419	297.3419	0.0658	0.0000	298.9863
2022	0.2168	3.5659	2.7565	5.9300e-003	0.1394	0.1142	0.2536	0.0379	0.1141	0.1520	0.0000	526.0356	526.0356	0.0805	0.0000	528.0486
2023	0.1407	1.0984	0.8967	1.8000e-003	0.0417	0.0362	0.0779	0.0113	0.0362	0.0475	0.0000	159.3214	159.3214	0.0267	0.0000	159.9897
Maximum	**0.2168**	**3.5659**	**2.7565**	**5.9300e-003**	**0.2193**	**0.1142**	**0.2899**	**0.1048**	**0.1141**	**0.1753**	**0.0000**	**526.0356**	**526.0356**	**0.0805**	**0.0000**	**528.0486**

West County Wastewater District Energy Project - Contra Costa County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**28.84**	**-26.96**	**-8.65**	**0.00**	**39.46**	**9.46**	**31.38**	**47.94**	**3.32**	**28.50**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-1-2021**	**8-31-2021**	1.3287	1.1481
2	**9-1-2021**	**11-30-2021**	0.8419	1.0040
3	**12-1-2021**	**2-28-2022**	0.7427	0.9407
4	**3-1-2022**	**5-31-2022**	0.7314	0.9558
5	**6-1-2022**	**8-31-2022**	0.7304	0.9549
6	**9-1-2022**	**11-30-2022**	0.7243	0.9463
7	**12-1-2022**	**2-28-2023**	0.6673	0.9142
8	**3-1-2023**	**5-31-2023**	0.4483	0.6550
		Highest	1.3287	1.1481

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0401	1.0000e-005	1.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8300e-003	2.8300e-003	1.0000e-005	0.0000	3.0200e-003
Energy	5.9000e-004	5.3400e-003	4.4800e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	15.4882	15.4882	5.5000e-004	2.0000e-004	15.5607
Mobile	5.3700e-003	0.0234	0.0668	2.6000e-004	0.0253	2.0000e-004	0.0255	6.7700e-003	1.9000e-004	6.9600e-003	0.0000	24.0550	24.0550	7.5000e-004	0.0000	24.0738
Waste						0.0000	0.0000		0.0000	0.0000	1.1083	0.0000	1.1083	0.0655	0.0000	2.7458
Water						0.0000	0.0000		0.0000	0.0000	0.3228	1.6017	1.9245	0.0332	8.0000e-004	2.9929
Total	**0.0460**	**0.0287**	**0.0727**	**2.9000e-004**	**0.0253**	**6.2000e-004**	**0.0259**	**6.7700e-003**	**6.1000e-004**	**7.3800e-003**	**1.4311**	**41.1477**	**42.5788**	**0.1000**	**1.0000e-003**	**45.3762**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0401	1.0000e-005	1.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8300e-003	2.8300e-003	1.0000e-005	0.0000	3.0200e-003
Energy	5.9000e-004	5.3400e-003	4.4800e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	13.5528	13.5528	4.6000e-004	1.8000e-004	13.6177
Mobile	5.3700e-003	0.0234	0.0668	2.6000e-004	0.0253	2.0000e-004	0.0255	6.7700e-003	1.9000e-004	6.9600e-003	0.0000	24.0550	24.0550	7.5000e-004	0.0000	24.0738
Waste						0.0000	0.0000		0.0000	0.0000	1.1083	0.0000	1.1083	0.0655	0.0000	2.7458
Water						0.0000	0.0000		0.0000	0.0000	0.3228	1.6017	1.9245	0.0332	8.0000e-004	2.9929
Total	**0.0460**	**0.0287**	**0.0727**	**2.9000e-004**	**0.0253**	**6.2000e-004**	**0.0259**	**6.7700e-003**	**6.1000e-004**	**7.3800e-003**	**1.4311**	**39.2123**	**40.6434**	**0.1000**	**9.8000e-004**	**43.4333**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.70**	**4.55**	**0.09**	**2.00**	**4.28**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2021	6/28/2021	5	20	
2	Site Preparation	Site Preparation	6/29/2021	8/23/2021	5	40	
3	Grading	Grading	8/24/2021	9/20/2021	5	20	
4	Building Construction	Building Construction	9/21/2021	4/3/2023	5	400	
5	Paving	Paving	4/4/2023	5/1/2023	5	20	
6	Architectural Coating	Architectural Coating	5/2/2023	5/29/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 5.49

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 6,600; Non-Residential Outdoor: 2,200; Striped Parking Area: 14,360 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Grading	Bore/Drill Rigs	1	8.00	221	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	40.00	0.00	10.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	10	102.00	40.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0700e-003	0.0000	1.0700e-003	1.6000e-004	0.0000	1.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3144	0.2157	3.9000e-004		0.0155	0.0155		0.0144	0.0144	0.0000	34.0008	34.0008	9.5700e-003	0.0000	34.2400
Total	**0.0317**	**0.3144**	**0.2157**	**3.9000e-004**	**1.0700e-003**	**0.0155**	**0.0166**	**1.6000e-004**	**0.0144**	**0.0146**	**0.0000**	**34.0008**	**34.0008**	**9.5700e-003**	**0.0000**	**34.2400**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.3400e-003	2.7000e-004	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.3745	0.3745	2.0000e-005	0.0000	0.3749
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	8.7000e-004	9.1600e-003	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.6845	2.6845	6.0000e-005	0.0000	2.6860
Total	**1.2800e-003**	**2.2100e-003**	**9.4300e-003**	**3.0000e-005**	**3.2500e-003**	**2.0000e-005**	**3.2800e-003**	**8.6000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**3.0590**	**3.0590**	**8.0000e-005**	**0.0000**	**3.0609**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.2000e-004	0.0000	4.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0126	0.3266	0.2467	3.9000e-004		9.1400e-003	9.1400e-003		9.1400e-003	9.1400e-003	0.0000	34.0007	34.0007	9.5700e-003	0.0000	34.2400
Total	**0.0126**	**0.3266**	**0.2467**	**3.9000e-004**	**4.2000e-004**	**9.1400e-003**	**9.5600e-003**	**6.0000e-005**	**9.1400e-003**	**9.2000e-003**	**0.0000**	**34.0007**	**34.0007**	**9.5700e-003**	**0.0000**	**34.2400**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.3400e-003	2.7000e-004	0.0000	8.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	3.0000e-005	0.0000	0.3745	0.3745	2.0000e-005	0.0000	0.3749
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	8.7000e-004	9.1600e-003	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.6845	2.6845	6.0000e-005	0.0000	2.6860
Total	**1.2800e-003**	**2.2100e-003**	**9.4300e-003**	**3.0000e-005**	**3.2500e-003**	**2.0000e-005**	**3.2800e-003**	**8.6000e-004**	**2.0000e-005**	**8.9000e-004**	**0.0000**	**3.0590**	**3.0590**	**8.0000e-005**	**0.0000**	**3.0609**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3613	0.0000	0.3613	0.1986	0.0000	0.1986	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0778	0.8099	0.4231	7.6000e-004		0.0409	0.0409		0.0376	0.0376	0.0000	66.8714	66.8714	0.0216	0.0000	67.4121
Total	**0.0778**	**0.8099**	**0.4231**	**7.6000e-004**	**0.3613**	**0.0409**	**0.4022**	**0.1986**	**0.0376**	**0.2362**	**0.0000**	**66.8714**	**66.8714**	**0.0216**	**0.0000**	**67.4121**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4800e-003	1.7300e-003	0.0183	6.0000e-005	6.3400e-003	4.0000e-005	6.3900e-003	1.6900e-003	4.0000e-005	1.7300e-003	0.0000	5.3690	5.3690	1.2000e-004	0.0000	5.3720
Total	**2.4800e-003**	**1.7300e-003**	**0.0183**	**6.0000e-005**	**6.3400e-003**	**4.0000e-005**	**6.3900e-003**	**1.6900e-003**	**4.0000e-005**	**1.7300e-003**	**0.0000**	**5.3690**	**5.3690**	**1.2000e-004**	**0.0000**	**5.3720**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1409	0.0000	0.1409	0.0775	0.0000	0.0775	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0242	0.6744	0.4592	7.6000e-004		0.0189	0.0189		0.0189	0.0189	0.0000	66.8714	66.8714	0.0216	0.0000	67.4120
Total	**0.0242**	**0.6744**	**0.4592**	**7.6000e-004**	**0.1409**	**0.0189**	**0.1598**	**0.0775**	**0.0189**	**0.0964**	**0.0000**	**66.8714**	**66.8714**	**0.0216**	**0.0000**	**67.4120**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4800e-003	1.7300e-003	0.0183	6.0000e-005	6.3400e-003	4.0000e-005	6.3900e-003	1.6900e-003	4.0000e-005	1.7300e-003	0.0000	5.3690	5.3690	1.2000e-004	0.0000	5.3720
Total	**2.4800e-003**	**1.7300e-003**	**0.0183**	**6.0000e-005**	**6.3400e-003**	**4.0000e-005**	**6.3900e-003**	**1.6900e-003**	**4.0000e-005**	**1.7300e-003**	**0.0000**	**5.3690**	**5.3690**	**1.2000e-004**	**0.0000**	**5.3720**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0255	0.2778	0.1794	3.9000e-004		0.0125	0.0125		0.0115	0.0115	0.0000	34.3692	34.3692	0.0111	0.0000	34.6471
Total	**0.0255**	**0.2778**	**0.1794**	**3.9000e-004**	**0.0655**	**0.0125**	**0.0780**	**0.0337**	**0.0115**	**0.0452**	**0.0000**	**34.3692**	**34.3692**	**0.0111**	**0.0000**	**34.6471**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	8.7000e-004	9.1600e-003	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.6845	2.6845	6.0000e-005	0.0000	2.6860
Total	**1.2400e-003**	**8.7000e-004**	**9.1600e-003**	**3.0000e-005**	**3.1700e-003**	**2.0000e-005**	**3.1900e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.6845**	**2.6845**	**6.0000e-005**	**0.0000**	**2.6860**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0256	0.0000	0.0256	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.3441	0.2408	3.9000e-004		9.4500e-003	9.4500e-003		9.4500e-003	9.4500e-003	0.0000	34.3691	34.3691	0.0111	0.0000	34.6470
Total	**0.0124**	**0.3441**	**0.2408**	**3.9000e-004**	**0.0256**	**9.4500e-003**	**0.0350**	**0.0131**	**9.4500e-003**	**0.0226**	**0.0000**	**34.3691**	**34.3691**	**0.0111**	**0.0000**	**34.6470**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2400e-003	8.7000e-004	9.1600e-003	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.6845	2.6845	6.0000e-005	0.0000	2.6860
Total	**1.2400e-003**	**8.7000e-004**	**9.1600e-003**	**3.0000e-005**	**3.1700e-003**	**2.0000e-005**	**3.1900e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.6845**	**2.6845**	**6.0000e-005**	**0.0000**	**2.6860**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0725	0.6586	0.6247	1.0200e-003		0.0360	0.0360		0.0339	0.0339	0.0000	87.4014	87.4014	0.0209	0.0000	87.9227
Total	**0.0725**	**0.6586**	**0.6247**	**1.0200e-003**		**0.0360**	**0.0360**		**0.0339**	**0.0339**	**0.0000**	**87.4014**	**87.4014**	**0.0209**	**0.0000**	**87.9227**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.8400e-003	0.1530	0.0389	4.0000e-004	9.7300e-003	3.4000e-004	0.0101	2.8100e-003	3.3000e-004	3.1400e-003	0.0000	38.2587	38.2587	1.7800e-003	0.0000	38.3031
Worker	0.0117	8.1700e-003	0.0864	2.8000e-004	0.0299	1.9000e-004	0.0301	7.9600e-003	1.8000e-004	8.1400e-003	0.0000	25.3282	25.3282	5.8000e-004	0.0000	25.3426
Total	**0.0165**	**0.1612**	**0.1253**	**6.8000e-004**	**0.0397**	**5.3000e-004**	**0.0402**	**0.0108**	**5.1000e-004**	**0.0113**	**0.0000**	**63.5869**	**63.5869**	**2.3600e-003**	**0.0000**	**63.6457**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0473	0.8648	0.6695	1.0200e-003		0.0324	0.0324		0.0324	0.0324	0.0000	87.4013	87.4013	0.0209	0.0000	87.9226
Total	**0.0473**	**0.8648**	**0.6695**	**1.0200e-003**		**0.0324**	**0.0324**		**0.0324**	**0.0324**	**0.0000**	**87.4013**	**87.4013**	**0.0209**	**0.0000**	**87.9226**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.8400e-003	0.1530	0.0389	4.0000e-004	9.7300e-003	3.4000e-004	0.0101	2.8100e-003	3.3000e-004	3.1400e-003	0.0000	38.2587	38.2587	1.7800e-003	0.0000	38.3031
Worker	0.0117	8.1700e-003	0.0864	2.8000e-004	0.0299	1.9000e-004	0.0301	7.9600e-003	1.8000e-004	8.1400e-003	0.0000	25.3282	25.3282	5.8000e-004	0.0000	25.3426
Total	**0.0165**	**0.1612**	**0.1253**	**6.8000e-004**	**0.0397**	**5.3000e-004**	**0.0402**	**0.0108**	**5.1000e-004**	**0.0113**	**0.0000**	**63.5869**	**63.5869**	**2.3600e-003**	**0.0000**	**63.6457**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2295	2.0779	2.1673	3.5900e-003		0.1070	0.1070		0.1008	0.1008	0.0000	307.2004	307.2004	0.0728	0.0000	309.0201
Total	**0.2295**	**2.0779**	**2.1673**	**3.5900e-003**		**0.1070**	**0.1070**		**0.1008**	**0.1008**	**0.0000**	**307.2004**	**307.2004**	**0.0728**	**0.0000**	**309.0201**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0159	0.5077	0.1281	1.3900e-003	0.0342	1.0500e-003	0.0353	9.8900e-003	1.0000e-003	0.0109	0.0000	133.1487	133.1487	5.9200e-003	0.0000	133.2966
Worker	0.0382	0.0257	0.2790	9.5000e-004	0.1052	6.7000e-004	0.1058	0.0280	6.1000e-004	0.0286	0.0000	85.6869	85.6869	1.8100e-003	0.0000	85.7322
Total	**0.0540**	**0.5334**	**0.4070**	**2.3400e-003**	**0.1394**	**1.7200e-003**	**0.1411**	**0.0379**	**1.6100e-003**	**0.0395**	**0.0000**	**218.8356**	**218.8356**	**7.7300e-003**	**0.0000**	**219.0288**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1627	3.0325	2.3495	3.5900e-003		0.1125	0.1125		0.1125	0.1125	0.0000	307.2000	307.2000	0.0728	0.0000	309.0197
Total	**0.1627**	**3.0325**	**2.3495**	**3.5900e-003**		**0.1125**	**0.1125**		**0.1125**	**0.1125**	**0.0000**	**307.2000**	**307.2000**	**0.0728**	**0.0000**	**309.0197**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0159	0.5077	0.1281	1.3900e-003	0.0342	1.0500e-003	0.0353	9.8900e-003	1.0000e-003	0.0109	0.0000	133.1487	133.1487	5.9200e-003	0.0000	133.2966
Worker	0.0382	0.0257	0.2790	9.5000e-004	0.1052	6.7000e-004	0.1058	0.0280	6.1000e-004	0.0286	0.0000	85.6869	85.6869	1.8100e-003	0.0000	85.7322
Total	**0.0540**	**0.5334**	**0.4070**	**2.3400e-003**	**0.1394**	**1.7200e-003**	**0.1411**	**0.0379**	**1.6100e-003**	**0.0395**	**0.0000**	**218.8356**	**218.8356**	**7.7300e-003**	**0.0000**	**219.0288**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0538	0.4869	0.5462	9.1000e-004		0.0236	0.0236		0.0222	0.0222	0.0000	78.0079	78.0079	0.0184	0.0000	78.4667
Total	**0.0538**	**0.4869**	**0.5462**	**9.1000e-004**		**0.0236**	**0.0236**		**0.0222**	**0.0222**	**0.0000**	**78.0079**	**78.0079**	**0.0184**	**0.0000**	**78.4667**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0400e-003	0.0981	0.0290	3.4000e-004	8.6800e-003	1.2000e-004	8.8000e-003	2.5100e-003	1.1000e-004	2.6200e-003	0.0000	32.8584	32.8584	1.2400e-003	0.0000	32.8893
Worker	9.0300e-003	5.8700e-003	0.0651	2.3000e-004	0.0267	1.7000e-004	0.0269	7.1000e-003	1.5000e-004	7.2500e-003	0.0000	20.9063	20.9063	4.1000e-004	0.0000	20.9166
Total	**0.0121**	**0.1040**	**0.0941**	**5.7000e-004**	**0.0354**	**2.9000e-004**	**0.0357**	**9.6100e-003**	**2.6000e-004**	**9.8700e-003**	**0.0000**	**53.7647**	**53.7647**	**1.6500e-003**	**0.0000**	**53.8060**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0406	0.7684	0.5958	9.1000e-004		0.0283	0.0283		0.0283	0.0283	0.0000	78.0078	78.0078	0.0184	0.0000	78.4666
Total	**0.0406**	**0.7684**	**0.5958**	**9.1000e-004**		**0.0283**	**0.0283**		**0.0283**	**0.0283**	**0.0000**	**78.0078**	**78.0078**	**0.0184**	**0.0000**	**78.4666**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0400e-003	0.0981	0.0290	3.4000e-004	8.6800e-003	1.2000e-004	8.8000e-003	2.5100e-003	1.1000e-004	2.6200e-003	0.0000	32.8584	32.8584	1.2400e-003	0.0000	32.8893
Worker	9.0300e-003	5.8700e-003	0.0651	2.3000e-004	0.0267	1.7000e-004	0.0269	7.1000e-003	1.5000e-004	7.2500e-003	0.0000	20.9063	20.9063	4.1000e-004	0.0000	20.9166
Total	**0.0121**	**0.1040**	**0.0941**	**5.7000e-004**	**0.0354**	**2.9000e-004**	**0.0357**	**9.6100e-003**	**2.6000e-004**	**9.8700e-003**	**0.0000**	**53.7647**	**53.7647**	**1.6500e-003**	**0.0000**	**53.8060**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0130**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0700e-003	7.0000e-004	7.7400e-003	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.4844	2.4844	5.0000e-005	0.0000	2.4856
Total	**1.0700e-003**	**7.0000e-004**	**7.7400e-003**	**3.0000e-005**	**3.1700e-003**	**2.0000e-005**	**3.1900e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.4844**	**2.4844**	**5.0000e-005**	**0.0000**	**2.4856**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.3100e-003	0.2012	0.1730	2.3000e-004		6.6700e-003	6.6700e-003		6.6700e-003	6.6700e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	2.6200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0119**	**0.2012**	**0.1730**	**2.3000e-004**		**6.6700e-003**	**6.6700e-003**		**6.6700e-003**	**6.6700e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0700e-003	7.0000e-004	7.7400e-003	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.4844	2.4844	5.0000e-005	0.0000	2.4856
Total	**1.0700e-003**	**7.0000e-004**	**7.7400e-003**	**3.0000e-005**	**3.1700e-003**	**2.0000e-005**	**3.1900e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.4844**	**2.4844**	**5.0000e-005**	**0.0000**	**2.4856**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0729					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.0748**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0700e-003	7.0000e-004	7.7400e-003	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.4844	2.4844	5.0000e-005	0.0000	2.4856
Total	**1.0700e-003**	**7.0000e-004**	**7.7400e-003**	**3.0000e-005**	**3.1700e-003**	**2.0000e-005**	**3.1900e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.4844**	**2.4844**	**5.0000e-005**	**0.0000**	**2.4856**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0729					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1400e-003	0.0235	0.0183	3.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.0740**	**0.0235**	**0.0183**	**3.0000e-005**		**9.5000e-004**	**9.5000e-004**		**9.5000e-004**	**9.5000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0700e-003	7.0000e-004	7.7400e-003	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.4844	2.4844	5.0000e-005	0.0000	2.4856
Total	**1.0700e-003**	**7.0000e-004**	**7.7400e-003**	**3.0000e-005**	**3.1700e-003**	**2.0000e-005**	**3.1900e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.4844**	**2.4844**	**5.0000e-005**	**0.0000**	**2.4856**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.3700e-003	0.0234	0.0668	2.6000e-004	0.0253	2.0000e-004	0.0255	6.7700e-003	1.9000e-004	6.9600e-003	0.0000	24.0550	24.0550	7.5000e-004	0.0000	24.0738
Unmitigated	5.3700e-003	0.0234	0.0668	2.6000e-004	0.0253	2.0000e-004	0.0255	6.7700e-003	1.9000e-004	6.9600e-003	0.0000	24.0550	24.0550	7.5000e-004	0.0000	24.0738

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	30.67	5.81	2.99	67,624	67,624
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	30.67	5.81	2.99	67,624	67,624

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.594233	0.036933	0.184882	0.116155	0.014918	0.004973	0.010771	0.025002	0.001640	0.001706	0.005301	0.002715	0.000771
Other Asphalt Surfaces	0.594233	0.036933	0.184882	0.116155	0.014918	0.004973	0.010771	0.025002	0.001640	0.001706	0.005301	0.002715	0.000771
Other Non-Asphalt Surfaces	0.594233	0.036933	0.184882	0.116155	0.014918	0.004973	0.010771	0.025002	0.001640	0.001706	0.005301	0.002715	0.000771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	7.7415	7.7415	3.5000e-004	7.0000e-005	7.7718
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	9.6769	9.6769	4.4000e-004	9.0000e-005	9.7148
NaturalGas Mitigated	5.9000e-004	5.3400e-003	4.4800e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	5.8113	5.8113	1.1000e-004	1.1000e-004	5.8459
NaturalGas Unmitigated	5.9000e-004	5.3400e-003	4.4800e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	5.8113	5.8113	1.1000e-004	1.1000e-004	5.8459

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	108900	5.9000e-004	5.3400e-003	4.4800e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	5.8113	5.8113	1.1000e-004	1.1000e-004	5.8459
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.9000e-004**	**5.3400e-003**	**4.4800e-003**	**3.0000e-005**		**4.1000e-004**	**4.1000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**5.8113**	**5.8113**	**1.1000e-004**	**1.1000e-004**	**5.8459**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	108900	5.9000e-004	5.3400e-003	4.4800e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	5.8113	5.8113	1.1000e-004	1.1000e-004	5.8459
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.9000e-004**	**5.3400e-003**	**4.4800e-003**	**3.0000e-005**		**4.1000e-004**	**4.1000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**5.8113**	**5.8113**	**1.1000e-004**	**1.1000e-004**	**5.8459**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	33264	9.6769	4.4000e-004	9.0000e-005	9.7148
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**9.6769**	**4.4000e-004**	**9.0000e-005**	**9.7148**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	26611.2	7.7415	3.5000e-004	7.0000e-005	7.7718
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**7.7415**	**3.5000e-004**	**7.0000e-005**	**7.7718**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0401	1.0000e-005	1.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8300e-003	2.8300e-003	1.0000e-005	0.0000	3.0200e-003
Unmitigated	0.0401	1.0000e-005	1.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8300e-003	2.8300e-003	1.0000e-005	0.0000	3.0200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0327					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8300e-003	2.8300e-003	1.0000e-005	0.0000	3.0200e-003
Total	**0.0401**	**1.0000e-005**	**1.4600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8300e-003**	**2.8300e-003**	**1.0000e-005**	**0.0000**	**3.0200e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.2900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0327					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.4600e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.8300e-003	2.8300e-003	1.0000e-005	0.0000	3.0200e-003
Total	**0.0401**	**1.0000e-005**	**1.4600e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**2.8300e-003**	**2.8300e-003**	**1.0000e-005**	**0.0000**	**3.0200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.9245	0.0332	8.0000e-004	2.9929
Unmitigated	1.9245	0.0332	8.0000e-004	2.9929

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	1.0175 / 0	1.9245	0.0332	8.0000e-004	2.9929
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.9245**	**0.0332**	**8.0000e-004**	**2.9929**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	1.0175 / 0	1.9245	0.0332	8.0000e-004	2.9929
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.9245**	**0.0332**	**8.0000e-004**	**2.9929**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.1083	0.0655	0.0000	2.7458
Unmitigated	1.1083	0.0655	0.0000	2.7458

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	5.46	1.1083	0.0655	0.0000	2.7458
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**1.1083**	**0.0655**	**0.0000**	**2.7458**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	5.46	1.1083	0.0655	0.0000	2.7458
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**1.1083**	**0.0655**	**0.0000**	**2.7458**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

West County Wastewater District Energy Project

Contra Costa County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	4.40	1000sqft	0.10	4,400.00	0
Other Asphalt Surfaces	2.00	Acre	2.00	87,120.00	0
Other Non-Asphalt Surfaces	152.22	1000sqft	3.49	152,215.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - WQRRP new infrastructure 4,400 sf. PV array: Atlas Pump Sta 4,000 sf, WCW HQ 2,015 sf, Lakeside Pump Sta. 7,200 sf, Tara Hills Pump Sta. 24,000 sf, WQRRP 115,000 sf. Conservative estimate of 2-ac of paved surfaces.

Construction Phase - Anticipated construction duration of 48 months.

Off-road Equipment -

Off-road Equipment - Concrete and Motar Mixer added per provided construction equipment list.

Off-road Equipment -

Off-road Equipment - Drilling Rigs added per provided construction equipment list.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Conservative approach of approx. 40 construction workers on-site each day. Building construction trips left default.

Demolition - Conservative estimate of demolition material being removed (100 tons).

Grading -

Vehicle Trips -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating -

Construction Off-road Equipment Mitigation - All off-road equipment over 50 HP will utilize EPA Tier 2 engines. Water exposed area at least three times daily.

Energy Mitigation - Conservative estimate of 20% reduction from implementation of PV array across all WCW project sites.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	230.00	400.00
tblConstructionPhase	NumDays	10.00	40.00
tblLandUse	LandUseSquareFeet	152,220.00	152,215.00
tblOffRoadEquipment	LoadFactor	0.50	0.50

tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblTripsAndVMT	WorkerTripNumber	18.00	40.00
tblTripsAndVMT	WorkerTripNumber	18.00	40.00
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblTripsAndVMT	WorkerTripNumber	20.00	40.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.0225	40.5746	22.6182	0.0468	18.3949	2.0465	20.4414	10.0178	1.8828	11.9006	0.0000	4,578.6525	4,578.6525	1.2326	0.0000	4,595.9217
2022	2.2024	20.0286	20.0041	0.0464	1.1087	0.8364	1.9451	0.3002	0.7878	1.0880	0.0000	4,538.2089	4,538.2089	0.6822	0.0000	4,555.2631
2023	7.5940	17.8627	19.6011	0.0458	1.1087	0.7226	1.8312	0.3002	0.6807	0.9809	0.0000	4,476.3974	4,476.3974	0.7199	0.0000	4,493.0950
Maximum	**7.5940**	**40.5746**	**22.6182**	**0.0468**	**18.3949**	**2.0465**	**20.4414**	**10.0178**	**1.8828**	**11.9006**	**0.0000**	**4,578.6525**	**4,578.6525**	**1.2326**	**0.0000**	**4,595.9217**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.7482	34.4850	25.7271	0.0468	7.3744	0.9482	8.3227	3.9601	0.9481	4.9082	0.0000	4,578.6525	4,578.6525	1.2326	0.0000	4,595.9217
2022	1.6892	27.3717	21.4050	0.0464	1.1087	0.8783	1.9869	0.3002	0.8775	1.1777	0.0000	4,538.2089	4,538.2089	0.6822	0.0000	4,555.2631
2023	7.5162	26.3943	21.1036	0.0458	1.1087	0.8650	1.9736	0.3002	0.8644	1.1646	0.0000	4,476.3974	4,476.3974	0.7199	0.0000	4,493.0950
Maximum	**7.5162**	**34.4850**	**25.7271**	**0.0468**	**7.3744**	**0.9482**	**8.3227**	**3.9601**	**0.9481**	**4.9082**	**0.0000**	**4,578.6525**	**4,578.6525**	**1.2326**	**0.0000**	**4,595.9217**

West County Wastewater District Energy Project - Contra Costa County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**20.73**	**-12.47**	**-9.66**	**0.00**	**53.47**	**25.35**	**49.28**	**57.05**	**19.73**	**48.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2204	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370
Energy	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093
Mobile	0.0464	0.1647	0.5249	2.0400e-003	0.1901	1.4600e-003	0.1916	0.0509	1.3600e-003	0.0522		206.4637	206.4637	6.1600e-003		206.6178
Total	**0.2700**	**0.1941**	**0.5657**	**2.2200e-003**	**0.1901**	**3.7400e-003**	**0.1939**	**0.0509**	**3.6400e-003**	**0.0545**		**241.5992**	**241.5992**	**6.9200e-003**	**6.4000e-004**	**241.9641**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2204	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370
Energy	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093
Mobile	0.0464	0.1647	0.5249	2.0400e-003	0.1901	1.4600e-003	0.1916	0.0509	1.3600e-003	0.0522		206.4637	206.4637	6.1600e-003		206.6178
Total	**0.2700**	**0.1941**	**0.5657**	**2.2200e-003**	**0.1901**	**3.7400e-003**	**0.1939**	**0.0509**	**3.6400e-003**	**0.0545**		**241.5992**	**241.5992**	**6.9200e-003**	**6.4000e-004**	**241.9641**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2021	6/28/2021	5	20	
2	Site Preparation	Site Preparation	6/29/2021	8/23/2021	5	40	
3	Grading	Grading	8/24/2021	9/20/2021	5	20	
4	Building Construction	Building Construction	9/21/2021	4/3/2023	5	400	
5	Paving	Paving	4/4/2023	5/1/2023	5	20	
6	Architectural Coating	Architectural Coating	5/2/2023	5/29/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 5.49

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 6,600; Non-Residential Outdoor: 2,200; Striped Parking Area: 14,360 (Architectural Coating – sqft)

OffRoad Equipment

West County Wastewater District Energy Project - Contra Costa County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Grading	Bore/Drill Rigs	1	8.00	221	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	40.00	0.00	10.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	10	102.00	40.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1070	0.0000	0.1070	0.0162	0.0000	0.0162			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.1070**	**1.5513**	**1.6583**	**0.0162**	**1.4411**	**1.4573**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.8400e-003	0.1314	0.0257	3.9000e-004	8.7300e-003	4.2000e-004	9.1500e-003	2.3900e-003	4.0000e-004	2.7900e-003		41.5782	41.5782	1.7600e-003		41.6223
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1343	0.0775	1.0276	3.2400e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		322.5748	322.5748	7.3200e-003		322.7577
Total	**0.1382**	**0.2089**	**1.0532**	**3.6300e-003**	**0.3373**	**2.4800e-003**	**0.3398**	**0.0896**	**2.3000e-003**	**0.0919**		**364.1530**	**364.1530**	**9.0800e-003**		**364.3801**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0417	0.0000	0.0417	6.3200e-003	0.0000	6.3200e-003			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**1.2617**	**32.6638**	**24.6739**	**0.0388**	**0.0417**	**0.9135**	**0.9553**	**6.3200e-003**	**0.9135**	**0.9199**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.8400e-003	0.1314	0.0257	3.9000e-004	8.7300e-003	4.2000e-004	9.1500e-003	2.3900e-003	4.0000e-004	2.7900e-003		41.5782	41.5782	1.7600e-003		41.6223
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1343	0.0775	1.0276	3.2400e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		322.5748	322.5748	7.3200e-003		322.7577
Total	**0.1382**	**0.2089**	**1.0532**	**3.6300e-003**	**0.3373**	**2.4800e-003**	**0.3398**	**0.0896**	**2.3000e-003**	**0.0919**		**364.1530**	**364.1530**	**9.0800e-003**		**364.3801**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1343	0.0775	1.0276	3.2400e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		322.5748	322.5748	7.3200e-003		322.7577
Total	**0.1343**	**0.0775**	**1.0276**	**3.2400e-003**	**0.3286**	**2.0600e-003**	**0.3307**	**0.0872**	**1.9000e-003**	**0.0891**		**322.5748**	**322.5748**	**7.3200e-003**		**322.7577**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**1.2097**	**33.7214**	**22.9600**	**0.0380**	**7.0458**	**0.9462**	**7.9920**	**3.8730**	**0.9462**	**4.8191**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1343	0.0775	1.0276	3.2400e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		322.5748	322.5748	7.3200e-003		322.7577
Total	**0.1343**	**0.0775**	**1.0276**	**3.2400e-003**	**0.3286**	**2.0600e-003**	**0.3307**	**0.0872**	**1.9000e-003**	**0.0891**		**322.5748**	**322.5748**	**7.3200e-003**		**322.7577**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.5498	27.7746	17.9418	0.0391		1.2520	1.2520		1.1518	1.1518		3,788.5512	3,788.5512	1.2253		3,819.1836
Total	**2.5498**	**27.7746**	**17.9418**	**0.0391**	**6.5523**	**1.2520**	**7.8043**	**3.3675**	**1.1518**	**4.5193**		**3,788.5512**	**3,788.5512**	**1.2253**		**3,819.1836**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1343	0.0775	1.0276	3.2400e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		322.5748	322.5748	7.3200e-003		322.7577
Total	**0.1343**	**0.0775**	**1.0276**	**3.2400e-003**	**0.3286**	**2.0600e-003**	**0.3307**	**0.0872**	**1.9000e-003**	**0.0891**		**322.5748**	**322.5748**	**7.3200e-003**		**322.7577**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	1.2444	34.4074	24.0830	0.0391		0.9448	0.9448		0.9448	0.9448	0.0000	3,788.5512	3,788.5512	1.2253		3,819.1836
Total	**1.2444**	**34.4074**	**24.0830**	**0.0391**	**2.5554**	**0.9448**	**3.5003**	**1.3133**	**0.9448**	**2.2582**	**0.0000**	**3,788.5512**	**3,788.5512**	**1.2253**		**3,819.1836**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1343	0.0775	1.0276	3.2400e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		322.5748	322.5748	7.3200e-003		322.7577
Total	**0.1343**	**0.0775**	**1.0276**	**3.2400e-003**	**0.3286**	**2.0600e-003**	**0.3307**	**0.0872**	**1.9000e-003**	**0.0891**		**322.5748**	**322.5748**	**7.3200e-003**		**322.7577**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9597	17.8003	16.8836	0.0276		0.9729	0.9729		0.9156	0.9156		2,603.8802	2,603.8802	0.6213		2,619.4117
Total	**1.9597**	**17.8003**	**16.8836**	**0.0276**		**0.9729**	**0.9729**		**0.9156**	**0.9156**		**2,603.8802**	**2,603.8802**	**0.6213**		**2,619.4117**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1280	4.0916	0.9798	0.0109	0.2707	9.1400e-003	0.2799	0.0779	8.7400e-003	0.0867		1,152.2065	1,152.2065	0.0509		1,153.4778
Worker	0.3425	0.1977	2.6203	8.2500e-003	0.8379	5.2600e-003	0.8432	0.2223	4.8400e-003	0.2271		822.5657	822.5657	0.0187		823.0322
Total	**0.4705**	**4.2893**	**3.6000**	**0.0192**	**1.1087**	**0.0144**	**1.1230**	**0.3002**	**0.0136**	**0.3138**		**1,974.7722**	**1,974.7722**	**0.0695**		**1,976.5100**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2777	23.3730	18.0957	0.0276		0.8754	0.8754		0.8754	0.8754	0.0000	2,603.8802	2,603.8802	0.6213		2,619.4117
Total	**1.2777**	**23.3730**	**18.0957**	**0.0276**		**0.8754**	**0.8754**		**0.8754**	**0.8754**	**0.0000**	**2,603.8802**	**2,603.8802**	**0.6213**		**2,619.4117**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1280	4.0916	0.9798	0.0109	0.2707	9.1400e-003	0.2799	0.0779	8.7400e-003	0.0867		1,152.2065	1,152.2065	0.0509		1,153.4778
Worker	0.3425	0.1977	2.6203	8.2500e-003	0.8379	5.2600e-003	0.8432	0.2223	4.8400e-003	0.2271		822.5657	822.5657	0.0187		823.0322
Total	**0.4705**	**4.2893**	**3.6000**	**0.0192**	**1.1087**	**0.0144**	**1.1230**	**0.3002**	**0.0136**	**0.3138**		**1,974.7722**	**1,974.7722**	**0.0695**		**1,976.5100**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7650	15.9838	16.6719	0.0276		0.8233	0.8233		0.7755	0.7755		2,604.8499	2,604.8499	0.6172		2,620.2796
Total	**1.7650**	**15.9838**	**16.6719**	**0.0276**		**0.8233**	**0.8233**		**0.7755**	**0.7755**		**2,604.8499**	**2,604.8499**	**0.6172**		**2,620.2796**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1194	3.8675	0.9187	0.0108	0.2708	7.9300e-003	0.2787	0.0779	7.5800e-003	0.0855		1,141.3633	1,141.3633	0.0482		1,142.5689
Worker	0.3181	0.1773	2.4135	7.9400e-003	0.8379	5.1300e-003	0.8430	0.2223	4.7300e-003	0.2270		791.9958	791.9958	0.0168		792.4145
Total	**0.4374**	**4.0448**	**3.3322**	**0.0188**	**1.1087**	**0.0131**	**1.1217**	**0.3002**	**0.0123**	**0.3125**		**1,933.3590**	**1,933.3590**	**0.0650**		**1,934.9835**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2517	23.3270	18.0727	0.0276		0.8652	0.8652		0.8652	0.8652	0.0000	2,604.8499	2,604.8499	0.6172		2,620.2796
Total	**1.2517**	**23.3270**	**18.0727**	**0.0276**		**0.8652**	**0.8652**		**0.8652**	**0.8652**	**0.0000**	**2,604.8499**	**2,604.8499**	**0.6172**		**2,620.2796**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1194	3.8675	0.9187	0.0108	0.2708	7.9300e-003	0.2787	0.0779	7.5800e-003	0.0855		1,141.3633	1,141.3633	0.0482		1,142.5689
Worker	0.3181	0.1773	2.4135	7.9400e-003	0.8379	5.1300e-003	0.8430	0.2223	4.7300e-003	0.2270		791.9958	791.9958	0.0168		792.4145
Total	**0.4374**	**4.0448**	**3.3322**	**0.0188**	**1.1087**	**0.0131**	**1.1217**	**0.3002**	**0.0123**	**0.3125**		**1,933.3590**	**1,933.3590**	**0.0650**		**1,934.9835**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6315	14.7531	16.5524	0.0277		0.7140	0.7140		0.6727	0.6727		2,605.7262	2,605.7262	0.6131		2,621.0535
Total	**1.6315**	**14.7531**	**16.5524**	**0.0277**		**0.7140**	**0.7140**		**0.6727**	**0.6727**		**2,605.7262**	**2,605.7262**	**0.6131**		**2,621.0535**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0900	2.9504	0.8232	0.0105	0.2708	3.4900e-003	0.2743	0.0779	3.3300e-003	0.0813		1,109.4725	1,109.4725	0.0398		1,110.4671
Worker	0.2960	0.1593	2.2255	7.6300e-003	0.8379	5.0300e-003	0.8429	0.2223	4.6300e-003	0.2269		761.1987	761.1987	0.0150		761.5745
Total	**0.3861**	**3.1097**	**3.0488**	**0.0181**	**1.1087**	**8.5200e-003**	**1.1172**	**0.3002**	**7.9600e-003**	**0.3082**		**1,870.6712**	**1,870.6712**	**0.0548**		**1,872.0416**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2295	23.2846	18.0549	0.0277		0.8565	0.8565		0.8565	0.8565	0.0000	2,605.7262	2,605.7262	0.6131		2,621.0535
Total	**1.2295**	**23.2846**	**18.0549**	**0.0277**		**0.8565**	**0.8565**		**0.8565**	**0.8565**	**0.0000**	**2,605.7262**	**2,605.7262**	**0.6131**		**2,621.0535**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0900	2.9504	0.8232	0.0105	0.2708	3.4900e-003	0.2743	0.0779	3.3300e-003	0.0813		1,109.4725	1,109.4725	0.0398		1,110.4671
Worker	0.2960	0.1593	2.2255	7.6300e-003	0.8379	5.0300e-003	0.8429	0.2223	4.6300e-003	0.2269		761.1987	761.1987	0.0150		761.5745
Total	**0.3861**	**3.1097**	**3.0488**	**0.0181**	**1.1087**	**8.5200e-003**	**1.1172**	**0.3002**	**7.9600e-003**	**0.3082**		**1,870.6712**	**1,870.6712**	**0.0548**		**1,872.0416**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2620					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2947**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1161	0.0625	0.8728	2.9900e-003	0.3286	1.9700e-003	0.3306	0.0872	1.8100e-003	0.0890		298.5093	298.5093	5.8900e-003		298.6567
Total	**0.1161**	**0.0625**	**0.8728**	**2.9900e-003**	**0.3286**	**1.9700e-003**	**0.3306**	**0.0872**	**1.8100e-003**	**0.0890**		**298.5093**	**298.5093**	**5.8900e-003**		**298.6567**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2620					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1931**	**20.1146**	**17.2957**	**0.0228**		**0.6670**	**0.6670**		**0.6670**	**0.6670**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1161	0.0625	0.8728	2.9900e-003	0.3286	1.9700e-003	0.3306	0.0872	1.8100e-003	0.0890		298.5093	298.5093	5.8900e-003		298.6567
Total	**0.1161**	**0.0625**	**0.8728**	**2.9900e-003**	**0.3286**	**1.9700e-003**	**0.3306**	**0.0872**	**1.8100e-003**	**0.0890**		**298.5093**	**298.5093**	**5.8900e-003**		**298.6567**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.2862					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**7.4779**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1161	0.0625	0.8728	2.9900e-003	0.3286	1.9700e-003	0.3306	0.0872	1.8100e-003	0.0890		298.5093	298.5093	5.8900e-003		298.6567
Total	**0.1161**	**0.0625**	**0.8728**	**2.9900e-003**	**0.3286**	**1.9700e-003**	**0.3306**	**0.0872**	**1.8100e-003**	**0.0890**		**298.5093**	**298.5093**	**5.8900e-003**		**298.6567**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.2862					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**7.4001**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1161	0.0625	0.8728	2.9900e-003	0.3286	1.9700e-003	0.3306	0.0872	1.8100e-003	0.0890		298.5093	298.5093	5.8900e-003		298.6567
Total	**0.1161**	**0.0625**	**0.8728**	**2.9900e-003**	**0.3286**	**1.9700e-003**	**0.3306**	**0.0872**	**1.8100e-003**	**0.0890**		**298.5093**	**298.5093**	**5.8900e-003**		**298.6567**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0464	0.1647	0.5249	2.0400e-003	0.1901	1.4600e-003	0.1916	0.0509	1.3600e-003	0.0522		206.4637	206.4637	6.1600e-003		206.6178
Unmitigated	0.0464	0.1647	0.5249	2.0400e-003	0.1901	1.4600e-003	0.1916	0.0509	1.3600e-003	0.0522		206.4637	206.4637	6.1600e-003		206.6178

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	30.67	5.81	2.99	67,624	67,624
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	30.67	5.81	2.99	67,624	67,624

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.594233	0.036933	0.184882	0.116155	0.014918	0.004973	0.010771	0.025002	0.001640	0.001706	0.005301	0.002715	0.000771
Other Asphalt Surfaces	0.594233	0.036933	0.184882	0.116155	0.014918	0.004973	0.010771	0.025002	0.001640	0.001706	0.005301	0.002715	0.000771
Other Non-Asphalt Surfaces	0.594233	0.036933	0.184882	0.116155	0.014918	0.004973	0.010771	0.025002	0.001640	0.001706	0.005301	0.002715	0.000771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093
NaturalGas Unmitigated	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	298.356	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.2200e-003**	**0.0293**	**0.0246**	**1.8000e-004**		**2.2200e-003**	**2.2200e-003**		**2.2200e-003**	**2.2200e-003**		**35.1007**	**35.1007**	**6.7000e-004**	**6.4000e-004**	**35.3093**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.298356	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.2200e-003**	**0.0293**	**0.0246**	**1.8000e-004**		**2.2200e-003**	**2.2200e-003**		**2.2200e-003**	**2.2200e-003**		**35.1007**	**35.1007**	**6.7000e-004**	**6.4000e-004**	**35.3093**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2204	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370
Unmitigated	0.2204	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0399					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4900e-003	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370
Total	**0.2203**	**1.5000e-004**	**0.0162**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0347**	**0.0347**	**9.0000e-005**		**0.0370**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0399					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4900e-003	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370
Total	**0.2203**	**1.5000e-004**	**0.0162**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0347**	**0.0347**	**9.0000e-005**		**0.0370**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

West County Wastewater District Energy Project

Contra Costa County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	4.40	1000sqft	0.10	4,400.00	0
Other Asphalt Surfaces	2.00	Acre	2.00	87,120.00	0
Other Non-Asphalt Surfaces	152.22	1000sqft	3.49	152,215.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - WQRRP new infrastructure 4,400 sf. PV array: Atlas Pump Sta 4,000 sf, WCW HQ 2,015 sf, Lakeside Pump Sta. 7,200 sf, Tara Hills Pump Sta. 24,000 sf, WQRRP 115,000 sf. Conservative estimate of 2-ac of paved surfaces.

Construction Phase - Anticipated construction duration of 48 months.

Off-road Equipment -

Off-road Equipment - Concrete and Motar Mixer added per provided construction equipment list.

Off-road Equipment -

Off-road Equipment - Drilling Rigs added per provided construction equipment list.

Off-road Equipment -

Off-road Equipment -

Trips and VMT - Conservative approach of approx. 40 construction workers on-site each day. Building construction trips left default.

Demolition - Conservative estimate of demolition material being removed (100 tons).

Grading -

Vehicle Trips -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating -

Construction Off-road Equipment Mitigation - All off-road equipment over 50 HP will utilize EPA Tier 2 engines. Water exposed area at least three times daily.

Energy Mitigation - Conservative estimate of 20% reduction from implementation of PV array across all WCW project sites.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	230.00	400.00
tblConstructionPhase	NumDays	10.00	40.00
tblLandUse	LandUseSquareFeet	152,220.00	152,215.00
tblOffRoadEquipment	LoadFactor	0.50	0.50

tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblTripsAndVMT	WorkerTripNumber	18.00	40.00
tblTripsAndVMT	WorkerTripNumber	18.00	40.00
tblTripsAndVMT	WorkerTripNumber	15.00	40.00
tblTripsAndVMT	WorkerTripNumber	20.00	40.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.0244	40.5927	22.5307	0.0458	18.3949	2.0465	20.4414	10.0178	1.8828	11.9006	0.0000	4,471.8564	4,471.8564	1.2320	0.0000	4,489.2040
2022	2.2147	20.0984	19.9282	0.0454	1.1087	0.8367	1.9453	0.3002	0.7880	1.0882	0.0000	4,434.4187	4,434.4187	0.6852	0.0000	4,451.5475
2023	7.5961	17.9138	19.5065	0.0448	1.1087	0.7227	1.8314	0.3002	0.6808	0.9810	0.0000	4,376.6346	4,376.6346	0.7194	0.0000	4,393.3832
Maximum	**7.5961**	**40.5927**	**22.5307**	**0.0458**	**18.3949**	**2.0465**	**20.4414**	**10.0178**	**1.8828**	**11.9006**	**0.0000**	**4,471.8564**	**4,471.8564**	**1.2320**	**0.0000**	**4,489.2040**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.7607	34.5030	25.6395	0.0458	7.3744	0.9482	8.3227	3.9601	0.9481	4.9082	0.0000	4,471.8564	4,471.8564	1.2320	0.0000	4,489.2040
2022	1.7014	27.4415	21.3291	0.0454	1.1087	0.8786	1.9872	0.3002	0.8778	1.1780	0.0000	4,434.4187	4,434.4187	0.6852	0.0000	4,451.5475
2023	7.5183	26.4453	21.0090	0.0448	1.1087	0.8651	1.9738	0.3002	0.8646	1.1648	0.0000	4,376.6346	4,376.6346	0.7194	0.0000	4,393.3832
Maximum	**7.5183**	**34.5030**	**25.6395**	**0.0458**	**7.3744**	**0.9482**	**8.3227**	**3.9601**	**0.9481**	**4.9082**	**0.0000**	**4,471.8564**	**4,471.8564**	**1.2320**	**0.0000**	**4,489.2040**

West County Wastewater District Energy Project - Contra Costa County, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**20.63**	**-12.45**	**-9.70**	**0.00**	**53.47**	**25.35**	**49.28**	**57.05**	**19.73**	**48.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2204	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370
Energy	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093
Mobile	0.0381	0.1742	0.5049	1.8900e-003	0.1901	1.4700e-003	0.1916	0.0509	1.3700e-003	0.0522		190.7341	190.7341	6.1700e-003		190.8883
Total	**0.2617**	**0.2036**	**0.5456**	**2.0700e-003**	**0.1901**	**3.7500e-003**	**0.1939**	**0.0509**	**3.6500e-003**	**0.0545**		**225.8695**	**225.8695**	**6.9300e-003**	**6.4000e-004**	**226.2346**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2204	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370
Energy	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093
Mobile	0.0381	0.1742	0.5049	1.8900e-003	0.1901	1.4700e-003	0.1916	0.0509	1.3700e-003	0.0522		190.7341	190.7341	6.1700e-003		190.8883
Total	**0.2617**	**0.2036**	**0.5456**	**2.0700e-003**	**0.1901**	**3.7500e-003**	**0.1939**	**0.0509**	**3.6500e-003**	**0.0545**		**225.8695**	**225.8695**	**6.9300e-003**	**6.4000e-004**	**226.2346**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2021	6/28/2021	5	20	
2	Site Preparation	Site Preparation	6/29/2021	8/23/2021	5	40	
3	Grading	Grading	8/24/2021	9/20/2021	5	20	
4	Building Construction	Building Construction	9/21/2021	4/3/2023	5	400	
5	Paving	Paving	4/4/2023	5/1/2023	5	20	
6	Architectural Coating	Architectural Coating	5/2/2023	5/29/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 5.49

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 6,600; Non-Residential Outdoor: 2,200; Striped Parking Area: 14,360 (Architectural Coating – sqft)

OffRoad Equipment

West County Wastewater District Energy Project - Contra Costa County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cement and Mortar Mixers	1	8.00	9	0.56
Grading	Bore/Drill Rigs	1	8.00	221	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	40.00	0.00	10.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	10	102.00	40.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1070	0.0000	0.1070	0.0162	0.0000	0.0162			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.1070**	**1.5513**	**1.6583**	**0.0162**	**1.4411**	**1.4573**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.9500e-003	0.1343	0.0277	3.8000e-004	8.7300e-003	4.3000e-004	9.1600e-003	2.3900e-003	4.1000e-004	2.8000e-003		40.8621	40.8621	1.8700e-003		40.9089
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1362	0.0956	0.9379	2.9300e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		292.2622	292.2622	6.7100e-003		292.4299
Total	**0.1402**	**0.2299**	**0.9657**	**3.3100e-003**	**0.3373**	**2.4900e-003**	**0.3398**	**0.0896**	**2.3100e-003**	**0.0919**		**333.1243**	**333.1243**	**8.5800e-003**		**333.3388**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0417	0.0000	0.0417	6.3200e-003	0.0000	6.3200e-003			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**1.2617**	**32.6638**	**24.6739**	**0.0388**	**0.0417**	**0.9135**	**0.9553**	**6.3200e-003**	**0.9135**	**0.9199**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.9500e-003	0.1343	0.0277	3.8000e-004	8.7300e-003	4.3000e-004	9.1600e-003	2.3900e-003	4.1000e-004	2.8000e-003		40.8621	40.8621	1.8700e-003		40.9089
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1362	0.0956	0.9379	2.9300e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		292.2622	292.2622	6.7100e-003		292.4299
Total	**0.1402**	**0.2299**	**0.9657**	**3.3100e-003**	**0.3373**	**2.4900e-003**	**0.3398**	**0.0896**	**2.3100e-003**	**0.0919**		**333.1243**	**333.1243**	**8.5800e-003**		**333.3388**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1362	0.0956	0.9379	2.9300e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		292.2622	292.2622	6.7100e-003		292.4299
Total	**0.1362**	**0.0956**	**0.9379**	**2.9300e-003**	**0.3286**	**2.0600e-003**	**0.3307**	**0.0872**	**1.9000e-003**	**0.0891**		**292.2622**	**292.2622**	**6.7100e-003**		**292.4299**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**1.2097**	**33.7214**	**22.9600**	**0.0380**	**7.0458**	**0.9462**	**7.9920**	**3.8730**	**0.9462**	**4.8191**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1362	0.0956	0.9379	2.9300e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		292.2622	292.2622	6.7100e-003		292.4299
Total	**0.1362**	**0.0956**	**0.9379**	**2.9300e-003**	**0.3286**	**2.0600e-003**	**0.3307**	**0.0872**	**1.9000e-003**	**0.0891**		**292.2622**	**292.2622**	**6.7100e-003**		**292.4299**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	2.5498	27.7746	17.9418	0.0391		1.2520	1.2520		1.1518	1.1518		3,788.5512	3,788.5512	1.2253		3,819.1836
Total	**2.5498**	**27.7746**	**17.9418**	**0.0391**	**6.5523**	**1.2520**	**7.8043**	**3.3675**	**1.1518**	**4.5193**		**3,788.5512**	**3,788.5512**	**1.2253**		**3,819.1836**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1362	0.0956	0.9379	2.9300e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		292.2622	292.2622	6.7100e-003		292.4299
Total	**0.1362**	**0.0956**	**0.9379**	**2.9300e-003**	**0.3286**	**2.0600e-003**	**0.3307**	**0.0872**	**1.9000e-003**	**0.0891**		**292.2622**	**292.2622**	**6.7100e-003**		**292.4299**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	1.2444	34.4074	24.0830	0.0391		0.9448	0.9448		0.9448	0.9448	0.0000	3,788.5512	3,788.5512	1.2253		3,819.1836
Total	**1.2444**	**34.4074**	**24.0830**	**0.0391**	**2.5554**	**0.9448**	**3.5003**	**1.3133**	**0.9448**	**2.2582**	**0.0000**	**3,788.5512**	**3,788.5512**	**1.2253**		**3,819.1836**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1362	0.0956	0.9379	2.9300e-003	0.3286	2.0600e-003	0.3307	0.0872	1.9000e-003	0.0891		292.2622	292.2622	6.7100e-003		292.4299
Total	**0.1362**	**0.0956**	**0.9379**	**2.9300e-003**	**0.3286**	**2.0600e-003**	**0.3307**	**0.0872**	**1.9000e-003**	**0.0891**		**292.2622**	**292.2622**	**6.7100e-003**		**292.4299**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9597	17.8003	16.8836	0.0276		0.9729	0.9729		0.9156	0.9156		2,603.8802	2,603.8802	0.6213		2,619.4117
Total	**1.9597**	**17.8003**	**16.8836**	**0.0276**		**0.9729**	**0.9729**		**0.9156**	**0.9156**		**2,603.8802**	**2,603.8802**	**0.6213**		**2,619.4117**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1357	4.1263	1.1328	0.0107	0.2707	9.4500e-003	0.2802	0.0779	9.0400e-003	0.0870		1,122.7075	1,122.7075	0.0555		1,124.0960
Worker	0.3473	0.2437	2.3917	7.4800e-003	0.8379	5.2600e-003	0.8432	0.2223	4.8400e-003	0.2271		745.2687	745.2687	0.0171		745.6963
Total	**0.4830**	**4.3701**	**3.5246**	**0.0181**	**1.1087**	**0.0147**	**1.1234**	**0.3002**	**0.0139**	**0.3141**		**1,867.9761**	**1,867.9761**	**0.0727**		**1,869.7923**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2777	23.3730	18.0957	0.0276		0.8754	0.8754		0.8754	0.8754	0.0000	2,603.8802	2,603.8802	0.6213		2,619.4117
Total	**1.2777**	**23.3730**	**18.0957**	**0.0276**		**0.8754**	**0.8754**		**0.8754**	**0.8754**	**0.0000**	**2,603.8802**	**2,603.8802**	**0.6213**		**2,619.4117**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1357	4.1263	1.1328	0.0107	0.2707	9.4500e-003	0.2802	0.0779	9.0400e-003	0.0870		1,122.7075	1,122.7075	0.0555		1,124.0960
Worker	0.3473	0.2437	2.3917	7.4800e-003	0.8379	5.2600e-003	0.8432	0.2223	4.8400e-003	0.2271		745.2687	745.2687	0.0171		745.6963
Total	**0.4830**	**4.3701**	**3.5246**	**0.0181**	**1.1087**	**0.0147**	**1.1234**	**0.3002**	**0.0139**	**0.3141**		**1,867.9761**	**1,867.9761**	**0.0727**		**1,869.7923**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7650	15.9838	16.6719	0.0276		0.8233	0.8233		0.7755	0.7755		2,604.8499	2,604.8499	0.6172		2,620.2796
Total	**1.7650**	**15.9838**	**16.6719**	**0.0276**		**0.8233**	**0.8233**		**0.7755**	**0.7755**		**2,604.8499**	**2,604.8499**	**0.6172**		**2,620.2796**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1266	3.8962	1.0625	0.0105	0.2708	8.2100e-003	0.2790	0.0779	7.8500e-003	0.0858		1,111.9672	1,111.9672	0.0527		1,113.2834
Worker	0.3231	0.2184	2.1938	7.2000e-003	0.8379	5.1300e-003	0.8430	0.2223	4.7300e-003	0.2270		717.6016	717.6016	0.0153		717.9844
Total	**0.4497**	**4.1146**	**3.2563**	**0.0177**	**1.1087**	**0.0133**	**1.1220**	**0.3002**	**0.0126**	**0.3128**		**1,829.5688**	**1,829.5688**	**0.0680**		**1,831.2678**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2517	23.3270	18.0727	0.0276		0.8652	0.8652		0.8652	0.8652	0.0000	2,604.8499	2,604.8499	0.6172		2,620.2796
Total	**1.2517**	**23.3270**	**18.0727**	**0.0276**		**0.8652**	**0.8652**		**0.8652**	**0.8652**	**0.0000**	**2,604.8499**	**2,604.8499**	**0.6172**		**2,620.2796**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1266	3.8962	1.0625	0.0105	0.2708	8.2100e-003	0.2790	0.0779	7.8500e-003	0.0858		1,111.9672	1,111.9672	0.0527		1,113.2834
Worker	0.3231	0.2184	2.1938	7.2000e-003	0.8379	5.1300e-003	0.8430	0.2223	4.7300e-003	0.2270		717.6016	717.6016	0.0153		717.9844
Total	**0.4497**	**4.1146**	**3.2563**	**0.0177**	**1.1087**	**0.0133**	**1.1220**	**0.3002**	**0.0126**	**0.3128**		**1,829.5688**	**1,829.5688**	**0.0680**		**1,831.2678**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6315	14.7531	16.5524	0.0277		0.7140	0.7140		0.6727	0.6727		2,605.7262	2,605.7262	0.6131		2,621.0535
Total	**1.6315**	**14.7531**	**16.5524**	**0.0277**		**0.7140**	**0.7140**		**0.6727**	**0.6727**		**2,605.7262**	**2,605.7262**	**0.6131**		**2,621.0535**

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0958	2.9645	0.9399	0.0103	0.2708	3.6400e-003	0.2744	0.0779	3.4700e-003	0.0814		1,081.1798	1,081.1798	0.0432		1,082.2588
Worker	0.3014	0.1962	2.0143	6.9200e-003	0.8379	5.0300e-003	0.8429	0.2223	4.6300e-003	0.2269		689.7285	689.7285	0.0137		690.0709
Total	**0.3972**	**3.1607**	**2.9542**	**0.0172**	**1.1087**	**8.6700e-003**	**1.1173**	**0.3002**	**8.1000e-003**	**0.3083**		**1,770.9083**	**1,770.9083**	**0.0569**		**1,772.3297**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2295	23.2846	18.0549	0.0277		0.8565	0.8565		0.8565	0.8565	0.0000	2,605.7262	2,605.7262	0.6131		2,621.0535
Total	**1.2295**	**23.2846**	**18.0549**	**0.0277**		**0.8565**	**0.8565**		**0.8565**	**0.8565**	**0.0000**	**2,605.7262**	**2,605.7262**	**0.6131**		**2,621.0535**

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0958	2.9645	0.9399	0.0103	0.2708	3.6400e-003	0.2744	0.0779	3.4700e-003	0.0814		1,081.1798	1,081.1798	0.0432		1,082.2588
Worker	0.3014	0.1962	2.0143	6.9200e-003	0.8379	5.0300e-003	0.8429	0.2223	4.6300e-003	0.2269		689.7285	689.7285	0.0137		690.0709
Total	**0.3972**	**3.1607**	**2.9542**	**0.0172**	**1.1087**	**8.6700e-003**	**1.1173**	**0.3002**	**8.1000e-003**	**0.3083**		**1,770.9083**	**1,770.9083**	**0.0569**		**1,772.3297**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2620					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2947**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1182	0.0769	0.7899	2.7100e-003	0.3286	1.9700e-003	0.3306	0.0872	1.8100e-003	0.0890		270.4818	270.4818	5.3700e-003		270.6160
Total	**0.1182**	**0.0769**	**0.7899**	**2.7100e-003**	**0.3286**	**1.9700e-003**	**0.3306**	**0.0872**	**1.8100e-003**	**0.0890**		**270.4818**	**270.4818**	**5.3700e-003**		**270.6160**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.2620					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1931**	**20.1146**	**17.2957**	**0.0228**		**0.6670**	**0.6670**		**0.6670**	**0.6670**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1182	0.0769	0.7899	2.7100e-003	0.3286	1.9700e-003	0.3306	0.0872	1.8100e-003	0.0890		270.4818	270.4818	5.3700e-003		270.6160
Total	**0.1182**	**0.0769**	**0.7899**	**2.7100e-003**	**0.3286**	**1.9700e-003**	**0.3306**	**0.0872**	**1.8100e-003**	**0.0890**		**270.4818**	**270.4818**	**5.3700e-003**		**270.6160**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.2862					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**7.4779**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1182	0.0769	0.7899	2.7100e-003	0.3286	1.9700e-003	0.3306	0.0872	1.8100e-003	0.0890		270.4818	270.4818	5.3700e-003		270.6160
Total	**0.1182**	**0.0769**	**0.7899**	**2.7100e-003**	**0.3286**	**1.9700e-003**	**0.3306**	**0.0872**	**1.8100e-003**	**0.0890**		**270.4818**	**270.4818**	**5.3700e-003**		**270.6160**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.2862					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**7.4001**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1182	0.0769	0.7899	2.7100e-003	0.3286	1.9700e-003	0.3306	0.0872	1.8100e-003	0.0890		270.4818	270.4818	5.3700e-003		270.6160
Total	**0.1182**	**0.0769**	**0.7899**	**2.7100e-003**	**0.3286**	**1.9700e-003**	**0.3306**	**0.0872**	**1.8100e-003**	**0.0890**		**270.4818**	**270.4818**	**5.3700e-003**		**270.6160**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0381	0.1742	0.5049	1.8900e-003	0.1901	1.4700e-003	0.1916	0.0509	1.3700e-003	0.0522		190.7341	190.7341	6.1700e-003		190.8883
Unmitigated	0.0381	0.1742	0.5049	1.8900e-003	0.1901	1.4700e-003	0.1916	0.0509	1.3700e-003	0.0522		190.7341	190.7341	6.1700e-003		190.8883

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	30.67	5.81	2.99	67,624	67,624
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	30.67	5.81	2.99	67,624	67,624

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.594233	0.036933	0.184882	0.116155	0.014918	0.004973	0.010771	0.025002	0.001640	0.001706	0.005301	0.002715	0.000771
Other Asphalt Surfaces	0.594233	0.036933	0.184882	0.116155	0.014918	0.004973	0.010771	0.025002	0.001640	0.001706	0.005301	0.002715	0.000771
Other Non-Asphalt Surfaces	0.594233	0.036933	0.184882	0.116155	0.014918	0.004973	0.010771	0.025002	0.001640	0.001706	0.005301	0.002715	0.000771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093
NaturalGas Unmitigated	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	298.356	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.2200e-003**	**0.0293**	**0.0246**	**1.8000e-004**		**2.2200e-003**	**2.2200e-003**		**2.2200e-003**	**2.2200e-003**		**35.1007**	**35.1007**	**6.7000e-004**	**6.4000e-004**	**35.3093**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.298356	3.2200e-003	0.0293	0.0246	1.8000e-004		2.2200e-003	2.2200e-003		2.2200e-003	2.2200e-003		35.1007	35.1007	6.7000e-004	6.4000e-004	35.3093
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.2200e-003**	**0.0293**	**0.0246**	**1.8000e-004**		**2.2200e-003**	**2.2200e-003**		**2.2200e-003**	**2.2200e-003**		**35.1007**	**35.1007**	**6.7000e-004**	**6.4000e-004**	**35.3093**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2204	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370
Unmitigated	0.2204	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0399					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4900e-003	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370
Total	**0.2203**	**1.5000e-004**	**0.0162**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0347**	**0.0347**	**9.0000e-005**		**0.0370**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0399					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1789					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.4900e-003	1.5000e-004	0.0162	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005		0.0347	0.0347	9.0000e-005		0.0370
Total	**0.2203**	**1.5000e-004**	**0.0162**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**		**0.0347**	**0.0347**	**9.0000e-005**		**0.0370**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation